

**DEVELOPING A MEASURE OF COPING IN HIGH STRESS SECURITY
OCCUPATIONS: A STRESS MANAGEMENT MODEL APPROACH**

by

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DECLARATION

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17 March 2020

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DATE

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SUMMARY

DEVELOPING A MEASURE OF COPING IN HIGH STRESS SECURITY OCCUPATIONS: A STRESS MANAGEMENT MODEL APPROACH

by

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Orientation: Security personnel work in a high risk and consequently high stress environment. This may negatively affect their wellbeing. Owing to the high crime rate in South Africa, one of the continuous stressors security personnel experience might be fearing for their lives. If security personnel fail to use effective coping strategies they will remain stressed, and this may have a negative impact on them, and their organisation or community. Challenges such as work stress in the South African security industry have not been comprehensively researched or documented (Sibanyoni, 2014). Consequently, no South African questionnaire measuring coping with stress or a stress management model for dealing with stress in a security environment, could be found.

Research purpose: The general aim of the research was to develop a valid and reliable coping questionnaire and stress management model for high stress security occupations.

Research methodology: A questionnaire development process, as suggested by scientific literature, was followed. The process entailed (1) determining coping strategies by means of a literature review, (2) developing the coping questionnaire, (3) administering the questionnaire to the target population, and (4) statistical analysis. The stress management model was developed by combining the results of the confirmatory factor analysis (CFA) and canonical correlation analysis (CCA). The

development of the questionnaire was based on a sample of 381 active duty security personnel working in a high stress security environment in South Africa.

Main findings: The study resulted in the development of a psychometrically sound 39-item questionnaire. The following 12 empirically validated healthy and unhealthy coping strategies were identified: (1) social support, (2) group cohesion, (3) physical exercise, (4) relaxation, (5) social media addiction, (6) healthy sleeping habits, (7) healthy diet, (8) training, (9) humour, (10) religion, (11) avoidance, and (12) denial. CFA confirmed both the construct and content validity, and composite reliability. The questionnaire was found to be invariant, and could thus be applied to different groups in high stress security occupations. A stress management model indicating the interrelationship between personality and coping was also developed.

Contribution/value-add: The main contribution of this study was the development of a valid coping questionnaire and stress management model. By identifying the specific coping strategies, targeted stress management interventions could be developed. This could contribute to the overall wellness of security personnel working in high stress occupations, resulting in a healthy organisation and sound relationships with the community. Security organisations could also use the model during assessments to identify candidates with personality traits that would lead to healthier coping strategies, thereby selecting personnel that could better adapt to a security environment.

Keywords: security industry, VIP protection, cash-in-transit, armed response, security guard, stress, coping, personality, questionnaire development, invariance, canonical correlation

OPSOMMING

DIE ONTWIKKELING VAN 'N MAATSTAF VIR STRESHANTERING IN STRESVOLLE SEKURITEITSBEROEPE: 'N STRESBESTUURSMODEL

BENADERING

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Oriëntasie: Sekuriteitspersoneel werk in 'n hoë risiko en gevvolglik 'n stresvolle omgewing. Dit kan hulle welstand negatief beïnvloed. As gevolg van die hoë misdaadsyfer in Suid-Afrika kan een van die deurlopende stressors wat sekuriteitspersoneel ervaar 'n vrees vir hulle lewens wees. Indien sekuriteitspersoneel nie effektiewe streshantering strategieë gebruik nie, kan hulle voortdurend stres ervaar en dit kan 'n negatiewe impak op hulself, hulle organisasie of gemeenskap hê. Uitdagings soos beroepstres in die Suid-Afrikaanse sekuriteitsindustrie is nog nie deeglik nagevors of gedokumenteer nie (Sibanyoni, 2014). Gevolglik kon daar vir die sekuriteitsomgewing geen Suid-Afrikaanse vraelys wat streshantering meet of 'n stresbestuursmodel gevind word nie.

Doel van die navorsing: Die algemene doel van die navorsing was om vir stresvolle sekuriteitsberoep 'n geldige en betroubare streshanteringsvraelys en stresbestuursmodel te ontwikkel.

Navorsingsmetodologie: 'n Vraelys ontwikkelingsproses, soos deur wetenskaplike literatuur voorgestel, is gevolg. Die proses het die volgende behels: (1) die vasstel van die streshantering strategieë deur middel van 'n literatuuroorsig, (2) die ontwikkeling van die streshanteringsvraelys, (3) administrasie van die vraelys aan die teiken populasie en (4) statistiese analise. Die stresbestuursmodel is ontwikkel deur

die resultate van die bevestigende faktoranalise (BFA) en die kanoniese korrelasie analise te kombineer. Die ontwikkeling van die vraelys is gebaseer op 'n steekproef van 381 aktiewe diens sekuriteitspersoneel wat in Suid-Afrika in 'n stresvolle sekuriteitsomgewing werk.

Hoofbevindinge: Die studie het tot 'n psigometries betroubare 39-item vraelys geleid. Twaalf empiries gestaafde gesonde en ongesonde streshantering strategieë is geïdentifiseer naamlik: (1) sosiale ondersteuning, (2) groep kohesie, (3) fisiese oefening, (4) ontspanning, (5) sosiale media verslawing, (6) gesonde slaapgewoontes, (7) gesonde dieet, (8) opleiding, (9) humor, (10) godsdiens, (11) vermyding en (12) ontkenning. BFA het die konstruk- en inhoudsgeldigheid so wel as die saamgestelde betroubaarheid bevestig. Die vraelys is invariant en kan dus op verskillende groepe in hoë stres sekuriteitsberoep toegepas word. 'n Stresbestuursmodel wat die verwantskap tussen persoonlikheid en streshantering aandui is ook ontwikkel.

Bydrae/waardetoevoeging: Die belangrikste bydrae van hierdie studie was die ontwikkeling van 'n geldige streshanteringsvraelys en stresbestuursmodel. Deur die spesifieke streshantering strategieë te identifiseer kan gefokusde streshantering intervensies ontwikkel word. Dit kan tot die algehele welstand van sekuriteitspersoneel wat in stresvolle beroep werk bydra en derhalwe 'n gesonde organisasie en goeie verhoudings met die gemeenskap. Sekuriteitsorganisasies kan ook tydens keurings die model gebruik om kandidate met persoonlikheidstrekke, wat tot gesonder streshantering strategieë sal lei, te identifiseer en dus personeel kies wat beter by 'n sekuriteitsomgewing sal aanpas.

Sleutelwoorde: sekuriteitsindustrie, BBP-beskerming, geld-in-transito, gewapende reaksie, sekuriteitswag, stres, streshantering, persoonlikheid, vraelys ontwikkeling, invariansie, kanoniese korrelasie

IQOQA

UKWENZA ISU LOKUBHEKANA NESIMO SENGINDEZI EPHEZULU KWIMISEBENZI YEZOKUPHEPHA: INDLELA YEMODELI YOKUBHEKANA NOKUPHATHA INGCINDEZI

Ngu-

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Isimo somqondo: Abasebenzi bezokuphepha basebenza ezindaweni ezinobungozi obuphakeme nengcindezi ephakeme. Lokhu kungaba nomthelela omubi esimeni sabo sempilo. Ngenxa yezinga lobugebengu eliphezulu eNingizimu Afrika, okukodwa okudala ingcindezi ngokuqhube kayo kubasebenzi bezokuphepha ukwesabela izimpilo zabo. Uma abasebenzi bezokuphepha bengasebenzisi amasu aphumelelayo okubhekana nalezi zimo, bazohlala benengcindezi futhi lokhu kungaba nomphumela omubi kubona, enhlanganweni yabo noma emphakathini wabo. Ucwaningo ngezinselelo ezinjengokucindezeleka emsebenzini ezimbonini zokuphepha lapha eNingizimu Afrika alwenziwanga futhi akubhaliwe kabanzi ngakho (Sibanyoni, 2014). Kanjalo, alutholakalanga uhlui lwemibuzo lwaseNingizimu Afrika olungalinganisa ukuthi abasebenzi bezokuphepha babhekana kanjani nengcindezi kanye nomlinganiso olawula ingcindezi ukubhekana nengcindezi ezindaweni zezokuphepha.

Inhloso yocwaningo: Inhloso enkulu yocwaningo kwakuwukuqamba uhlui lwemibuzo oluqinisekile noluthembekile ukubhekana nengcindezi nomlinganiso wokulawula ingcindezi emsebenzini yezokuphepha enengcindezi ephakeme.

Indlela yokwenza ucwaningo: Isenzo sokuqamba uhlui lwemibuzo njengoba kuhlongozwa yimibhalo yezesayensi silandelwe kulolu cwaningo. Lesi senzo sibe (1) nokuthola amasu okubhekana nengcindezi ngokubhekisa emibhalweni ehloliwe, (2)

nokuqamba uhlu lwemibuzo ephathelene nokubhekana nengcindezi, (3) nokunikeza uhlu lwemibuzo kubantu abathintekayo, kanye (4) nokwenza uhlaziyo lwezibalo. Umlinganiso wokulawula ingcindezi wenziwe ngokuhlanganisa imiphumela yeConfirmatory Factor Analysis (CFA) neyeCanonical Correlation Analysis (CCA). Ukuqanjwa kohlu lwemibuzo kweyeme esampuleni labasebenzi bezokuphepha abangama-381 abamatasa emsebenzini abasebenza ezindaweni ezinengcindezi ephakeme eNingizimu Afrika.

Okukhulu okutholakele ocwaningweni: Ucwaningo lube nomphumela ekuqanjweni kohlu lwemibuzo oluqinisekile ngokwesayikhomethri olunemibuzo angama-39. Kukhonjwe amasu okubhekana nengcindezi ayishumi nambili aqinisekiswe ngokubukisiswa asesimeni esiphilile nesingaphilile sempilo, okubalwa kuwo, (1) uxhaso lomphakathi, (2) ukuba ndawonye kweqembu, (3) ukuzivocavoca umzimba, (4) ukuziphumuza, (5) ukuba yisigqili semithombo yomphakathi, (6) imikhuba emihle yokulala, (7) uqequesho, (8) amahlaya, (10) inkolo, (11) ukuxwaya, kanye (12) nokwala. ICFA iquinisekise ukuba neqiniso kombono nokuqukethwe, kanye nokwethembeka okuxubile. Kutholakele ukuthi uhlu lwemibuzo aluguquki futhi lungasetshenziswa emaqenjini ehlukene emisebenzini yezokuphepha anengcindezi ephakeme. Kuthuthukiswe nomlinganiso olawula ingcindezi okhombisa ubudlelwano phakathi komuntu isibili nokubhekana nengcindezi.

Umnikelo: Umnikelo omkhulu walolu cwaningo kube ukuqamba uhlu lwemibuzo oluqinisekile ukubhekana nengcindezi kanye nomlinganiso wokulawula ingcindezi. Ngokukhomba amasu aqondene nokubhekana nengcindezi, kungathuthukiswa izindlela ezhlosiwe zokulawula ingcindezi. Lokhu kunganikela esimeni esihle sempilo yabasebenzi bezokuphepha abasebenza imisebenzi enengcindezi ephakeme, okuzoholela enhlanganweni esesimeni esihle nasebudlewaneni obuhle nomphakathi. Izinhlangano zezokuphepha nazo zingawusebenzisa lomlinganiso ngesikhathi sokuhlola ukubona abafundi abanezici ezinomthelela omuhle, kumasu abhekana nengcindezi asesimeni esihle, ezizobenza bakhethe abasebenzi abazongena kahle ezindaweni zokuphepha.

Amagama abalulekile: Imboni yezokuphepha, Ukuvikeleka kweVIP, Imali esendleleni, Abezokuphepha abahlomile, Unogada, Ingcindezi, Ukubhekana

nengcindezi, Umuntu isibili, Ukuqamba uhlu Iwemibuzo, Ukungaguuki, Ukuhlola ubudlelwano phakathi kwezinto eziguqukayo

LIST OF ABBREVIATIONS

AGFI	Adjusted goodness-of-fit
AIC	Akaike information criterion
AVE	Average variance extracted
BIC	Bayesian information criterion
BTI	Basic Traits Inventory
CCA	Canonical correlation analysis
CEO	Chief executive officer
CFA	Confirmatory factor analysis
CFI	Comparative fit index
CMIN/DF	Minimum discrepancy divided by its degrees of freedom
COPE	Coping Orientations to Problems Experienced (questionnaire)
CR	Composite reliability
DRIVE	Demands, Resources, and Individual Effects (model)
EFA	Exploratory factor analysis
GFI	Goodness-of-fit index
HRCQ	High Risk Coping Questionnaire
JD-R	Job Demands-Resources (model)
JvR	Jopie van Rooyen
KMO	Kaiser-Meyer-Olkin (measure of sampling adequacy)
MCI	Multidimensional Coping Inventory
NFI	Normed fit index
PTSD	Post-traumatic stress disorder
RMSEA	Root mean square error of approximation

SA	South Africa
SRMR	Standardised root mean residual
TLI	Tucker Lewis index
USA	United States of America
US	United States
VIP	Very important person
WCQ	Ways of Coping Questionnaire

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CHAPTER 1

SCIENTIFIC ORIENTATION TO THE RESEARCH

1.1 INTRODUCTION

The general aim of the study was to develop a coping questionnaire and stress management model by making use of confirmatory factor analysis (CFA) and canonical correlation analysis (CCA). The focus was on people working within a high stress security environment, specifically cash-in-transit guards, VIP protectors, armed response officers and security guards. For the purpose of this research, individuals in these occupations are generally referred to as security personnel or security employees. Chapter 1 provides the background to and motivation for the study, followed by the problem statement and importance of conducting the research. The general and specific aims, paradigm perspective, and research design are discussed. The chapter concludes with an overview of the chapter layout.

1.2 BACKGROUND AND RESEARCH MOTIVATION

The 20th century has been referred to as the age of anxiety and the history books our grandchildren will read will probably speak of the alarming increase in health problems related to tension and anxiety, in what may be called the “century of stress” (Charlesworth & Nathan, 1985). Stress has become the buzzword of our times, and unhealthy stress is likely to become the disease of the 21st century (Schlebusch, 1998). Stress is a reality of life – it is unavoidable, good and bad, constructive and destructive (Pienaar, 2007). Stress stems from so many different factors and conditions that to eliminate it entirely from our lives would probably be impossible (Greenberg, 2011). In other words, stress is an inevitable consequence of living (Beheshtifar & Nazarian, 2013; Pienaar, 2007).

Stress refers to the reaction of people to their environment. It involves both a physiological and psychological response to the environment, causing people to change or adjust their behaviour (Cummings & Worley, 2015).

Law enforcement has long been recognised as a high stress and high pressure profession (Gershon, Barocas, Canton, Li, & Vlahov, 2009). An internet search (10 February 2016) on Job Mail South Africa (Kruger, 2013) and CareerCast.com (International) for high stress jobs, revealed that a career in the military and police is classified as one of the most stressful occupations. Many areas traditionally reserved for public security structures, that is, the police and military, are now serviced by the private security industry. There is little doubt that the police's inability to manage the extremely high levels of crime and violence in South Africa, has resulted in this industry filling significant gaps and becoming three times larger than the police. The deployment of private security providers to supplement traditional policing structures, and even military functions, is now commonplace. The modern-day reality is that it is a combination of policing and private security functions that ensures the safety and wellbeing of a community (Schneider, 2013).

Cash-in-transit guards, VIP protectors, armed response officers and security guards all have elements relating to the military and police services, even though private citizens do the work. They may not be on the front lines, but their lives are often in danger and they have a job that may be even more stressful than worrying about their own wellbeing – they are responsible for the lives and property of those they protect. They deal with armed criminals and the situations they work in all have a constant element of danger.

Protection by a VIP protector remains one of the most effective ways of guarding individuals who are at risk of attack. The aim of VIP protection is to proactively and reactively protect VIPs against direct personal risks such as murder, kidnapping or assault and also against indirect personal risks such as threats and intimidation (SA Bodyguard Training Academy, 2015).

Cash-in-transit armed robbery is an offence that can cause serious stress and danger to individuals who become victims while doing their job (Maree, Van den Berg, & Pretorius, 2002; Smith & Louis, 2010). The risk of an attack is real, and the use of heavy weaponry makes this the most dangerous area for security personnel to work in within South Africa (Schneider, 2013). With the risk of robbery significantly high,

the debate in the current South African landscape becomes when, not if, a robbery will occur (Poisat, Mey, & Theron, 2014).

Armed response officers are private security personnel who patrol communities in vehicles and respond to alarms and panic buttons installed on clients' premises. The occupational culture of armed response is one created around violence and violent expectation. As the first line of duty, armed response officers are usually the first to attend a crime scene. Their main risk is becoming victims of crime themselves, particularly since they work with firearms. This makes them an opportunistic target for criminals (Diphoorn, 2015).

Security guards are expected to patrol designated areas in order to prevent and protect these areas from vandalism, theft and illegal activity. These areas typically include shopping centres, office buildings, apartment buildings and neighbourhoods (Lubbe, 2010). Guards are exposed to a number of dangerous situations as part of their work, that is, death threats, injuries, hijacking, assault and robberies. They are also expected to work in unfavourable working conditions such as patrolling open spaces at night or in extreme weather (Sibanyoni, 2014).

Some of the key elements in these occupations are uncertainty, danger, periods of boredom and the possibility of dying while serving a client. Since the main focus of these occupations is to preserve the life and property of the clients they serve, winning the battle against crime is a crucial aspect of their daily lives.

The Pretoria News (Mbangeni & Flanagan, 2015, p. 1) reported that seven people were injured as a gang of robbers attacked a shopping centre – “A gang has opened fire on cash-in-transit guards in the centre’s banking mall. Within minutes, a seven man gang had left three shoppers and two security guards hurt, but two of their own are also injured as the others make a quick getaway”. Chawane (2015, p. 2) reported in the Centurion Rekord that a security officer was shot dead in the line of duty. “A security officer was shot dead by a robber in the line of duty in the early hours of Tuesday.” Five armed men with balaclavas gained entry into a residence and when Bull Security arrived on the scene a shootout followed. Armed Response officer J. P. Van Niekerk was hit and died on the scene while providing backup to one of his

colleagues. The Star (Sifile, 2018a, p.1) reported that a gang of more than ten men armed with high calibre assault rifles attacked two cash-in-transit vans. “A two minute gun battle erupted before explosions rocked both of the vans. At least eight people, including two pedestrians and two guards, were injured.” Cash-in-transit guards, VIP protectors, armed response officers and security guards are often forced to perform under uniquely stressful conditions – for example, in scenarios where their lives and the lives of their colleagues or clients are at risk or in situations involving long-term or constant exposure to threats.

Coping signifies the psychological operations, both conscious and unconscious, a person applies to manage the demands of a stressful situation or event (Balcar, Trnka, & Kuška, 2011). Some people are less likely to be adversely affected by daily stress. They are said to be highly resilient, which refers to the extent to which a person is able to bounce back from potentially stressful situations, without suffering any harm. Other individuals are less resilient and find themselves worn down by these chronic levels of stress (Greenberg, 2011). An individual’s personality can thus provide an explanation of why individuals react different to stressful events (Weiten, 2014). Personality can therefore influence how a person will cope in different situations (Taylor, 2015), thus playing a key role in the prevention of and recovery from emotional problems (Hengartner, Van der Linden, Bohleber, & Von Wyl, 2017).

Individuals often make remarks in the form of descriptive statements to refer to personality traits, for example, that a person is moody, impulsive or friendly. A personality trait can be defined as “a durable disposition to behave in a particular way in a variety of situations” (Weiten, 2014, p. 470). According to Pierce, Gardner, and Crowley (2016), personality traits are some of the strongest predictors of a person’s wellbeing.

Coping mechanisms can be either a conscious attempt to deal with stress or an unconscious process in the form of defence mechanisms (Weiten, 2014). In this study, a thorough literature study was conducted in order to obtain as much information as possible on healthy as well as unhealthy coping mechanisms to manage stress. The focus of the study was on individual coping with or managing stress, and not interventions that organisations can implement. After collecting information on

individual coping strategies, a questionnaire to measure coping with stress within a high stress security environment was developed by using scientific guidelines for developing a questionnaire.

According to Greenberg (2011), stress is an unavoidable fact of organisational life, taking its toll on both individuals and organisations. There are many consequences of stress for both the employer and the employee. The employee can suffer (1) emotionally (e.g. decreased motivation), as well as (2) physically, (e.g. constant fatigue). The organisation suffers economically as the effects of stress on workers result in decreased satisfaction and heightened turnover (Meško et al., 2013; Pienaar, 2007). Stress results in increased absenteeism, employee turnover, diminished productivity, medical and legal expenses.

1.3 PROBLEM STATEMENT

No South African questionnaire measuring coping with stress or stress management within a security environment could be found. This research should therefore make a contribution by providing a validated questionnaire and coping model that security organisations could use to add value to their assessment process and training interventions, for example, stress management. Individuals could also use the questionnaire for self-development as a measurement of how well they are currently coping with stress.

In selecting and training police officers, it is essential to determine the best methods of coping with stress to ensure the wellbeing of both police officers and the public they serve (LeBlanc, Regehr, Jolley, & Barath, 2008). Du Toit et al. (2012) also posit that it is in the best interests of the public to select the right people to work in law enforcement and defence sectors. According to Lubbe and Barnard (2013), the importance of regulation and training within the security industry has been acknowledged, but selection practices have not received sufficient attention. According to Meško et al. (2013), employers are obliged to limit and suppress stress by striving to prevent stress in their organisations. Being able to cope with stress effectively is imperative in a high stress security environment, as people's lives depend on the ability to stay focused.

Cash-in-transit guards, VIP protectors and armed response officers are highly specialised and trained, but organisations seldom determine if these individuals can cope effectively with the high stress of the training or work itself. In a study by Schneider (2005), it was found that VIP protection work is not for everyone. If a student cannot cope with stress during the training, he or she is not the right person for the job. It is therefore suggested that prospective candidates for VIP protection training should undergo preselection prior to the commencement of training.

According to Pillay and Claase-Schutte (2004), little is done to manage stress in the security industry. Security as a whole is a neglected field of research compared to many other industries, and the specialist part of VIP protection is an area that has completely been neglected in formal research (Schneider, 2005). Vanheule, Declercq, Meganck, and Desmet (2008) and Van Steden and Nalla (2010) also concur that private security is an under-researched field. Schneider (2011) posits that there is a need to train persons in law enforcement and the military to effectively identify and manage work-related stress. This training seems to have simply bypassed the private security industry. According to Poisat et al. (2014), most of the research studies on workplace violence in South Africa tend to exclude employees who handle cash.

According to Lazarus, cited in Balcar et al. (2011), there seems to be a gap between what people do and what the stress coping theory predicts, namely the two hyper strategies of problem-focused and emotion-focused coping. Building a two-way bridge between theory and observation involves constructing theory-derived psychometric instruments and searching for theory-predicted concepts via factor analysis of empirically constructed stress coping scales.

In summary, the research problem for this study was formulated as follows:

There are no applicable South African assessment instruments available that security organisations can use as a screening instrument to determine how employees cope with stress, or a model that can be used as a process to manage stress.

1.3.1 General research question

Based on the discussion above, the general research question was formulated as follows:

Can a coping questionnaire for people working within high stress security occupations be developed and validated, and a stress management model subsequently proposed?

1.3.2 Research questions relating to the literature review

The following specific research questions were formulated in terms of the literature review:

Research question 1: Based on the literature, how can stress be conceptualised and what are its key components?

Research question 2: Based on the literature, how can coping be conceptualised and what are its key components?

Research question 3: Based on the literature, how can personality, specifically the Big Five personality factors, be conceptualised and what are its key components?

Research question 4: Based on the literature, what frameworks or models are available to cope with stress within a high stress security environment?

1.3.3 Research questions relating to the empirical study

In terms of the empirical study, the following specific research questions were formulated:

Research question 1: How can coping with stress in a high stress security environment be measured?

Research question 2: Is there an interrelationship between the coping strategies used by people working in high stress security occupations and the Big Five personality factors?

Research question 3: Is there a stress management framework or model that can assist security organisations and individuals to manage stress more effectively?

Research question 4: What contribution can be made to the knowledge of coping with stress within a high stress security environment?

Research question 5: What recommendations can be made for the field of industrial and organisational psychology regarding further research in the sphere of coping with stress?

1.4 RESEARCH AIMS

The general aim of the research, specific literature aims and specific empirical aims are discussed below.

1.4.1 General aim of the research

The general aim of the research was to develop a model for effective stress management in high stress security occupations.

1.4.2 Specific literature aims

The following four literature aims were addressed in the research:

Research aim 1: To conceptualise the concept of stress by means of a comprehensive literature review

Research aim 2: To conceptualise the concept of coping by means of a comprehensive literature review

Research aim 3: To conceptualise the concept of personality and the Big Five personality factors by means of a comprehensive literature review

Research aim 4: To investigate the frameworks or models available to cope with stress within a high stress security environment

1.4.3 Specific empirical aims

The following five empirical aims were addressed in the research:

Research aim 1: To develop a valid and reliable coping questionnaire that can be applied in high stress security environments

Research aim 2: To correlate the High Risk Coping Questionnaire (HRCQ) with the Basic Traits Inventory (BTI) to determine whether there is an interrelationship between coping strategies and the Big Five personality factors, including its facets

Research aim 3: To develop a stress management model based on confirmatory factor analysis and canonical correlation analysis to assist organisations and individuals to manage stress more effectively

Research aim 4: To contribute to the knowledge of coping with stress within a high stress security environment

Research aim 5: To make recommendations for the field of industrial and organisational psychology regarding further research in the sphere of coping with stress

1.5 STATEMENT OF SIGNIFICANCE

The following real-life scenarios are extracts from the 2016 Security Industry Alliance bravery awards, as obtained from the Master of Ceremonies programme:

Security officers escorting high value goods from the airport were approached by armed robbers in four vehicles. The officers were fired at with AK47 rifles but they kept calm and managed to drive off-road through nearby veld in order to get away safely.

An officer noticed a group of six suspicious looking persons approaching the entrance of a fuel station's convenience store. When he confronted them they attacked him but he managed to prevent the group from entering the store and they fled the scene. As a result of the attack he lost his left eye. His brave actions prevented an armed robbery and the possible loss of lives.

An officer responded to a client's call for help and found a suspect hiding. He attacked the officer with a butcher's knife but after some shots were fired the suspect fled. The officer kept on searching for the wounded suspect and found him hiding in a flower bed two houses down the road. The suspect was wanted for a number of house robberies in the area.

Two officers reacted to an alarm but they walked into an ambush at the scene. Unknown gunmen started shooting at their vehicle and one of the officers was shot in the face.

An officer patrolling a site was attacked by suspects but he managed to fight them off and they fled. Unfortunately he was shot during the attack and spent almost a year in hospital recovering.

As per security camera footage – an officer was working at a taxi rank when three suspects entered the premises and overpowered him. He tried calling the security officer on another site but without success. The suspects intended to steal taxis, but was unable to do so as the officer raised enough suspicion to have his own organisation respond. They stopped the criminals but the security officer's body, lying face down, was found between some taxis.

Security personnel work in a dangerous environment and are frequently exposed to violent and hostile crimes. Being able to cope with stress can impact on the safety of individuals, their colleagues and the clients they protect. It is essential for individuals to make use of healthy stress management strategies to enable them to cope and function effectively within a high stress security environment. According to The Star newspaper (Sifile, 2018a), there had been an average of eight to 12 cash-in-transit heists per month in Gauteng alone, prior to the publication of this article 18 May 2018.

Robber gangs have enjoyed far more attention over the years than their victims, and their offences have been glamorised in stories and films. Robin Hood and his merry men, pirates looting ships on the open seas, and gangsters attacking trains and robbing banks in the United States of America (USA) during the depression era promoted these glamorous images of these crimes. These offenders should not, however, be regarded as heroes, but as dangerous individuals who abuse victims (Maree et al., 2002). The Star newspaper reports that police, lawyers, magistrates, prosecutors and metro police are all involved in cash-in-transit heists. This is to ensure that criminals receive legal protection to go free if arrested, and the police destroy the evidence (Sifile, 2018b, p. 2).

According to the South African crime statistics for 2016, there was a 2.8% increase in reported non-residential robberies from 19 170 to 19 698 incidents. There was also a 2.7% increase in reported residential robberies from 20 281 to 20 820 incidents. In 2013 to 2014 there were 16 243 murders, and 19 952 murders in the 2014 to 2015 period, an increase of 4.9%. The number of attempted murders increased from 14 790 reported cases over the 2011 to 2012 period, to 18 127 over the 2015 to 2016 period. All of this is an indication of the increasing levels of violence in the country.

These crime statistics have elicited much criticism against the South African Police Service to maintain law and order. The role of the private security industry has therefore become even more essential in maintaining law and order (Bagshawe, 2016).

The researcher found that there is limited research on stress and coping in a security environment, especially in South Africa. Similarly, no questionnaire measuring coping within such a high stress security environment could be found. This research could provide a starting point to research stress and coping within a high stress security environment.

1.6 THE PARADIGM PERSPECTIVE

Eysenck (1991, p. 773) defines a paradigm as “a theoretical model shared by most workers in a given field, including agreed methods of investigation, standards of proof and disproof, and procedures of experimental research”. It is a model or framework for observation and understanding, which shapes both what we see and how we understand it (Babbie, 2014). This study was conducted in the field of industrial and organisational psychology.

1.6.1 Intellectual climate

Intellectual climate refers to the variety of meta-theoretical values or beliefs which are held by those practicing within a discipline (Mouton, 1996). The literature review for this study was presented from the humanistic and salutogenic paradigm and the empirical study from the positivist research paradigm.

1.6.1.1 Paradigm perspective for the literature review

a. The humanistic perspective

One of the most generally agreed upon aspects of humanistic psychology is understanding a person as a whole. People have goals in life and they live their life to accomplish something they believe in, be it self-development or other values

(Buhler, 1971). With the humanistic perspective, emphasis is placed on the positive potential of an individual and it is believed that people are unique individuals, naturally good, constructive and capable of helping themselves in shaping the quality of their experience (Grivas, 2006). Humanistic psychology thus focuses on change and growth and a passionate vision that all human beings have dignity and worth (Elkins, 2009). Theoretically, this paradigm perspective relates to the concepts of stress and personality as personality describes a person's behaviour and stress influences a person's goal achievement.

b. The salutogenic paradigm

Antonovsky (1996) focused on the origins of health, which he termed salutogenesis. He suggested that people have generalised resistance resources that facilitate successful coping with the inherent stressors of human existence. The salutogenic approach consequently focuses on health promotion (Andruškienė et al., 2016). It proposes that through the use of health-promoting resources and coping strategies, individuals have the capacity to overcome adverse experiences and even thrive through adversity. Adverse experiences may therefore not always be detrimental to health as it may provide opportunities for successful coping (Höltge, Mc Gee, Maercker & Thoma, 2018). In this study, the construct of coping was presented from the salutogenic perspective.

1.6.1.2 Research paradigm for the empirical study

Within the positivistic research paradigm, it is assumed that the only way to be certain that knowledge is true, is if it was created using a scientific method, i.e. empirical methodology. The scientific approach to research therefore consists of proposing hypotheses as explanations of phenomena and then designing experiments to test the hypotheses. The researcher will use a scientific method to design the research project, i.e. a questionnaire, focusing on facts and/or objective assessment of attitudes (McGregor & Murnane, 2010). The positivist perspective therefore sees reality as objective and believe that reality in the world exists, irrespective of people (Sabbagh, 2016). Positivism thus bases itself on observable and empirical facts (Panhwar, Ansari & Shah, 2017).

The empirical study was presented from the positivist paradigm perspective. A coping questionnaire and stress management model was developed, using scientific methodology.

1.6.2 Applied disciplines

This research falls within the field of industrial and organisational psychology, but more specifically within the subdisciplines of psychometrics and positive psychology.

1.6.2.1 Industrial and organisational psychology

Industrial psychology involves the scientific study of human behaviour in organisations (Van Vuuren, 2010). An emerging reason for the existence of industrial and organisational psychology is the contribution of the discipline to organisational health and the wellness of its members (Coetzee & Schreuder, 2013; Van Vuuren, 2010). This study falls within industrial and organisational psychology because it aims to improve the wellbeing of security personnel working in high stress occupations by providing a valid and reliable coping questionnaire and a model to manage stress more effectively.

1.6.2.2 Psychometrics

Psychometric assessments or tests for use in the work setting are designed to differentiate between individuals based on factors such as cognitive ability, personality, interests, values, integrity and learning potential. The results of these assessments are then utilised to predict person-job and person-environment fit (Van Vuuren, 2010). According to Weiten (2014), psychometrics is therefore concerned with the measurement of behaviour and capabilities, usually through the development of psychological tests. In this study, a valid and reliable questionnaire was developed to determine which coping strategies security employees use to cope with stress in high stress security occupations. The Basic Traits Inventory (BTI), an existing valid and reliable questionnaire has also been used to measure the Big Five personality factors.

1.6.2.3 *Positive psychology*

Positive psychology can be described as the psychology of valued psychological phenomena, such as contentment and satisfaction with the past, hope and optimism for the future, and happiness and wellbeing in the present (Colman, 2009; Pawelski, 2016; Seligman & Csikszentmihalyi, 2000). Positive psychology seeks to shift the field's focus away from negative experiences and rather concentrate on building positive qualities (Seligman & Csikszentmihalyi, 2000; Weiten, 2014). It aims to focus on the qualities that make life worth living and to assist normal people to become more productive and prevent them from developing pathology (Pawelski, 2016). This study seeks to improve the overall wellbeing of security personnel working within a high stress environment by suggesting a model for effective stress management.

1.6.3 *Conceptual descriptions*

Coping, the five-factor model of personality and theoretical models are discussed as the conceptual descriptions of the research. In chapter 2, models are used to explain workplace stress. The appraisal of stressful events and different models of personality are discussed in chapter 3. A conceptual model for coping with stress in a high stress security environment is proposed in chapter 3.

1.6.3.1 *Coping*

Coping has significant characteristics. Firstly, the relationship between coping and a stressful event is a dynamic process. Coping is a series of transactions between a person who has a set of resources, values and commitments and a particular environment with its own resources, demands and constraints. Thus, coping is not a one-time reaction, but rather a set of responses occurring over time whereby the environment and the person influence each other. A second important aspect of coping is its extensiveness. Emotional reactions, including anger or depression, are part of the coping process, as are actions that are voluntarily performed to confront the stressful event (Taylor, 2015).

All people use different coping strategies. What works in one context may be counterproductive in another (Lazarus, 1993). Some strategies therefore prove more beneficial and others less so in general or with regard to different circumstances (Balcar et al., 2011).

1.6.3.2 *The five-factor model of personality*

Goldberg (1993) revealed that most personality traits tend to cluster mainly around five primary dimensions, which he referred to as the Big Five. The Big Five model of personality has since been studied and confirmed by various researchers and empirical support for its validity was highlighted by McCrae and Costa in 1987 and Hogan in 1991 (Coetzee & Schreuder, 2013).

The five-factor model has become the dominant conception of personality structure in contemporary psychology (Weiten, 2014), and presents neuroticism, extraversion, openness to experience, agreeableness and conscientiousness as the structure for personality (Coetzee & Schreuder, 2013; Taylor, 2004; Weiten, 2014).

1.6.3.3 *Models*

Models provide an organised illustration of phenomena by identifying patterns and uniformities among variables (Mouton, 1996). Models are used in all the sciences and are simplified representations of something complex. They usually illustrate cause and effect and the process that facilitates cause and effect (Gabrenya, 2003). A model is helpful in that it enables the reader to make sense of new information easily (Childs, 2010).

1.6.4 **Central hypothesis**

A valid and reliable coping questionnaire for people working within high stress security occupations can be developed. A stress management model can subsequently be proposed.

1.7 RESEARCH DESIGN

Gravetter and Forzano (2012, p. 163) define research design as “a general plan for implementing a research strategy”. Research design specifies as clearly as possible what one wishes to find out and determines the best way of doing it (Babbie, 2014).

1.7.1 Research approach

This study made use of quantitative research as numerical data was collected (coping and personality) and analysed statistically (Babbie, 2014; Coetzee & Schreuder, 2013).

1.7.2 Research methodology

The research participants (unit of analysis) that formed part of the study, the measuring instruments that were used and the research procedure that was followed are discussed next.

1.7.2.1 *Research participants/unit of analysis*

Babbie (2014) describes the unit of analysis as the “what or whom” being studied. In social sciences research, the most typical units of analysis are individual people.

As stated earlier, the population for this study comprised security personnel ($n = 381$) working in high stress environments, specifically cash-in-transit guards, VIP protectors, armed response officers and security guards (both genders, different age groups and length of service, as discussed in chapter 5 section 5.3). The reason for including different groups was twofold: firstly, to ensure a large enough sample for the study, and secondly, to make comparisons between the different groups. A convenience sample was used in order to maximise the number of participants because people are not always willing to participate in research. The participants in this study took part on a voluntary basis, which also reduced the size of the sample. Incomplete questionnaires or questionnaires that were answered in a pattern, for

instance, only the neither agree nor disagree option or agree option was chosen, were excluded from statistical analysis. This also reduced the size of the sample.

1.7.2.2 Measuring instruments

The best method available in collecting original data for describing a population that is too large to observe directly is survey research (Babbie, 2014). Two measuring instruments were used in this study. A coping questionnaire was developed to measure coping with stress within high stress security occupations. The coping questionnaire was correlated with the Basic Traits Inventory (BTI) to determine whether there was an interrelationship between coping strategies and the Big Five personality factors.

a High Risk Coping Questionnaire (HRCQ)

The HRCQ was based on a sound theoretical basis. In addition to explaining previous research results, a sound theory usually predicts behaviour in new situations (Gravetter & Forzano, 2012).

A comprehensive literature study was conducted on the various coping strategies that people use to deal with stress. Psychologists in private practice were also requested to report on the coping strategies most often used by their patients. The responses from these psychologists as well as the theory were then used to develop the HRCQ.

According to Gravetter and Forzano (2012), a questionnaire should be easy to understand and complete. The participants should have no trouble understanding the language. In this study, the coping questionnaire was developed according to strict guidelines for designing a questionnaire, as discussed in detail in chapter 4 (section 4.4).

b Basic Traits Inventory (BTI)

The BTI was developed in 2002 and based on a need for a locally developed personality inventory in South Africa. It is easy to use and measures the Big Five factors. It can be used in almost any context in which personality assessment is conducted, for example, psycho-diagnosis, recruitment and selection, personal development, educational settings, counselling and research (Taylor & De Bruin, 2016). All five factors of the BTI have satisfactory internal consistency reliabilities, with all the Cronbach alpha coefficients being above 0.87 (Taylor & De Bruin, 2016).

A comprehensive description of the BTI is provided in chapter 4 (section 4.5).

1.7.2.3 Research procedure

A research procedure is an exact step-by-step description of the research study (Gravetter & Forzano, 2012). The following four phases, as illustrated in Figure 1.1, were applied to complete the research:

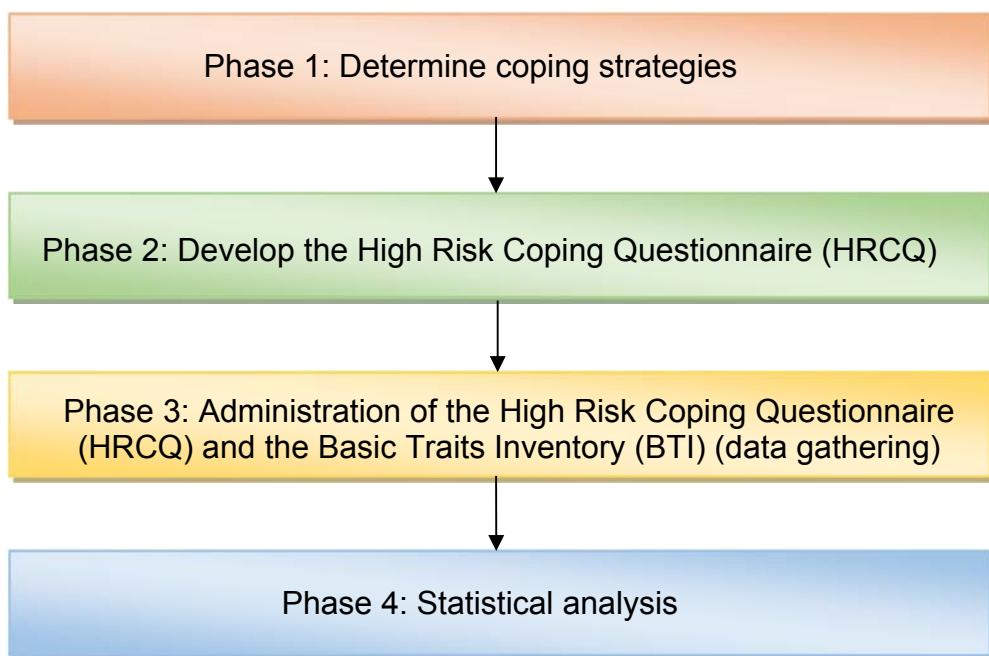


Figure 1.1. Overview of the research procedure used in the study

a Phase 1: Determine coping strategies

- A comprehensive literature review was conducted on the different coping strategies that are used to manage stress, especially in a military, police and security environment (chapter 3).
- A template (annexure 1) was sent to psychologists in private practice to determine what coping strategies are used the most by their patients. The template had only two open-ended questions asking psychologists to report on constructive (healthy) coping and destructive (unhealthy) coping, including defence mechanisms. The concepts were defined to ensure that all the psychologists interpreted them the same way.

b Phase 2: Develop the High Risk Coping Questionnaire

- Questions that were included in the HRCQ were developed by making use of the information received from the questionnaires that were sent to the psychologists in private practice, as well as the comprehensive literature review.
- The completed questionnaire was sent to experts in the field of stress and psychometric testing to ensure that all the questions were clear and understandable, as well as relevant to measuring coping. The expert review was also used to determine the content validity of the HRCQ.
- The wording in some questions was adapted, and one question was removed after feedback had been received from the expert review.
- The questionnaire was administered to a sample group of the study population (pilot study) where security personnel were asked to read the instructions for the questionnaire by themselves and then complete the questionnaire. This was done to determine whether the instructions and questions were clear and understandable. The pilot study was also used to determine how long it took to complete the questionnaire and if participants were willing to answer all the questions. No changes were required after the pilot study.
- The final questionnaire was then designed in electronic format, making use of Survey Monkey so that it could be emailed to the participants.

- A paper-and-pencil version was also finalised, with an answer sheet, to be administered in person to the participants.

c *Phase 3: Administration of the High Risk Coping Questionnaire and the Basic Traits Inventory (data gathering)*

- An email was drafted with the links to completing the HRCQ on Survey Monkey, and the BTI on the JvR Psychometrics online platform. Details of the research, including confidentiality and voluntary participation, were included in the email, with the researcher's contact details.
- Participants were requested to complete both the BTI and the HRCQ in order to conduct a correlation analysis between the two questionnaires.
- The human resource departments of organisations and operations managers were requested to send the email with the links to prospective participants.
- Individual participants were requested to send the links to their colleagues who were also willing to participate. A few participants sent the email to their colleagues.
- Both questionnaires were also administered to groups of volunteers during training sessions at a large security organisation. Permission was granted by the relevant decision makers. One of the managers asked if learners would be willing to assist the researcher, following which the researcher explained all the necessary details to the learners. The answer sheets to both questionnaires, biographical questions and informed consent were all stapled together. This was to ensure that each respondent's information was kept together, because the questionnaires were completed anonymously. The majority of data gathered was in paper-and-pencil format.

d *Phase 4: Statistical analysis*

- A visual inspection was done of all the completed questionnaires to determine if any questionnaires were invalid. All incomplete questionnaires were removed and excluded from statistical analysis.

- The data on the questionnaires were then statistically analysed to determine if any response sets, namely the tendency to respond in the same way to all questions, could be identified. This was followed by a variable screening to determine the mean, standard deviation, skewness and kurtosis of the questionnaire items.
- Harman's one-factor test was conducted to determine the variance that can be explained by a single factor. Since it was evident that more than one factor was being measured by the HRCQ, an exploratory factor analysis was consequently conducted.
- A total of 17 factors were identified by means of factor rotation, with VARIMAX rotation. These factors were reduced to 12 after the item clean-up process.
- A confirmatory factor analysis was then conducted to determine the reliability of the different factors, using composite reliability and average variance extracted. Confirmatory factor analysis was ultimately used, with canonical correlation analysis, to suggest a model of coping with stress to be used within a high stress security environment.
- The confirmatory factor analysis was followed by descriptive statistics, where the mean, skewness and kurtosis of the identified constructs were evaluated for normality. The effect size of the different constructs was also determined.
- Invariance testing was completed to identify whether or not the same items measured a construct across multiple groups (configural invariance) and whether constructs had the same meaning for respondents (metric invariance). This was followed by scalar invariance to determine whether item intercepts, the origin or starting value of a scale, were comparable across administrations.
- Pearson's linear correlations were completed between the BTI and the HRCQ to determine if there was a linear interrelationship between personality factors and coping strategies.
- The last step was to conduct a canonical correlation analysis to maximise the correlations between coping strategies and personality factors. This was then used, in combination with confirmatory factor analysis, to suggest a model of coping with stress within a high stress security environment.

1.7.3 Validity

In terms of the empirical research, the measurement validity of the HRCQ was addressed by means of following a scientific process to questionnaire development and statistical analysis. The process that was followed to develop the HRCQ is discussed in chapters 4 and 5.

The validity of the literature review was ensured by using literature that was relevant and up to date in terms of the research topic. The most recent as well as academically and scientifically sound sources were consulted. The work of important authors was also referenced. A variety of sources were consulted including books, journal articles, unpublished theses and dissertations.

1.7.4 Reliability

Reliability means attaining similar results each time the measurement is taken (Slattery et al., 2011). The reliability of the literature was attended to by utilising existing literature sources, theories and models. Reliability in the empirical study was ensured by means of a representative sample and establishing the reliability of the questionnaire.

1.8 CHAPTER LAYOUT

The study was divided into the following chapters:

Chapter 1: Scientific orientation to the research

Chapter 1 focuses on the scientific background to and motivation for the study, the problem statement, research aims and paradigm perspective. It concludes with a brief overview of the research design that was used as part of this research.

Chapter 2: Stress

Chapter 2 defines and describes stress and related concepts. Theory relating to stress is explained in detail, including models, causes and consequences. The chapter concludes with an overview of the security industry in South Africa and also the research participants.

Chapter 3: Coping and personality

Chapter 3 defines and discusses the concepts of coping and personality. Theory relating to healthy and unhealthy coping strategies are discussed and a brief summary is provided of different coping questionnaires. The chapter concludes with different models of personality, including the five-factor model and coping.

Chapter 4: Research methodology

Chapter 4 provides an overview of the research methodology used in this study. The research participants, procedure, measuring instruments and statistical analysis are discussed in detail.

Chapter 5: Research results

Chapter 5 provides a comprehensive discussion of the empirical findings of the study.

Chapter 6: Conclusions, limitations and recommendations

Chapter 6 provides a summary of the conclusions, limitations and recommendations of this research. The chapter concludes with recommendations for industrial and organisational psychologists and possible further research.

1.9 CHAPTER SUMMARY

Chapter 1 provided an introduction to the research topic and outlined the need to develop a coping questionnaire for people working in a high stress security environment. The research questions and aims were formulated in terms of the literature review and empirical study, followed by a discussion of the statement of significance. The paradigm perspective as well as research design and procedures were explained. The chapter concluded with the chapter layout.

The next chapter explains stress in detail and provides an overview of the security industry in South Africa and the research participants.

Figure 1.2 provides a flow diagram of the complete research process that was applied in this research.

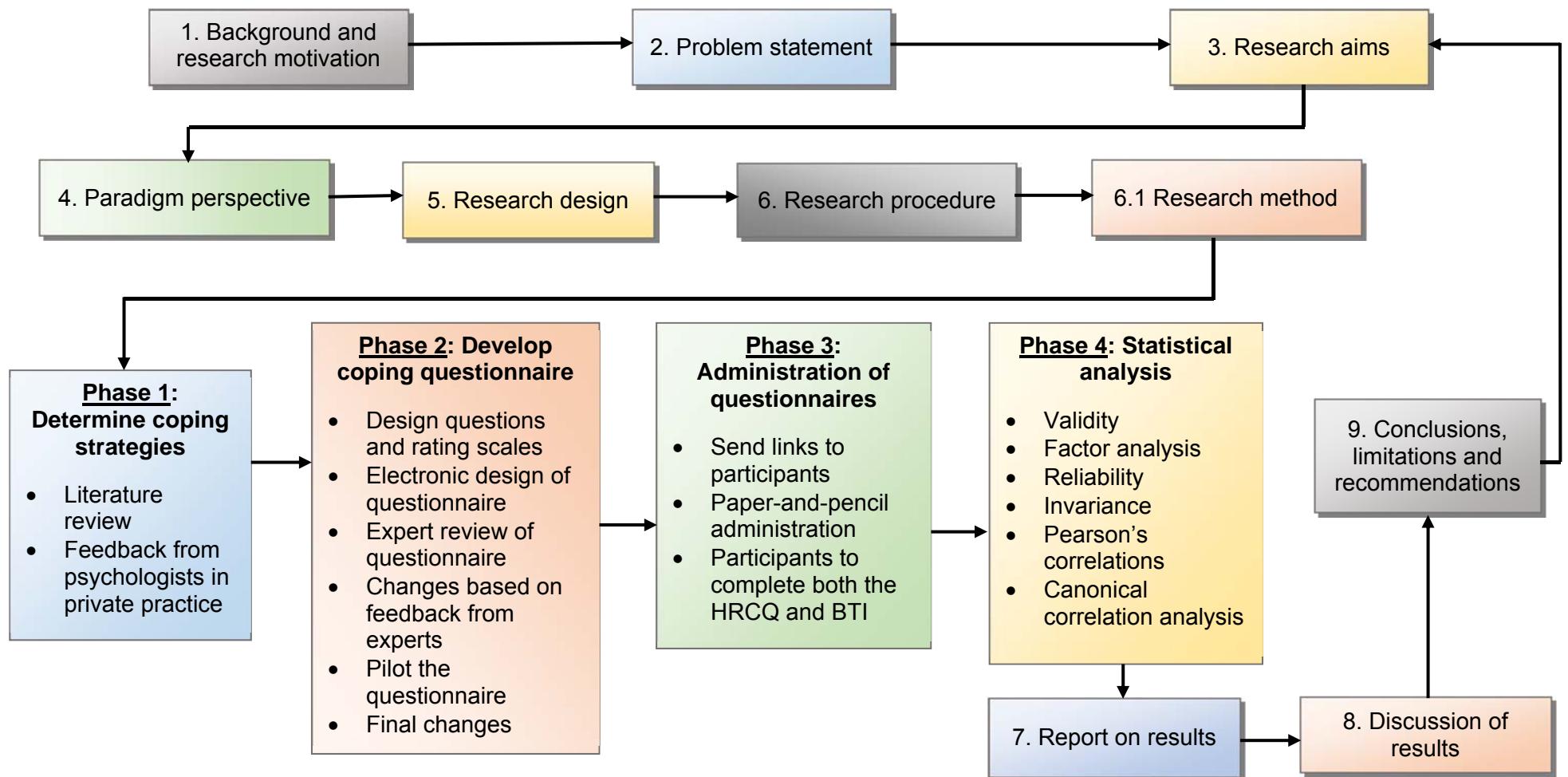


Figure 1.2. Flow diagram of the research process

CHAPTER 2

STRESS

2.1 INTRODUCTION

Chapter 2 provides the general background on stress, and the concept is defined. Different stress models are discussed and the sources and consequences of occupational stress are identified. The chapter concludes with a brief discussion of the security industry in South Africa.

2.2 BACKGROUND

“I experience fearful thoughts of not coming back alive. Because of the long hours you cannot think straight”.

“I will never be able to work as a security guard again. The job is too dangerous and you never know if you will see your family again”.

Cash-in-transit guards, as cited in Poisat et al. (2014, p. 317).

The key to managing stress is not to avoid it. As Selye (1973, p. 693) noted, “contrary to public opinion, we must not, and indeed cannot avoid stress”.

The work environment can be a source of many stressors for individuals, contributing to high levels of strain that can negatively affect their wellbeing (Beheshtifar & Nazarian, 2013; Duxbury, Higgins, & Halinski, 2015; Sibanyoni, 2014; Tuckey, Winwood, & Dollard, 2012; Vanheule et al., 2008). Stress is frequently considered to be the most common disease of the modern age. Some experts have estimated that stress plays a role in 50% to 70% of all forms of physical illness (Greenberg, 2011). Stress occurs when employees try to cope with the duties, responsibilities and other forms of pressure associated with their jobs, but encounter difficulties, anxiety and worries in trying to manage them. Work stress is a mental state that can cause behavioural disorders in individuals. It is a result of the imbalance between job requirements and the ability to cope (Meško et al., 2013).

Work-related stress has become one of the greatest health issues in the modern world (Beheshtifar & Nazarian, 2013; Mark & Smith, 2008). Since the 1990s, there has been a steady increase in disability claims due to psychological impairment because increasingly more working class people have become disabled as a result of work stress (Louw, 2014). Concern has therefore been growing in organisations about managing the dysfunctions caused by negative stress (Cummings & Worley, 2015; George & Le Fevre, 2010; Le Fevre & Kolt, 2010). In a study, one in three workers stated that they had thought about quitting their job because of stress, while one in two workers reported that stress had reduced their productivity. Another study estimated that every employee who suffers from a stress-related illness loses an average of 16 days of work per annum (Cummings & Worley, 2015). People are having mental breakdowns and need professional help at a much higher rate than ever before (Robbins & Judge, 2015).

The way people in health professions think about physical illness has changed significantly in the past 30 years. The traditional opinion of physical illness as a purely biological occurrence has given way to a biopsychosocial model of illness. According to the biopsychosocial model, physical illness is caused by a complex interaction of biological, psychological and sociocultural factors (Taylor, 2015; Weiten, 2014). Prior to the 20th century, the primary threats to health were contagious diseases caused by infectious agents, for example, smallpox, yellow fever and polio. Today, these contagious diseases have been replaced by chronic diseases that develop gradually, including heart disease, cancer and strokes. Psychological factors, such as stress and lifestyle, play a major role in the development of these chronic diseases (Weiten, 2014). The physiological responses to stress increase wear and tear on the body and the accumulation of these stress-related adaptations over time increases the risk for disease (Iacovino, Bogdan, & Oltmanns, 2016).

According to Taylor (2015), health involves a balance between physical, mental and social wellbeing. A health psychologist might focus on health promotion by teaching people in high stress occupations how to manage stress effectively so that it will not affect their health negatively. Many poor health habits are caused or maintained by stressful conditions. Managing stress is therefore imperative for successful behaviour change. Most people can adapt to mildly stressful events. It may, however, be difficult

or even impossible to adapt to highly stressful events, and already stressed people may be unable to adapt to even moderate stressors (Taylor, 2015).

In order gain a better understanding of stress, the concept is now discussed in more detail.

2.3 STRESS

In this section, stress is defined and the concept of a stressor discussed. This will be followed by an explanation of positive and negative stress (eustress and distress) and the general adaptation syndrome introduced by Selye (1973). The section concludes with a discussion of the fight, flight and freeze reactions to stress.

2.3.1 Defining stress

The word “stress”, like success, failure or happiness, means different things to different people (Selye, 1973). Despite the different usages of the word “stress”, Lazarus (1993) contends that the following four concepts should always be considered when describing the stress process: Firstly, there needs to be a causal external or internal agent (a stressor). Here, Lazarus emphasises the person-environment relationship. Secondly, there needs to be an evaluation that distinguishes what is threatening or harmful from what is nonthreatening. Thirdly, there needs to be coping processes used by the mind or body to deal with stressful demands. Lastly, there is a complex pattern of effects on mind and body, often referred to as the stress reaction.

There are three different views on the nature of stress. Firstly, the engineering approach describes stress as a stimulus or characteristic of the environment. Secondly, the physiological approach sees stress as being based on the physiological or biological changes that occur within a person. The third view is a psychological approach, where stress is not only considered an ordinary stimulus or response, but a dynamic process that occurs when a person interacts with the environment. The psychological view of stress is the most popular conceptualisation thereof (Mark & Smith, 2008).

According to Ongori and Agolla (2008), stress is one of the most creatively ambiguous words, with as many interpretations as there are people who use the word. The word “stress” has therefore been used in different ways by different theorists (Beheshtifar & Nazarian, 2013; Le Fevre & Kolt, 2010; Sisley, Henning, Hawken, & Moir, 2010; Weiten, 2014). According to Dewe, O’Driscoll, and Cooper (2012), the different definitions of stress can be regarded as products of their time.

As indicated in Table 2.1, there are different definitions of the concept of stress.

Table 2.1

Definitions of stress

Author	Definition
Selye (1973, p. 692)	“A nonspecific response of the body to any sort of demand made on it.”
Lazarus (1993, p. 2)	“Hardship or adversity and an external load or demand on a biological, social, or psychological system.”
Pienaar & Rothmann (2006, p. 72)	“The mind-body arousal resulting from physical and/or psychological job demands.”
Sisley et al. (2010, p. 4)	“Stress arises when undue pressure is applied as a consequence of tasks or conditions occurring within the work environment during the course of employment.”
Carr, Kelley, Keaton, & Albrecht, (2011, p. 32)	“The perceived difference between professional demands and a person’s ability to carry out those demands.”
Greenberg (2011, p. 186)	“The pattern of emotional and physiological reactions occurring in response to demands from within or outside organisations.”
Gumani (2012, p. 29)	“Stress is a reaction that people experience when there is a change in their lives or environment, leading to positive or negative outcomes.” “It also occurs as a result of a disturbance in the balance between one’s cognitive and emotional functioning in relation to the environment in which one lives and works.”
Keller et al. (2012, p. 677)	“A situation in which environmental demands, internal demands, or both, exceed the resources of an individual to adapt.”

Author	Definition
Beheshtifar & Nazarian (2013, p. 648)	“Occupational stress is the perception of a discrepancy between environmental demands (stressors) and individual capacities to fulfil these demands.”
Meško et al. (2013, p. 46)	“A pattern of negative physiological states and psychological responses that occur in an individual”. “When stressed, an individual feels that his or her wellbeing is threatened and that he or she is, at the same time unable to cope with it.”
Weiten (2014, p. 554)	“Any circumstances that threaten, or are perceived to threaten, a person’s wellbeing and thereby exceeds the person’s ability to cope”. “The threat may be to immediate physical safety, self-esteem, reputation, peace of mind or anything that a person values.”
Duxbury et al. (2015, p. 363)	“The characteristics of the job environment that make demands on, or exceed the abilities or resources of people for meeting the demands, or which may otherwise threaten attainment of people’s needs.”
Robbins & Judge (2015, p. 582)	“A dynamic condition in which an individual is confronted with an opportunity, demand or resource related to what the individual desires and for which the outcome is perceived to be both uncertain and important.”
Taylor (2015, p. 113)	“A negative emotional experience accompanied by predictable biochemical, physiological, cognitive and behavioural changes that are focused either toward changing the stressful event or accepting its effects”. “Stress refers to the reaction of people to their environments.”
Bergh & Geldenhuys (2016, p. 441)	“The physical and psychological reactions of people to the adjustment or coping demands of stressors, such as frustration, conflict and pressures, in and outside the person.”
Hawkins et al. (2018, p. 50)	“A biopsychosocial process that occurs when an individual encounters a situation or event that he or she perceives as being beyond their ability to cope or adapt.”

Two themes are evident from the definitions of stress provided in Table 2.1. Firstly, a demand is placed on the person, and secondly, this demand leads to some form of a reaction from the person.

For the purpose of this study, Weiten's (2014, p. 554) definition was accepted.

"Any circumstances that threaten, or are perceived to threaten, a person's wellbeing and thereby exceeds the person's ability to cope". "The threat may be to immediate physical safety, self-esteem, reputation, peace of mind or anything that a person values."

The definition addresses the main elements that may be associated with an occupation in a high stress security environment, as identified in the literature, such as a dangerous working environment in which people fear for their lives because of high crime rates (Diphoorn, 2015; Guman, 2012; Pienaar & Rothmann, 2006; Schneider, 2013). The definition also addresses the fact that it is difficult for people to cope in these high stress environments (Louw, 2014; Pienaar & Rothmann, 2003, 2006; Sibanyoni, 2014).

The concept of a stressor is now discussed, followed by the different categories of stressors.

2.3.2 Defining a stressor

Stress can be caused by any number of problems a person experiences. Selye (1973) referred to these problems as stressors. According to Selye (1973), it is irrelevant whether the situation a person faces is pleasant or unpleasant; all that matters is the intensity of the demand for change or adapting. Moos and Swindle Jr (1990) describe a stressor as a subset of environmental conditions that are likely to be appraised as demanding and that will have implications for a person's wellbeing.

Stressors and their impact on behaviour are an open-ended task, and researchers consider an increasing number of events and conditions to be stressors (Kavanagh,

2005). A stressor is any demand or situation that requires a reaction from a person (Pillay & Claase-Schutte, 2004). Grivas (2006) describes a stressor as a stimulus that produces stress. It may be physical or environmental in origin, that is, injury or illness, or it may be psychological or mental, that is, concern about failing. Physical stressors originate not from within the person but from the environment, while psychological stressors originate within the person, namely how the person appraises the event.

The Oxford dictionary of psychology (Colman, 2009, p. 622) defines a stressor as “any life event or change, such as divorce, marriage, bereavement, loss or change of job, or moving house that causes stress and may be associated with the onset or worsening of a mental disorder”. A stressor, according to Balcar et al. (2011), is something that interferes with an important personal goal. It is any demand, either physical or psychological, encountered during the course of living (Greenberg, 2011). Carr et al. (2011) describe a stressor as any event or situation that places a demand on a person. It can be external events such as difficult relationships in the workplace or a substantial workload that contributes to the experience of stress (Beheshtifar & Nazarian, 2013). According to Bergh and Geldenhuys (2016), a stressor can arise from a single biological, psychological, sociocultural or external factor, or a combination thereof.

It is practically impossible to provide a complete list of stressors as there are so many and they can differ from one person to the next (Carr et al., 2011). However, the following three major categories of stressors can be distinguished in terms of how long they last (Greenberg, 2011):

- **Acute stressors** are some form of sudden change that threatens a person either physically or psychologically, requiring him or her to make unwanted adjustments. It is normally brief in duration and has a clear endpoint. Examples might be dealing with a belligerent drunk, a death in the family or having to write an examination (Bergh & Geldenhuys, 2016; Carr et al., 2011; Greenberg, 2011; Weiten, 2014).
- **Episodic stressors** are the result of experiencing several acute stressors in a short period of time and they generally last for intermediate periods. An example

might be having a sick child at home, conflict with a colleague and being confronted with a crime, all at the same time (Greenberg, 2011).

- **Chronic stressors** are the most extreme type of stressor because they are constant and unrelenting in nature. This type of stressor lasts for a long period of time and can have damaging effects on a person's ability to work. Examples might be ongoing threats of violence, poor working conditions or daily difficulties (Bergh & Geldenhuys, 2016; Carr et al., 2011; Greenberg, 2011; Weiten, 2014).

Robbins and Judge (2015) distinguish between challenge stressors and hindrance stressors. Challenge stressors are associated with workload, pressure to complete tasks and time urgency. Hindrance stressors are stressors that keep a person from achieving his or her goals, for example, red tape, office politics and confusion over responsibilities.

According to Pienaar and Rothmann (2003), the South African police have to deal with one of the highest crime levels in the world. Cash-in-transit guards, VIP protectors, armed response officers and security guards, which, according to Minnaar (2005) and Sibanyoni (2014), serve similar interests as the police, work under constant threat and fatigue, and boredom often forms part of the work. Some of the stressors they experience might be chronic in nature, for example, fearing for their lives as a result of high crime rates (Diphoorn, 2015; Kole, 2015; Mbuvi, 2015; Schneider & Minnaar, 2015; Sibanyoni, 2014).

The concepts of positive and negative stress are now discussed by applying Yerkes and Dodson's "U" hypothesis.

2.3.3 Eustress and distress (positive and negative stress)

Lazarus (1993) describes eustress as the good kind of stress because it is normally associated with positive feelings and healthy bodily conditions, while distress is the bad kind, normally associated with negative feelings and disturbed bodily conditions. Eustress may enhance the immune system, while distress may impair it.

As stated by Kavanagh (2005), Yerkes and Dodson were the first to stumble upon the inverted “U” relationship between stress and performance. This inverted “U” relationship has since been supported by various researchers (Kavanagh, 2005). According to Kavanagh (2005), there are also many critics of the inverted “U” hypothesis. These critics argue that the relationship between stress and performance does not have a “U” shape. One opinion is that of a negative linear relationship – for example, stress at any level reduces task performance by exhausting an individual’s energy, concentration and time. Another opinion suggests a linear positive relationship between stress and performance – for example, with low levels of stress, challenge is absent and performance poor. Despite the empirical evidence supporting these alternative theories, the inverted “U” hypothesis is still the most naturally appealing and commonly used explanation for how stress and performance are related (Kavanagh, 2005). It provides an acceptable model of how emotional arousal could have either beneficial or disruptive effects on coping (Weiten, 2014). Figure 2.1 is a graphic representation of the inverted “U” relationship.

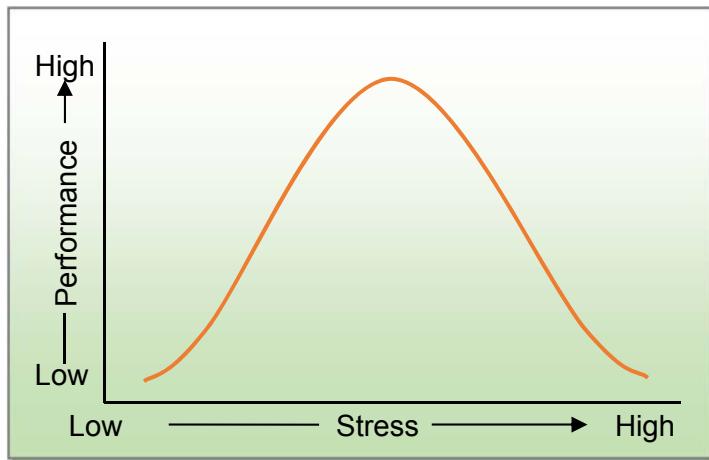


Figure 2.1. Inverted “U” relationship between stress and performance

Source: Robbins (2003, p. 583)

Prolonged exposure to stress or a single exposure to an extreme stressor can have severe negative consequences for task performance (Kavanagh, 2005). However, not all stress is negative as people normally require a certain amount of stress to complete tasks (Beheshtifar & Nazarian, 2013; Grivas, 2006; Jamieson, Mendes, & Nock, 2012; Meško et al., 2013; Robbins & Judge, 2015). Stress is generally positive when it occurs at moderate levels and contributes to effective motivation, innovation and

learning. Stress may be dysfunctional when it is unreasonably high (or low) or when it continues over a long period of time. This overpowers a person's coping abilities, leading to physical and emotional exhaustion. Stress has a positive impact on performance when the amount of work is in balance with an individual's abilities and knowledge. When workload either exceeds an individual's abilities (overload) or fails to challenge him or her (underload), he or she will experience the stress as negative (Cummings & Worley, 2015; Greenberg, 2011; Robbins & Judge, 2015; Weiten, 2014). The level of stimulation at which performance peaks is characterised as the optimal level for task performance (Hawkins et al., 2018; Weiten, 2014).

In order to explain the different stages of stress, Selye's general adaptation syndrome is now discussed.

2.3.4 The general adaptation syndrome

The concept of stress was identified and named by Selye in the 1940s when he formulated an influential theory of stress reactions known as the general adaptation syndrome (Bergh & Geldenhuys, 2016; Selye, 1973; Sisley et al., 2010; Taylor, 2015; Weiten, 2014). This syndrome is a model of the body's stress response, comprising three stages, namely alarm, resistance and exhaustion. Selye (1973) argued that when a person confronts a stressor, he or she mobilises himself or herself for action. The response itself is nonspecific in relation to the stressor – that is, regardless of the cause of the threat, the person will respond with the same physiological pattern of reactions (Selye, 1973; Taylor, 2015).

2.3.4.1 *Alarm*

In the first stage of stress, an alarm reaction occurs when an organism first recognises the existence of a threat. Physiological arousal occurs as the body prepares its resources to combat the challenge (Bergh & Geldenhuys, 2016; Colman, 2009; Greenberg, 2011; Selye, 1973; Taylor, 2015). Style's alarm reaction is essentially the fight or flight response originally described by Walter Cannon (Bergh & Geldenhuys, 2016; Weiten, 2014).

2.3.4.2 *Resistance*

According to Selye (1973), no organism can continually be in a state of alarm. As stress continues, a stage of adaptation or resistance follows. According to Greenberg and Baron (1993), activation remains relatively high, but drops to levels that are more sustainable over relatively long periods of time. During this phase, physiological changes stabilise as coping efforts get under way (Bergh & Geldenhuys, 2016; Colman, 2009; Taylor, 2015; Weiten, 2014).

2.3.4.3 *Exhaustion*

If the stress continues over a considerable period of time, the organism may enter the third stage, namely exhaustion (Selye, 1973). According to the Oxford dictionary of psychology, the organism has failed to adapt to the stressor, and this stage is characterised by a physical and/or mental disorder or disease (Colman, 2009). Chronic over-activation of the stress response can therefore have damaging physiological effects. These harmful physiological effects can lead to what Selye called diseases of adaptation (Selye, 1973; Weiten, 2014). At this point, the ability to cope, at least physically, decreases severely and severe biological damage may result if stress persists (Bergh & Geldenhuys, 2016; Greenberg, 2011). The body's resources for fighting stress are limited. If the stress cannot be overcome, the body's resources may be depleted (Govender, 2008; Greenberg, 2011; Selye, 1973; Taylor, 2015).

The fight, flight and freeze reactions to stress are now discussed.

2.3.5 *Fight, flight and freeze reactions to stress*

Cannon (1994) was one of the first theorists to describe the fight or flight response. According to him, the fight or flight response is a physiological reaction to threat in which the automatic nervous system mobilises the organism for attacking (fight) or fleeing (flight) an enemy (Cannon, 1994; Carr et al., 2011; Greenberg, 2011; Taylor, 2015; Weiten, 2014). These responses are triggered instinctively (Gloria & Steinhardt, 2016) and continuously until the stressor is over (Hawkins et al., 2018).

During traumatic events, people often die despite reasonable opportunities to escape. This is because their behaviour during the initial moments of the event was incorrect. It has been reported that victims have frozen in the face of danger (Leach, 2004). In a traumatic situation, events tend to be unpredictable and happen quickly, leaving little or no time for reflection. The faster a person can react, the better his or her chances of survival are (Leach, 2004). The physiological response to stressors is therefore adaptive. It is the body's way of preparing itself to function effectively under challenging situations by stimulating the central nervous system in preparation for performance (Kavanagh, 2005). The most severe form of performance deterioration in a crisis situation is the freeze response. This response is characterised by a total failure to respond to the situation as a result of the inability to stimulate a cognitive strategy providing a solution to the situation. This is due to the extremely high demands being placed upon a person (Delahaij, Gaillard, & Soeters, 2006; Leach, 2004).

The fight or flight response is adaptive because it enables the organism to respond quickly to a threat. It can, however, also be harmful because stress disrupts emotional and physiological functioning and when stress continues persistently, it leads to health problems (Taylor, 2015). Individuals' mind-set and worldview also narrow, and they focus all their attention on the stressor (Gloria & Steinhardt, 2016).

The fight or flight response may be less adaptive for human functioning than it was thousands of years ago. Most human stresses cannot simply be handled through fight or flight. Work pressures, marital problems and financial difficulties, as examples, require far more complex responses (Taylor, 2015; Weiten, 2014). According to Taylor (2015), fight more commonly refers to aggressive responses to stress, such as becoming angry or taking action, whereas flight is reflected in social withdrawal or withdrawal through substance use or activities that distract the person.

In the next section, different models of stress are highlighted. Some advantages and disadvantages of each model are also provided.

2.4 MODELS OF STRESS AND COPING

There are many different models of workplace stress which are important in guiding research and practice, and these vary in popularity and empirical support. The number of stress models show how many different views there are on occupational stress. Certain views, however, have been historically more popular (Mark & Smith, 2008).

While models are available in occupational and organisational psychology literature, it is widely acknowledged that police work involves unique sources of stress and a variety of coping strategies, especially social support, to deal with police officers' unique stressful circumstances (Anshel, 2000; Louw & Viviers, 2010).

A few of the models of stress and coping found in the literature are discussed below.

2.4.1 Conceptual Model for Coping with Police Stress

Anshel (2000) suggested a model for dealing with police stress. The model, as illustrated in Figure 2.2, consists of three components, that is, (1) detection of a stressor, (2) the officer's cognitive appraisal or interpretation of the stressful event, and (3) the coping styles or strategies, which may be behavioural or cognitive.

The starting point in the model is the police officer's perception of an event or situation that may be stressful. The objective of this stage is for officers to attend to relevant information and to ignore or filter out meaningless information that does not require any attention. The ability to distinguish between relevant and irrelevant information is imperative in managing police stress (Anshel, 2000).

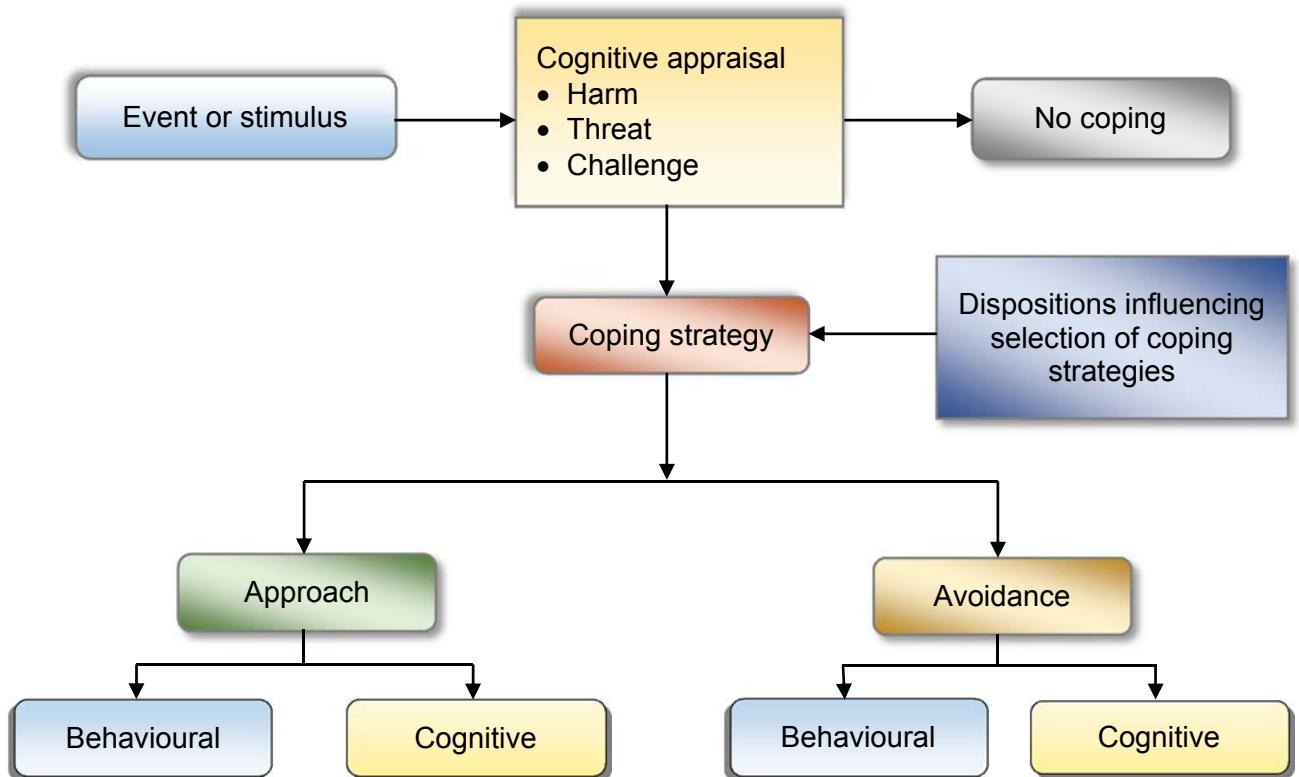


Figure 2.2. Conceptual Model for Coping with Police Stress

Source: Anshel (2000, p. 382)

The second element in the officer's interpretation of an event or situation is cognitive appraisal (see the discussion on appraisal in section 3.4). The officer will appraise the situation as either currently or potentially threatening, harmful or challenging. Cognitive appraisals influence the perceived intensity of a stressor and the choice of coping strategy (Anshel, 2000). Harm or loss appraisals reflect damage that has already occurred, that is, being injured, feeling pain, making an error or being reprimanded. Threat appraisal reflects expectations of future harm and is often appropriate in situations in which physical or psychological wellbeing is at risk, for instance, in domestic disputes where weapons and drugs or alcohol may be involved and the expectation is danger or conflict. Challenge appraisals are seen as an opportunity to gain something or to grow as a result of the stressful situation – in other words, gaining trust and confidence in the individual's ability to analyse and handle a similar difficult situation (Anshel, 2000).

The third phase in the model, after the event has been appraised, is coping. Approach and avoidance coping strategies, each consisting of behavioural and cognitive strategies, are applied. A perspective of this model is that police officers who do not make use of a coping strategy will remain stressed (Anshel, 2000). The main objective of approach coping is to improve understanding and become resourceful in dealing with stressful situations through thoughts and actions. Approach-behaviour coping entails reducing stressful situations by physically interacting with or confronting the source of stress in order to control the situation – that is, obtaining information, seeking social support, attending church, drawing a firearm or making an arrest. Approach-cognitive coping involves the individual's thoughts to control the situation in order to improve his or her resources for dealing with the situation, such as planning, analysing, psyching himself or herself up or reinterpreting the situation. Typical thoughts might be “I learnt something from the experience”, “I am in control” or “God gave me the strength” (Anshel, 2000).

Avoidance coping strategies are conscious attempts to physically or cognitively distract the person from the source of stress in order to enhance personal resources to deal with the situation more rationally. It allows the police officer to deal with low control situations more constructively by maintaining his or her focus. Avoidance-cognitive coping consists of thoughts that distract, ignore or psychologically distance the person from the stressful situation – that is, denial, rationalisation or humour. Avoidance-behavioural coping implies that the individual physically removes himself or herself from the stressful situation in order to eliminate thoughts relating to the situation – that is, physical exercise or literally moving on to the next task (Anshel, 2000).

Anshel (2000) identifies the following personal dispositions that can influence an individual's susceptibility to stress and the manner in which he or she interprets and reacts to stressful events: coping style, self-esteem, self-confidence, optimism, hardiness, extraversion, neuroticism and perfectionism.

The strength of this model is that it is based on existing stress literature (Anshel, 2000). It also comprehensively explains coping strategies in a police environment. It is easy to understand and includes the complete process of coping, from identification of a

stressor, appraisal of the situation, to applying coping strategies. Even though the model is conceptualised in a police environment, it could be applied to other high stress working environments as well. A limitation of this model is that it does not include the consequences of stress for the organisation or the individual. It also does not explicitly include non-operational stressors.

2.4.2 Work Stress Model

The Work Stress Model, as adapted from Bergh and Geldenhuys (2016), is illustrated in Figure 2.3. Work stress can influence work outcomes in various ways. This can have different consequences for an individual, including physical disease, emotional reactions, psycho-physiological symptoms, cognitive deficiencies and behavioural reactions. Stress can also be a contributing factor in psychological disorders. An individual's appraisal of stress and his or her coping resources will moderate the stressors, the consequences of stress and eventually how he or she copes with these stressful experiences (Bergh & Geldenhuys, 2016).

Even though a single stressor can have a huge influence, psychological health can be best understood by taking into account the constant interaction between a complex number of factors, as advocated by a systems approach. The interactive and circular influence of factors on an individual's behaviour, and the context of his or her behaviour should therefore always be taken into consideration (Bergh & Geldenhuys, 2016).

The strength of this model is that it is comprehensive and explains the complete process of work stress for a person; from potential stressors, factors that moderate the appraisal of the stressful event, to the possible consequences of stress for a person. The model could also be applied to different work situations and is not limited to specific types of occupations only. A potential limitation of this model is that it does not include the consequences of stress for the organisation, that is, high medical costs.

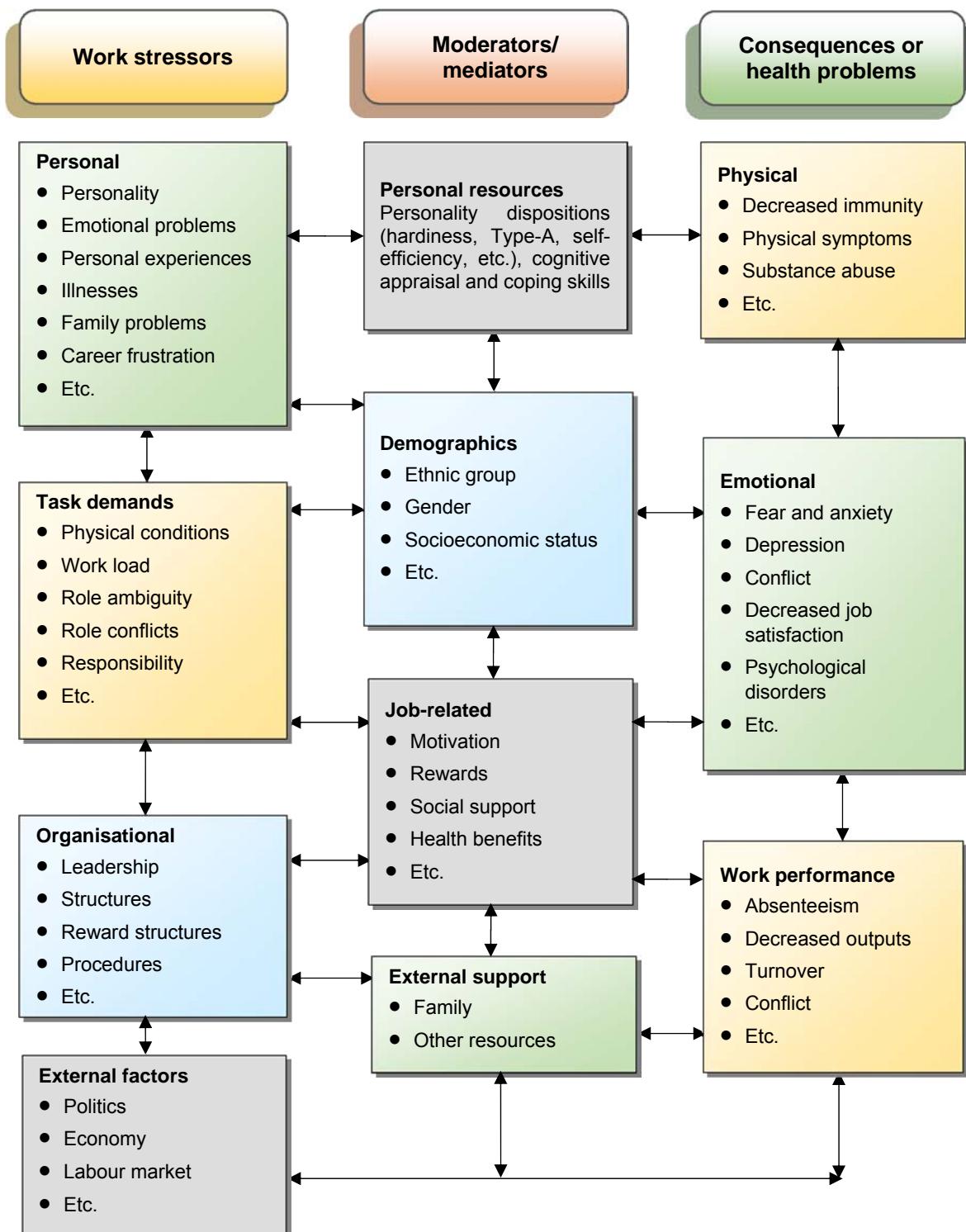


Figure 2.3. The causes, process and consequences of work stress

Source: Adapted from Bergh and Geldenhuys (2016, p. 444)

2.4.3 The Person-Environment Model of Stress

Psychological stress refers to a particular kind of relationship between a person and the environment. It involves the person, the environment and the relationship between them – in other words, the person-environment fit (Dewe et al., 2012; Folkman & Moskowitz, 2004; Lazarus, 1990; Sibanyoni, 2014; Taylor, 2015). The stress relationship is a process and therefore not static. It is constantly changing as a result of the continuous interaction between the individual and the environment (Lazarus, 1990; Moos & Swindle Jr, 1990; Weber & Laux, 1990). In effect, stress is a multivariate process that involves inputs, outputs and the intervening activities of appraisal and coping. There is constant feedback based on changes in the person-environment relationship as a result of appraisal and coping efforts (Lazarus, 1990).

Moos and Swindle Jr (1990) identified the following four main sets of environmental factors that can impact on the stress process: (1) physical features, (2) structural and policy factors, (3) collective characteristics of the people in a setting, and (4) the social climate. The characteristics of life events or circumstances that may impact on how people appraise situations may include innovation, unexpectedness of events, predictability, controllability, ambiguity, the duration of the events or the frequency thereof (Moos & Swindle Jr, 1990).

Coping is a complex process and sensitive to both the environment with its demands and resources, the personality characteristics of people that influence the appraisal of stress and their resources for coping (Folkman & Moskowitz, 2004; Mark & Smith, 2008). Coping stems from the process of appraising events as either harmful, threatening or challenging, assessing potential resources and responding to the events (Lazarus, 1990; Taylor, 2015). A good person-environment fit results in positive reactions to stress, whereas a poor fit leads to negative consequences (Bergh & Geldenhuys, 2016; Cummings & Worley, 2015; Folkman & Moskowitz, 2004; Mark & Smith, 2008).

As indicated in Figure 2.4, the following Person-Environment Stress Model, based on the above discussion, was compiled.

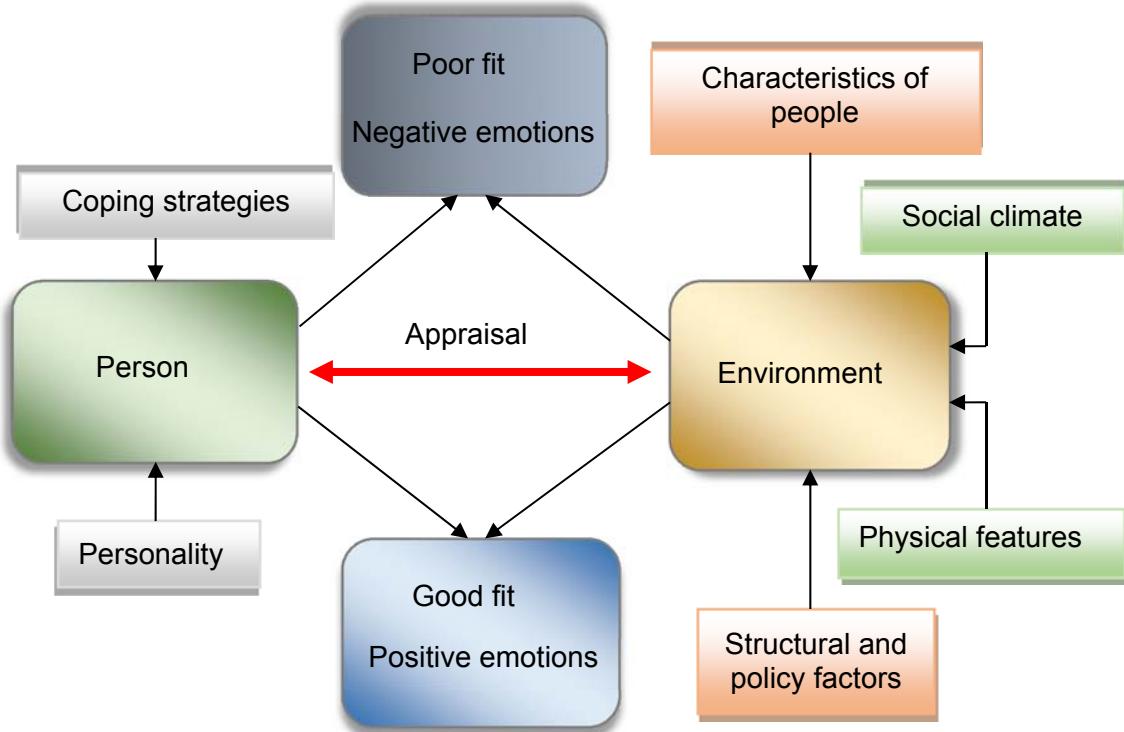


Figure 2.4. The Person-Environment Stress Model

One specific advantage of the Person-Environment Fit Model is that it is based on the idea that a person can adapt in the work setting. This is crucial for a person's overall wellbeing (Dewe et al., 2012). Research also supports the use of the Person-Environment Stress Model (Dewe et al., 2012; Sibanyoni, 2014). Another strength of this model is that it is both easy to understand and comprehensive in explaining the complexity of the stress process. Its simplicity allows it to be applied to various different occupations and even life outside of work (Dewe et al., 2012). Mark and Smith (2008), however, contend that there is limited empirical support for the theory.

2.4.4 The Job Demands-Resources (JD-R) Model

A starting point for a number of occupational stress models is that job stress is the result of interference in the balance between the demands people are exposed to and the resources they have available (Bakker & Demerouti, 2007; Mark & Smith, 2008). The core of the JD-R Model is the assumption that every occupation has its own specific risk factors associated with job stress. These factors can be divided into two general categories, namely job demands and job resources, as indicated in Figure 2.5 (Bakker & Demerouti, 2007; Fodor, Antoni, & Wiedemann, 2014; Rothmann &

Jorgensen, 2007). Job stress develops, regardless of the type of profession, when certain job demands are high and when certain job resources are limited (Bakker & Demerouti, 2007; Rothmann & Jorgensen, 2007).

Job demands refer to the physical, psychological, social or organisational characteristics of the work that requires continual physical and/or psychological (cognitive and emotional) effort or skills. These efforts or skills can be associated with certain physiological and/or psychological costs, such as depression, anxiety or burnout (Bakker & Demerouti, 2007; Mark & Smith, 2008; Rothmann & Jorgensen, 2007). Examples of job demands are high work pressure, an unfavourable physical environment and emotionally challenging interactions with clients. Even though job demands are not necessarily negative, they could become job stressors when meeting those demands requires high effort from which the person has not sufficiently recovered (Bakker & Demerouti, 2007; Rothmann & Jorgensen, 2007).

Job resources refer to the physical, psychological, social or organisational characteristics of the work that are useful in attaining work goals, reducing job demands and the associated physiological and psychological costs, and encouraging personal growth, learning and development (Bakker & Demerouti, 2007; Mark & Smith, 2008; Rothmann & Jorgensen, 2007). Job resources may be (1) at an organisational level (i.e. salary, career opportunities or job security); (2) in interpersonal and social relations (i.e. supervisor and co-worker support or team climate); (3) at work level (i.e. role clarity or participation in decision making); and (4) at task level (i.e. task significance, autonomy or performance feedback) (Bakker & Demerouti, 2007). According to the conservation of resources theory, when a person is confronted with stress, he or she attempts to minimise the loss of resources. However, when someone develops a surplus of resources, he or she is likely to experience positive wellbeing. Resources thus have a motivational influence (Dewe et al., 2012; Rothmann & Jorgensen, 2007).

Figure 2.5 is a graphic depiction of the Job Demands-Resources Model.

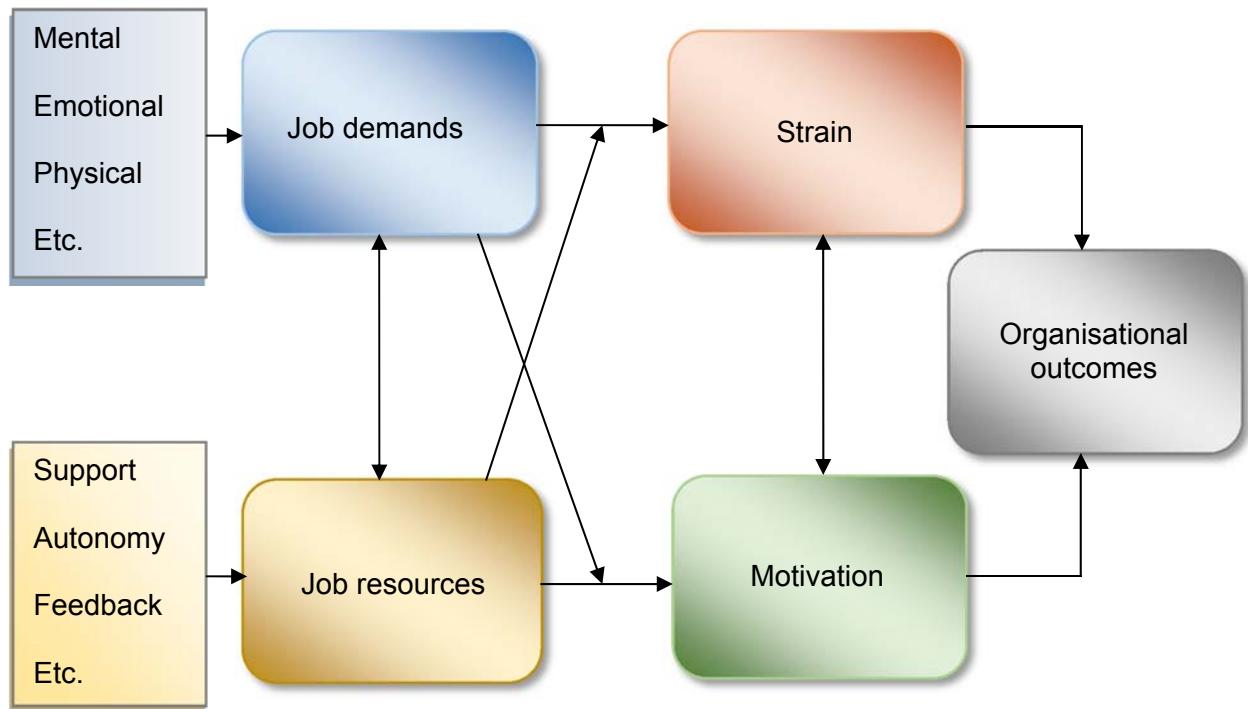


Figure 2.5. The Job Demands-Resources Model

Source: Bakker and Demerouti (2007, p. 313)

Two different underlying psychological processes play a role in the development of job stress and motivation. In the first health impairment process, poorly designed jobs or chronic job demands, that is, work overload or emotional demands, reduce a person's mental and physical resources and could lead to a state of exhaustion and consequent health problems. The second process is motivational in nature. It is assumed that job resources have motivational potential and will lead to high work engagement, low pessimism and excellent performance. Job resources may fulfil an intrinsic motivational role because they promote growth, learning and development. They may also play an extrinsic motivational role because they help to achieve work goals (Bakker & Demerouti, 2007).

A strength of the JD-R Model is that several studies have provided evidence for its use (Bakker & Demerouti, 2007). The model is flexible and can be applied to several job-related situations, irrespective of the particular demands and resources involved (Bakker & Demerouti, 2007; Mark & Smith, 2008). The model is not only easy to understand, but also detailed in summarising the demands that create stress and the resources needed to cope with the stressful situation. According to Mark and Smith

(2008), considerable research on the JD-R Model has focused only on the characteristics of the work environment. Another potential limitation of the model is that psychosocial resources are conceptualised as being static (Louw & Viviers, 2010).

2.4.5 Moos's Integrated Stress and Coping Framework

Moos's model, as illustrated in Figure 2.6, is probably one of the most comprehensive models explaining the dynamic interaction within the stress and coping process. It also includes the person's perceived control in terms of personal and social resources to maintain physical and mental health (Louw & Viviers, 2010). According to Moos (1995), the stress and coping process consists of the following five interrelated parts: (1) the environmental system, (2) the personal system, (3) acute life crisis and transitions, (4) appraisal and coping responses, and (5) health and wellbeing.

The environmental system (panel 1) incorporates ongoing life stressors such as chronic illness, as well as social resources such as support from family members in the main areas of a person's life. The personal system (panel 2) includes the person's sociodemographic characteristics and personal resources, namely self-confidence, cognitive ability and previous coping experiences (Louw & Viviers, 2010; Moos, 1995).

The model suggests that a person's cognitive appraisal of the situation and coping responses (panel 4) is influenced by acute life crisis or transitions (panel 3). These life crises or transitions are caused by environmental and personal factors (panels 1 and 2). All the combined influences, in turn, shape a person's health and wellbeing (panel 5). The mutual interaction between every phase in the model is indicated by the arrows (Louw & Viviers, 2010; Moos, 1995). The model emphasises the significant mediating role of cognitive appraisal and coping responses in the stress process (Louw & Viviers, 2010). The model is also based on the idea that people are actively involved in shaping their own life context and, in turn, affecting their health and wellbeing (Moos, 1995). Ongoing life stressors and social resources impact on how people appraise life events, as well as their choice and outcome of coping strategies (Moos, 1995).

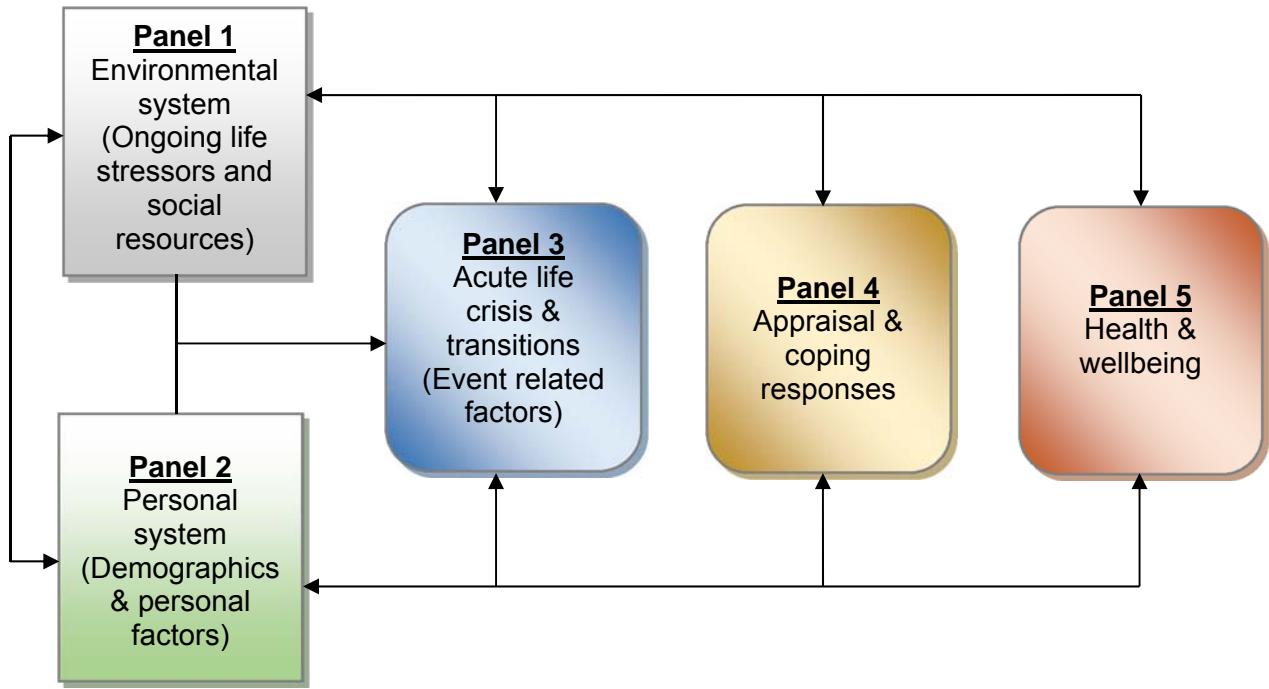


Figure 2.6. A conceptual model of the stress and coping process

Source: Moos (1995, p. 2)

The strength of the model is that it is extremely comprehensive (Louw & Viviers, 2010). It is easy to understand and can be applied in different occupational settings. A potential limitation of the model is that it does not include the consequences of stress for the organisation, that is, turnover, low productivity or accidents.

2.4.6 Cox's Transactional Model of Occupational Stress

Cox's model consists of five different stages, as depicted in Figure 2.7. The first stage represents the demands or job characteristics of the environment. The second stage represents the person's perceptions of these demands in comparison with his or her ability to cope with these demands. These two stages can be regarded as primary appraisal (see the discussion on appraisal in section 3.4). Stress occurs when there is a discrepancy between the person's perceptions of the importance of a demand, and his or her beliefs whether he or she has the ability to cope with these demands. This primary appraisal process is influenced by the internal and external demands of the environment, as well as coping abilities and resources, including support from other people (Mark & Smith, 2008).

The third stage of the model is associated with the mental and physical changes that a person experiences as a result of the stress. This stage can be seen as secondary appraisal and coping (see the discussion on appraisal in section 3.4). These psychological changes may include changes in mood, such as depression or an emotional experience such as tension (Mark & Smith, 2008). After awareness of a stressful encounter, a sequence of behaviours is initiated that either leads to an adjustment to the situation or an adjustment of the situation. A failure to adjust leads to negative health outcomes. The fourth stage of the model therefore represents the outcomes or consequences of coping. The fifth stage is a feedback process, which, according to Mark and Smith (2008) occurs in relation to all the other stages.

Mark and Smith (2008) suggest that primary appraisal is a continuous monitoring process, while secondary appraisal is a distinct decision-making process because it involves recognition of a problem, diagnosis, suggestion of possible solutions, evaluation of suggested solutions, implementation, feedback and learning. In this model, individual differences are deemed vital. Differences in locus of control, hardiness and coping resources are considered particularly important because they play a role in the appraisal of the stressful event and ultimately health outcomes (Mark & Smith, 2008). Based on the above discussion, the researcher illustrated Cox's transactional model of occupational stress as can be seen in Figure 2.7.

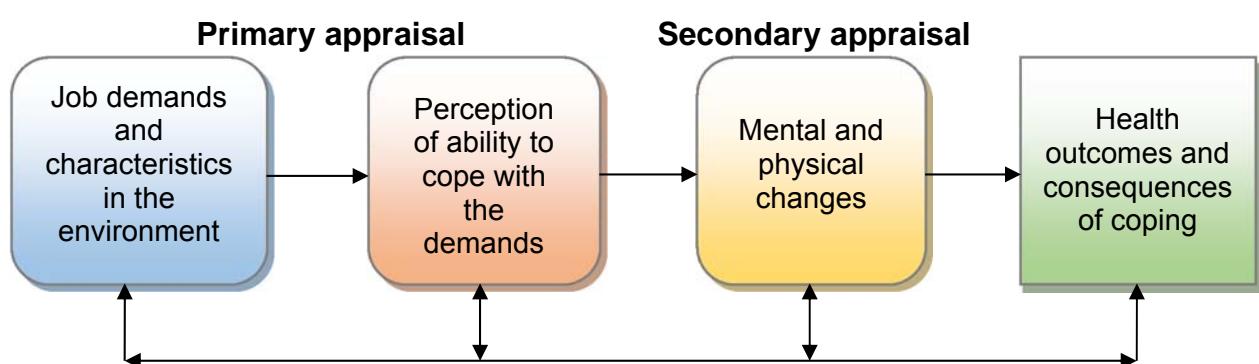


Figure 2.7. Cox's Transactional Model of Occupational Stress

According to Mark and Smith (2008), a strength of the model is the emphasis it places on individual differences in coping efforts. Another strength is that it is easy to understand and can be applied in different occupational settings. However, a limitation

of the model is that its complexity means that it is difficult to capture empirically (Mark & Smith, 2008).

2.4.7 The Demands, Resources, and Individual Effects (DRIVE) Model

The DRIVE Model, as illustrated in Figure 2.8, was developed by Mark by combining various elements of different models (Mark & Smith, 2008). This model describes workplace and individual characteristics in terms of work demands and resources, and individual demands and resources. Work demands and resources might include workload, bullying, job security, management style and feedback. Personal demands and resources might include self-efficacy, locus of control, personality, home environment, experience and role conflict (Mark & Smith, 2008).

The model suggests that work demands, individual differences and work resources all have an influence on health outcomes, that is, anxiety, depression or physical illness and job satisfaction. It also proposes that work resources and individual differences may moderate the relationship between work demands and health outcomes. The individual difference variables of positive coping and personal styles can be regarded as personal resources, whereas intrinsic effort and negative coping can be seen as personal demands. In this model, all variables are equally important in predicting outcomes. Work and individual demands and resources therefore have theoretical equivalence (Mark & Smith, 2008).

A strength of the model is that it is easy to understand and apply to different occupational settings. Mark and Smith (2008) also posit that the model has been supported by research. However, there has been limited support for a moderating effect of individual differences on work demands and only moderate support for the effect of work resources on moderating demands (Mark & Smith, 2008).

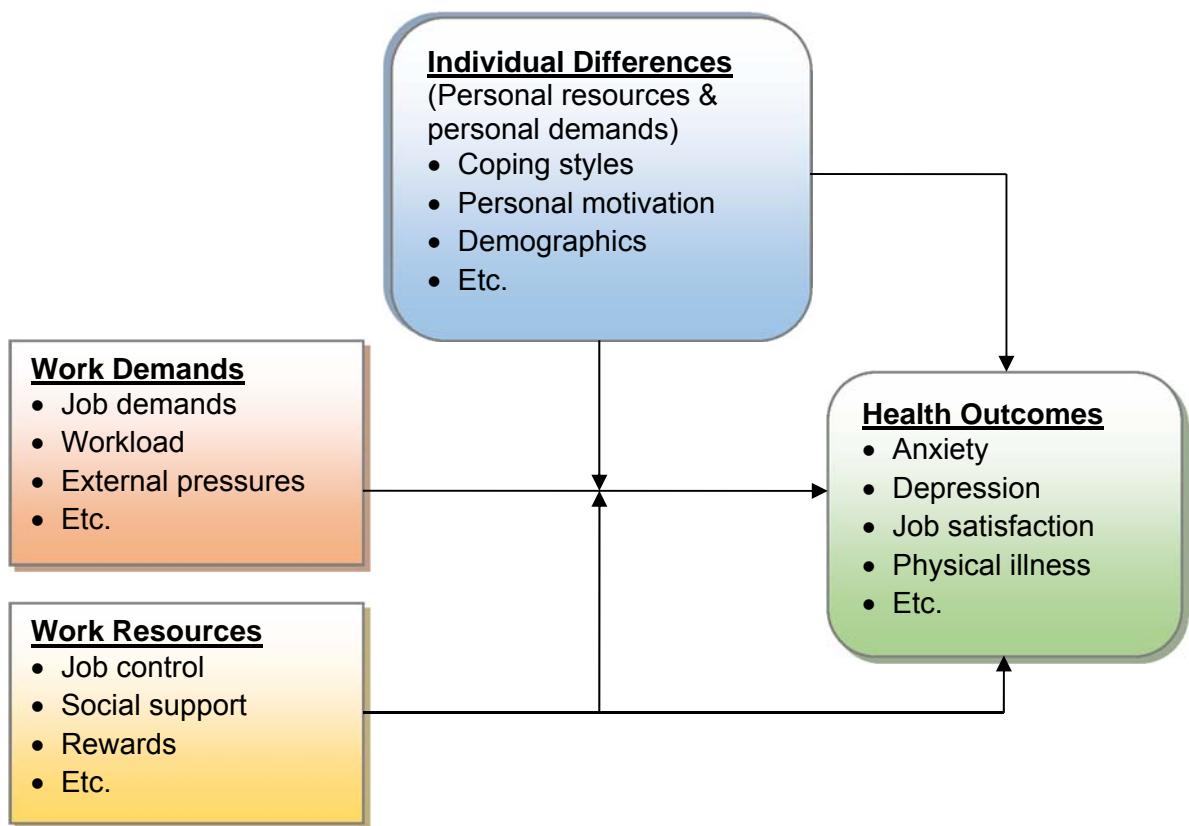


Figure 2.8. DRIVE Model of Stress

Source: Mark and Smith (2008, p. 22)

2.4.8 Summary of models and potential limitations

Based on the discussion of the different models of stress and coping above, four main themes can be identified. Firstly, stress is a complex and dynamic process because it changes over time. Secondly, there are both environmental and individual sources that can lead to stress. Thirdly, there is a process of appraisal that influences how people cope with stress, and lastly, stress leads to some type of a reaction for the individual, which has consequences for both the individual and the organisation.

Most of the models are easy to understand and can be applied to a variety of different working environments. Only the conceptual model for coping with police stress, as suggested by Anshel (2000), has been conceptualised in a police environment,

explaining a variety of different coping strategies to deal with the unique sources of stress in an operational environment.

This study elaborated on the conceptual model for coping with police stress in order to conceptualise a model for coping with stress within a high stress security environment (see section 6.2.2.3). The moderating effect of personality on appraisal and coping strategies is also included. The following elements that are not included in the models as discussed above, are addressed:

- The models do not account for the unique sources of stress in an operational environment, in which cash-in-transit guards, VIP protectors, armed response officers and security guards work, namely violence, death and intimidation. The model, as suggested by Anshel (2000), does account for the operational environment, but does not explicitly include the non-operational environment. None of the models discussed therefore incorporate both environments.
- Since different coping strategies are used, the consequences for the individual and organisation tend to be different – that is, higher occurrences of suicide and post-traumatic stress disorder, leading to higher costs for security organisations. These consequences have also not been included in the conceptual model for coping with police stress.

In the next section, the causes of stress are discussed, including the more specific causes of stress in a high stress security environment.

2.5 OCCUPATIONAL SOURCES OF STRESS

According to Endler and Parker (1990), stress, anxiety and coping are unavoidable aspects of everyday life. Stress is a process, and stressful events can therefore change over time as a result of coping efforts and changing environmental conditions. The dynamics of one stressful event may lead to the creation of other stressful events, as these events are not isolated elements, but interconnected (Weber & Laux, 1990). After the Second World War, it became evident that many situations of normal life could produce similar effects to those of combat. This led to an increasing interest in

stress as a cause of human distress and dysfunction (Lazarus, 1993). Stress is becoming a more predominant subject in our fast-paced society as a result of prolonged periods of economic recession, increases in international competition and continuous technological changes (Carr et al., 2011).

Stress is caused by many factors such as the following: (1) personal factors (e.g. financial problems or illness), (2) societal (external) factors (e.g. a poor economy and crime), and (3) organisational factors (e.g. job-related demands). These can all be a major source of stress (Bergh & Geldenhuys, 2016; Greenberg, 2011; Robbins & Judge, 2015). Being responsible for other people also tends to result in higher levels of stress (Greenberg, 2011; Robbins & Judge, 2015). Cash-in-transit guards, VIP protectors, armed response officers and security guards are responsible for the lives of their colleagues as well as the property and lives of the clients they serve.

The word “stress” tends to trigger images of an overwhelming, traumatic crisis. However, researchers have found that everyday problems are also significant forms of stress. Many everyday events, such as waiting in line, having car trouble, shopping, misplacing keys and staring at accounts that cannot be paid, are also stressful. Research has indicated that these routine problems may have significant harmful effects on mental and physical health (Carr et al., 2011; Lazarus, 1990; Taylor, 2015; Weiten, 2014). Carr et al. (2011) found that poor communication is one of the most commonly mentioned causes of stress in organisations. Working shifts or overtime can also be a major source of stress for a person (Beheshtifar & Nazarian, 2013; Waters & Ussery, 2007). According to Cummings and Worley (2015), any aspect of the organisation, including the physical environment, structures, roles or relationships can cause negative stress. A single stressor in itself may be fairly insignificant, but if added to an already high level of stress, it can become too much (Robbins & Judge, 2015).

Theorists have tried to analyse the nature of stressful events by dividing it into subtypes. This was done in order to develop a better understanding of stress. However, none of the proposed frameworks for organising stressful events into overlapping categories have been shown to be completely satisfactory (Weiten, 2014).

Although events are not necessarily inherently stressful, some characteristics make them more likely to be appraised as stressful (Taylor, 2015).

The following characteristics of stressful events may be a source of stress for a person:

- **Frustration:** Pillay and Claase-Schutte (2004) acknowledged frustration as a source of stress for security personnel. Louw and Viviers (2010) also identified frustration as a source of stress in the South African Police Service. Many frustrations are brief and insignificant and the frustration is soon forgotten. However, some frustrations, such as failures and losses, may be a significant source of stress. Essentially, a person will experience frustration when he or she wants something but cannot have it (Weiten, 2014). Frustration, according to Bergh and Geldenhuys (2016), is the interference with a person's goal achievement or goal maintenance.
- **Conflict:** Pillay and Claase-Schutte (2004) identified conflict as a source of stress for security personnel. Conflict is an inevitable part of daily life and arises when two or more incompatible motivations or behavioural impulses compete for expression (Bergh & Geldenhuys, 2016; Weiten, 2014). Role conflict exists when an employee receives opposing expectations that cannot be satisfied at the same time (Cummings & Worley, 2015; Greenberg, 2011; Robbins & Judge, 2015).
- **Change:** Life changes characterise an important type of stress and can be described as any significant changes in a person's living circumstances that require adjustment. Even positive events can produce stress because they lead to change (Holmes & Rahe, 1967; Pillay & Claase-Schutte, 2004; Weiten, 2014). Pillay and Claase-Schutte (2004) identified change as a source of stress for security personnel. Unexpected changes in routine can lead to feelings of being uncomfortable and nervous at the same time, turning a person's life upside down (Van der Linde-De Klerk, 2010). The ability to adjust and adapt quickly to rapidly changing conditions is increasingly important in many occupations, especially the military (Bartone, Kelly, & Matthews, 2013). When a person needs to adjust to a changing environment, the likelihood of stress will increase (Taylor, 2015).
- **Pressure:** Pillay and Claase-Schutte (2004) identified external pressure from other people as a source of stress for security personnel. Pressure involves

expectations or demands that a person must behave in a certain way. A person is under pressure to perform when he or she is expected to complete tasks and responsibilities quickly, professionally and successfully. It may be from any source such as self-imposed pressure, pressure from work, family relations, relations between colleagues or intimate relations (Weiten, 2014).

- **Negative events:** Negative events produce more stress than positive events. Positive events, such as a new promotion, getting married and going on holiday are less stressful than negative or undesirable events such as the death of a friend or colleague, or dealing with a violent person. Negative events produce more psychological distress and physical symptoms than positive events (Billings & Moos, 1981; Folkman & Moskowitz, 2004; Taylor, 2015).
- **Uncertainty:** According to Rory Steyn, former VIP protector of the late President Nelson Mandela, dealing with uncontrollable events is part and parcel of the work of VIP protectors (Steyn & Patta, 2000). Maree et al. (2002) found that cash-in-transit guards are aware of their vulnerability because they do not know beforehand where or when an in-transit robbery is going to happen. They therefore have no control over their future as the outcome of the robbery is managed by external factors. For each call that police officers attend, there is the likelihood of a violent confrontation with the ever-present possibility of being killed by an unknown assailant (Waters & Ussery, 2007). Johan Marais, former member of the South African Police Service, described his work as nerve racking because he never knew what was waiting for him when he entered a building (Marais, 2010). Uncontrollable or unpredictable events can be stressful, especially if they are also unexpected. If people feel that they can predict, change or remove a negative event, they experience less stress, even if they can do nothing about it (Beheshtifar & Nazarian, 2013; Dolan & Adler, 2008; Folkman & Moskowitz, 2000; Taylor, 2015). Louw and Viviers (2010) also identified uncertainty as a source of stress in the South African Police Service. According to Gumani, Fourie, and Terre Blanche (2013), having a sense of control over work contributes significantly to a person's health. South African police officers are exposed to various organisational and social stressors over which they have little or no control (Louw, 2014). Wetstein (2013) explains how cash-in-transit guards frequently have to enter dangerous areas without knowing what could happen to them. Former South African Special

Forces operator, Wynand du Toit, also explained how the uncertainty of operations can lead to stress (Du Toit, 2015). Robbins and Judge (2015) identified uncertainty as the principal reason why people have trouble coping with organisational changes. Because uncertainty forms a huge part of the work of cash-in-transit guards, VIP protectors, armed response officers and security guards, dealing with uncertainty was included in the High Risk Coping Questionnaire (HRCQ).

- **Ambiguous events:** Role ambiguity can be associated with anxiety, depression and resentment (Caplan & Jones, 1975). In role ambiguity, a person does not clearly understand what others expect of him or her (Caplan & Jones, 1975; Cummings & Worley, 2015; Greenberg, 2011; Robbins & Judge, 2015). Ambiguous events are more stressful because it becomes difficult for a person to take the necessary action. The person devotes more energy to trying to understand the stressor, which may be a time consuming and resource-draining task as he or she becomes stuck in the problem definition stage. The ability to take direct action is usually correlated with less distress and better coping (Taylor, 2015).
- **Overload:** According to Pienaar and Rothmann (2006) and Louw and Viviers (2010), work overload is a source of stress in the South African Police Service. Overloaded people experience more stress than people with fewer tasks to perform. One of the main sources of work-related stress is job overload – the perception that the person is responsible for doing too much in too short a time (Cummings & Worley, 2015; Duxbury et al., 2015; Robbins & Judge, 2015; Taylor, 2015).
- **Anticipating stress:** Anticipation of a stressor increases a person's physiological response to the stressor and can be accountable for the majority of the stress response. This suggests that merely thinking about a stressor might be enough to cause a stress response (Kavanagh, 2005). Taylor (2015) also concurs that the anticipation of a stressor can be as stressful as the actual stressful event, and sometimes even worse.

Stress in high stress security environments is now discussed.

2.5.1 Stress in high risk occupations

“Robbery is a reality, it can happen anytime.”

Cash-in-transit guard, as cited in Maree et al. (2002, p. 99).

There is a scarcity of literature on the South African private security industry. The studies that have been completed, focus on the developmental history of the security guard occupation, burnout and trust in security guards. However, challenges such as work stress have not been comprehensively researched or documented (Sibanyoni, 2014). The work in the private security industry in South Africa is closely intertwined with the work of police officers and military personnel (Minnaar, 2005; Schneider, 2013; Sibanyoni, 2014). Owing to the fact that limited literature could be found on stress in the private security industry, in this study, it was deemed necessary to include stress in the police and military in the discussion.

Work that is both physically and emotionally demanding, as well as lacking in flexibility and control, has been characterised as particularly stressful (Gershon et al., 2009). All work is to a greater or lesser degree challenging, but hazardous work is extremely challenging. While specific types of dangers differ across professions, unpredictable combinations of death, injury, and psychological demands are involved in hazardous work. The main element in dangerous working environments is that these environments experience nonstop change. People working in these dangerous environments have to continuously adapt, and this places them at high risk, regardless of the specifics of the dangers (Strümpfer, Eiselen, Meiring, & Phalatse, 2010). Military and other personnel who work in high risk professions are exposed to a range of severe stressors during their career (Binsch, Van Wietmarschen, & Buick, 2017).

The military environment is a workplace with the full range of occupational stressors, as well as additional stressors specific to the military (Dolan & Adler, 2008). It is physically and psychologically more demanding than most civilian careers (De Beer & Van Heerden, 2014; Kavanagh, 2005). Military occupations are not only dangerous during times of war, but they are also highly stressful, even in times of peace. Stress is therefore a constant occurrence in the life of military personnel (Osa-Afiana, 2015).

According to Hobfoll et al. (1991), people experience more distress if they encounter threats to their own lives as part of their work. Similarly, people who work in dangerous environments and may witness the death and injury of colleagues or civilians will also experience more distress (Hobfoll et al., 1991). Some of the most significant stressors associated with a military context are uncertainty, long working hours, fatigue, risk of death or disease, boredom and sleep deprivation. However, in combat operations, the risk of death or personal injury and the threat of receiving hostile fire are much higher (Delahaij et al., 2006; Dolan & Adler, 2008; Kavanagh, 2005). Operations in urban areas, for example, are characterised by uncertainty about the presence of enemy threat. This in itself can elicit stress reactions, which negatively affect perceived control over the situation (Delahaij et al., 2006). Cash-in-transit guards, VIP protectors, armed response officers and security guards primarily work in urban areas where there is a constant threat of armed criminals.

Conventional military forces that are involved in international peace, stability or rebuilding efforts increasingly find themselves working together with private security organisations (Berndtsson, 2013). These organisations provide any duties from static protection, such as guarding a building or a quick reaction force (Berndtsson, 2012, 2013; Schneider & Minnaar, 2015), to armed convoy escorts or intelligence gathering (Berndtsson, 2012, 2013; Schneider & Minnaar, 2015). Some private security organisations are also outsourced to provide personal protection (VIP protection) in conflicting countries (Berndtsson, 2012; Mbuvi, 2015; Schneider & Minnaar, 2015).

Researchers describe police work as one of society's most stressful occupations (Anshel, 2000; LeBlanc et al., 2008; Louw, 2014; Louw & Viviers, 2010; Tuckey et al., 2012). Similarly, police officers in the South African Police Service are exposed to highly stressful situations. This is because of the socioeconomic and political turmoil of the past three decades, which have been characterised by extreme levels of crime and violence (Louw & Viviers, 2010; Pienaar & Rothmann, 2006). Members of the South African police often have to make sacrifices to ensure the safety of the public. This may include working long hours, working away from home and working under difficult circumstances (Rothmann & Jorgensen, 2007). Police officers experience the

same organisational stressors as other occupations, as well as unique operational stressors (Adams & Buck, 2010; Gershon et al., 2009).

Duxbury et al. (2015), Gershon et al. (2009), Manzoni and Eisner (2006) and Tuckey et al. (2012) found in police literature that organisational stressors are experienced as being more stressful than operational stressors in a police environment. Attending to a physical scenario may be stressful and could raise adrenaline levels. However, the rewards relating to dealing with such an experience can help the police officer cope with the added stress of the incident. By contrast, organisational activities do not have the same rewards as the operational work because organisational activities are viewed as a hindrance to performing police work itself. According to Tuckey et al. (2012), exposure to potentially traumatic events or critical incidents is an inherent part of operational policing.

When strains such as a dangerous work environment are consistently placed upon employees, their stress levels may increase (Poisat et al., 2014). It is therefore essential to have effective general coping resources (De Beer & Van Heerden, 2014). Exposure to major, chronic or recurrent stress, including exposure to violence, may lead to higher risks for disease (Taylor, 2015). Studies on occupational stress have revealed that police officers are exposed to acute and chronic stressful events, which can result in impaired psychosocial wellbeing and physical health (Maran, Vareto, Zedda, & Ieraci, 2015).

Even though cash-in-transit guards, armed response officers and security guards are not military or police personnel, they are expected to work in dangerous environments on a daily basis where an armed attack from criminals may be imminent. Cash-in-transit robberies are an ongoing problem in South Africa – not necessarily because of their frequency, but because of the high levels of violence associated with such attacks (Schneider, 2013). Cash volumes in South Africa have doubled since 2003, with more than 60% of payments for goods and services being in cash. Owing to these large amounts of cash, cash-in-transit guards have increasingly become the victims of violent and hostile crimes (Poisat et al., 2014).

Löfstrand, Loftus, and Loader (2016) describe security work as dirty work. Dirty work can be divided into physical taint, social taint and moral taint. Physical taint occurs in occupations where the work is either directly associated with garbage, death or performed under mostly harmful or dangerous conditions. Private security personnel need to deal with physically dirty people, material, vomit and other body fluids. They are also involved in dangerous and/or violent situations. Social taint occurs in occupations where there is regular contact with people or groups who are considered to be stigmatised, or where a worker seems to have a submissive relationship with other people. Security personnel interact with members who are either stigmatised or disliked, for example, the homeless, drug users and known offenders. Many employers, customers and, to some extent, the police, also regard such individuals as being in an inferior and submissive relationship. Rory Steyn (Steyn & Patta, 2000) describes how VIP protectors are treated as servants by some of the VIPs being protected. Moral taint occurs in occupations where the occupation itself is normally regarded as somewhat sinful or of doubtful virtue, or where the worker is believed to use approaches that are deceptive, intrusive or confrontational. Security employees are judged by people as being untrustworthy, or in many cases, they have doubts about the legitimacy of their own work (Löfstrand et al., 2016).

Security personnel work under dangerous and/or life-threatening circumstances that include protecting people and property in areas prone to violence (Pillay & Claase-Schutte, 2004). VIP protectors often work long and irregular hours (Pillay & Claase-Schutte, 2004; Steyn & Patta, 2000), and have to escort people in areas that are deemed dangerous. They have to be prepared for an attack at any time, which place them under extreme stress (Pillay & Claase-Schutte, 2004; Steyn & Patta, 2000). They also travel constantly and therefore spend a lot of time away from home (Steyn & Patta, 2000). Owing to large amounts of cash-in-transit, security vehicles have become favourite targets for armed robberies (Maree et al., 2002). Cash-in-transit guards are therefore under continuous threat because of the work they do. Both the guards and their vehicles are highly visible, increasing the risk of attack. They often have to enter high risk areas to do their work, increasing their levels of stress (Pillay & Claase-Schutte, 2004). Armed response officers do not always know what to expect when they are responding to an alarm. Not all armed response officers are issued with a bullet proof vest, which increases their levels of stress when they have to attend

to an alarm, as they can be attacked at any time (Pillay & Claase-Schutte, 2004). According to Kole (2015), security employees in South Africa are faced with a higher rate of violent situations while performing their duties than any other security employees elsewhere in the world.

Security personnel who work night shift are usually more vulnerable as violent attacks normally occur late at night or in the early hours of the morning (Pillay & Claase-Schutte, 2004; Sibanyoni, 2014; Wetstein, 2013). Intimidation and victimisation in the security industry are a regular occurrence. All of this results in security employees' families being concerned about their safety. This adds to the stress experienced by security personnel (Pillay & Claase-Schutte, 2004; Wetstein, 2013). According to Waters and Ussery (2007), most police families live in constant fear. The partners and children of police officers worry about the danger the officer faces every time he or she leaves the house. This can lead to additional stress being experienced by police officers. Former Special Forces operator, Wynand du Toit, described the uncertainty he experienced while being a prisoner of war in Angola. He constantly worried about what would happen to his family if he did not return to South Africa (Du Toit, 2015). According to Sibanyoni (2014), security personnel experience verbal aggression in the form of swearing and shouting, as well as physical abuse, and being threatened and assaulted.

It is not only the physical danger involved in the work of private security personnel that creates stress. A common shared stressor in the private security industry is the long working hours (Sibanyoni 2014). According to Löfstrand et al. (2016), doubts about their own self-worth, being looked down upon, being confronted with dishonesty and immorality, as well as being in a submissive relationship with clients, can also lead to stress.

The consequences of stress are now discussed.

2.6 CONSEQUENCES OF STRESS

*"I used to take other people's lives and feelings into consideration and enjoyed having fun.
My whole approach to life has changed since the in-transit robbery."*

Cash-in-transit guard, as cited in Maree et al. (2002, p. 94).

According to Holmes and Rahe (1967), there is strong evidence that stressful life events play an instrumental role in the natural history of many diseases. Constant distress and long-term danger are more related to dysfunction than severe life events. People who experience more chronic stressful situations may thus experience an increase in ongoing stressors and a decline in social resources. This may impair the person's ability to adapt, impacting on his or her health and wellbeing (Gruber, Kilcullen & Iso-Ahola, 2009; Moos & Swindle Jr., 1990). According to Anshel (2000) and Pienaar and Rothmann (2003), the wellbeing of police officers is directly affected by how well they cope after exposure to stressful events. While some police officers start their careers in excellent physical health, some retire early or even die from accumulated job-related stress (Waters & Ussery, 2007). According to Marais (2010), a former South African police officer, many police officers resigned as a result of stress, but they took the scars with them. He also described how it felt as if he had aged a few years after attending a highly traumatic incident. The constant exposure to extreme stress gradually broke him down without him even being aware of it (Marais, 2010).

Uncertainty or lack of control may increase the negative effects of stress on performance in different ways. Firstly, uncertainty necessitates that the person spends additional time thinking about the appropriate response and even preparing for different outcomes. This may lead to a delay in action as the body is forced to be on standby. In addition, uncertainty can result in disaster or worst-case scenario thinking, which may distract the person from the task that needs to be completed. Research found that battle fatigue and other stress reactions might account for as many as 50% of the casualties in any given war (Kavanagh, 2005).

Kavanagh (2005) further suggests that stress affects a person's cognitive performance and decision making. An individual may ignore peripheral stimuli, make decisions based on rule of thumb, suffer from narrow thinking (performance rigidity) and lose the ability to analyse complicated situations. He or she may complete tasks with reduced accuracy or take longer to finish them. Individuals may make decisions based on incomplete information and fail to consider the additional alternatives available (Delahaij et al., 2006; Du Toit et al., 2012; Kavanagh, 2005). Social behaviour is also affected. People seem to be less willing to help others when they are suffering from the consequences of stress (Delahaij et al., 2006; Taylor, 2015). According to Beheshtifar and Nazarian (2013), the safety of other people can be affected by the stress that one person experiences.

It is essential for cash-in-transit guards, VIP protectors, armed response officers and security guards to support each other. Even though they do not always work in teams, they do support each other in times of need. It is also vital for them to stay focused in their work. They must be able to keep a clear head when dealing with a threatening situation. When transporting large amounts of cash, cash-in-transit guards must be alert at all times in order to try and avoid an attack, but also to find alternative solutions should they suspect an attack. It is similarly crucial for armed response officers to be alert and focused while responding to an alarm as any situation can unfold when they reach the client's premises. To avoid any surprise attack, VIP protectors must be alert at all times, even when the client has reached his or her destination. Security guards must constantly be on the lookout for any suspicious person or behaviour to prevent criminal activity.

According to Grivas (2006), the consequences of persistent stress include an adverse impact on psychological and physical health. Evidence suggest that stress mainly has negative effects for performance (Greenberg, 2011), as well as an increased risk of premature death (Keller et al., 2012). According to Keller et al. (2012), the appraisal of both the amount of stress and its impact on health may work in collaboration to increase the risk of premature death. Situations that are perceived as a challenge are characterised by improved cardiac efficiency, whereas situations that are perceived as a threat decrease cardiac efficiency (Jamieson et al., 2012). A severe outcome of stress can be suicidal tendencies or actual suicide (Adams & Buck, 2010; Beheshtifar

& Nazarian, 2013; Maree et al., 2002; Pienaar, Rothmann, & Van De Vijver, 2007; Tuckey et al., 2012). Suicide among police officers is much higher than among individuals in the business world or government service (Waters & Ussery, 2007). According to Govender (2008) and Pienaar et al. (2007), the suicide rate of South African police members is one of the highest in the world. Former South African police officer, Johan Marais, indicated how he had considered suicide on two different occasions in his life (Marais, 2010). According to Sibanyoni (2014), armed security guards in South Africa, as with police and military personnel, have extremely high suicide rates.

A person has a reasonably constant normal state of arousal when awake, until some event or activity changes it significantly. In a high stress environment, the frequency of stressful events may prevent individuals from recovering adequately. They will only return to their original normal state of arousal after they have finished work for the day. Recovery at this stage is likely to take longer than it would from a single stressful event. These higher levels of arousal become their new normal state, interrupted only by sleep, or in some instances, by an alcohol or a drug-induced stupor (Sisley et al., 2010). This intensified and long-lasting state of stress increases a person's risk for a number of serious health problems (Gloria & Steinhardt, 2016; Hawkins et al., 2018).

To name only some of the major consequences, stress can be linked to hypertension, heart disorders, diabetes, asthma, chronic pain, allergies, headache, backache, various skin disorders, cancer, immune system weakness, smoking, accident proneness, violence, sleep disturbances, anxiety and depression (Bergh & Geldenhuys, 2016; Osa-Afiana, 2015; Robbins & Judge, 2015; Selye, 1973; Taylor, 2015). It can also lead to alcoholism and drug abuse, two problems that are reaching epidemic proportions in organisations and society (Adams & Buck, 2010; Beheshtifar & Nazarian, 2013; Cummings & Worley, 2015; Hobfoll et al., 1991; Robbins & Judge, 2015). Stress affects a person's health by compromising the body's immune system (Bergh & Geldenhuys, 2016; Taylor, 2015).

According to Anshel (2000), many police officers have relatively poor coping skills. Research also suggests that members of the South African Police Service are not coping well (Pienaar & Rothmann, 2003, 2006). This is evident in the reported

instances of illness, post-traumatic stress, medical boarding, burnout, alcohol abuse, suicides, decreased levels of job satisfaction and job performance, and high levels of absenteeism and resignation (Pienaar & Rothmann, 2003, 2006; Rothmann & Jorgensen, 2007). Research has found that police officers who tend to use more force when apprehending suspects, consistently reported higher levels of stress (Manzoni & Eisner, 2006). Gershon et al. (2009) also found that police stress can be associated with maladaptive and antisocial behaviour, namely hyper aggressiveness and violence, both on and off the job. Sibanyoni (2014) also suggests that private security guards lack effective coping strategies. This is evident in the high levels of alcohol abuse and high suicide rates linked to the private security industry.

Cash-in-transit guards are exposed to traumatic armed robberies, which usually lead to post-traumatic stress disorder (Maree et al., 2002; Pillay & Claase-Schutte, 2004). Maree et al. (2002) found that victims of in-transit robberies could become obsessive over personal safety and might even continually warn colleagues to be on the lookout for possible attacks. Hence cash-in-transit guards may become more prone to psychological disorders due to physical danger, shift work and an unsafe work environment. This leads to a decline in their effectiveness. It was stated in 2007, that the impact of violence on the private security sector should become a matter of serious concern. Organisations need to become more proactive to assist cash-in-transit guards with stress management, access to psychological services, and drug and alcohol rehabilitation (Poisat et al., 2014).

According to Taylor (2015), stress can influence health through four important pathways, namely physiological, health behaviours, psychosocial resources and health care.

- The first pathway involves direct impacts on physiology. Stress changes biological functioning and can result in high blood pressure, diminished ability of the immune system to fight infection, and changes in lipid levels and cholesterol, to name a few.

- The second set of pathways concerns health behaviours. People who live with chronic stress normally have bad health habits, which may include smoking, poor diet, little sleep, little exercise and the use of substances such as drugs and alcohol.
- The third pathway is when stress affects psychosocial resources in ways that have a negative influence on health. Social support is good for health, but stress can result in a person avoiding these social contacts, or even worse, behaving in ways that drive others away.
- The fourth set of pathways includes the use of health services and adherence to treatment recommendations. When stressed, it is less probable that people will adhere to prescribed treatments. They may also delay seeking care for illnesses that should be treated.

According to Singh (2005), the private security sector experiences considerable staff turnover of about 200% per annum. Hence stress can be extremely costly for an organisation as well (Carr et al., 2011; Duxbury et al., 2015; George & Le Fevre, 2010; Taylor, 2015). Employees may take matters into their own hands to reduce their stress by not working as long, hard or effectively as their employers expect them to (Taylor, 2015). Stress also leads to costly health benefits (Cummings & Worley, 2015; Duxbury et al., 2015), high turnover, increased absenteeism, poor performance (Cummings & Worley, 2015; Duxbury et al., 2015; Osa-Afiana, 2015; Sibanyoni, 2014) and accidents (Beheshtifar & Nazarian, 2013; Greenberg, 2011; Ongori & Agolla, 2008; Osa-Afiana, 2015).

The following section provides a detailed discussion of the security industry in South Africa.

2.7 THE SECURITY INDUSTRY IN SOUTH AFRICA

The increase in crime, vandalism and terrorism has led to the demand for the services offered by the private security industry. These real threats or risks could lead to emotional, economical or physical harm. Security measures are therefore needed to discourage and minimise the potential harmful effects of real or perceived danger (Lubbe, 2010). According to Berndtsson (2012), we live in a time where security and

risk have become fundamental features of our everyday life. People are becoming increasingly more dependent on security experts to help predict and manage all kinds of risks, threats and dangers. These experts are not from the government, but from private security organisations (Berndtsson, 2012). Even though scholars and historians have never recorded the full history of the private security industry, its origins can be traced back to the 1970s in Europe. Security guards were hired to assist the state police in managing the growing concern over crime (Sibanyoni, 2014).

The private security industry and police serve similar interests. Private security organisations serve the interests of a contracting organisation or a client, while the police the interests of the wider public. In essence, both endeavour to reduce crime and prevent client losses by maintaining order and protecting their respective clients (Kole, 2015; Minnaar, 2005; Minnaar & Ngoveni, 2004; Sibanyoni, 2014). According to Schneider (2011), the tasks of private security and police are not in conflict, but rather complementary, and frequently closely related. This explains why the role of private security and the police has become increasingly blurred (Kempa & Singh, 2008; Kole, 2015; Löfstrand et al., 2016; Van Steden & Nalla, 2010; White, 2011).

Berndtsson (2013) also suggests that there is an unclear division of labour, authority and responsibility between military, police and private security contractors. Kole (2015), and Van Steden, Van der Wal, and Lasthuizen (2015) postulate that police officers and private security guards can jointly enhance security for the public because both groups work in the security field and have similar duties.

Despite the fact that there are certain differences, the term “private policing” is often used to describe the security industry (Schneider, 2011). The term “parapolice” has also been used to describe some private security organisations as they seek to take over police duties, including foot patrols, law enforcement and making arrests (Van Steden & Nalla, 2010; Van Steden et al., 2015).

2.7.1 The role of private security

The private security industry in South Africa contributes significantly to the economic growth of the country. This is done by protecting assets and economic resources

worth hundreds of billions of rand (Pillay & Claase-Schutte, 2004). The South African security industry is the third largest employer in the country, with most of the services focusing on the guarding sector (Schneider, 2011). The role of the security industry in South Africa is to protect and safeguard people and property (Pillay & Claase-Schutte, 2004; Schneider & Minnaar, 2015; Sibanyoni, 2014), as well as the maintenance of public law and order (Sibanyoni, 2014). Security offers protection against risk, harm, loss and criminal activity (Mbuvi, 2015).

The South African Criminal Procedure Act allows private security personnel to use forced entry into a building to search a property without a warrant, to search suspects and to confiscate property. They may also use physical force to arrest suspects and even lethal force if needed (Republic of South Africa, 1977). The Code of Conduct for Security Service Providers, however, states that these actions are only permitted if such conduct is reasonably necessary and in accordance with the law (Department of Safety and Security, 2003). According to Singh (2005), these powers have been granted to security personnel in terms of being private persons, and not because of special powers.

2.7.2 Growth in the private security industry

The private security industry has experienced rapid growth globally in the past few years (Berndtsson, 2012; Kole, 2015; Lubbe, 2010; Mbuvi, 2015; Sibanyoni, 2014). This is also true in South Africa. Since the 1970s, the South African private security industry has grown at a rate of anything up to 30% per annum (Kole, 2015; Minnaar, 2005), at twice the rate of the public policing sector since 1995 (Minnaar & Ngoveni, 2004). According to White (2011), private security personnel therefore significantly outnumber police officers in South Africa. The ratio between private security guards and police in 2013 was 4:1 (Kole, 2015).

With this growth, and the changing forms of policing in South Africa, increasing demands for greater involvement in policing and crime prevention activities have been placed upon the private security industry (Hendricks & Musavengana, 2010; Kole, 2015; Lubbe & Barnard, 2013; Minnaar, 2005). This is a result of the rise in the crime rate (Hendricks & Musavengana, 2010; Kempa & Singh, 2008; Lubbe, 2010; Mbuvi,

2015; Sibanyoni, 2014) as well as the perceptions of the public about the effectiveness of the police to provide safety, law and order, coupled with the declining trust in the police to prevent crime (Kole, 2015; Lubbe & Barnard, 2013; Mbuvu, 2015; Sibanyoni, 2014).

2.7.3 Security occupations

VIP protectors, cash-in-transit guards, armed response officers and security guards that formed the population of the research are now discussed.

2.7.3.1 VIP protectors

Security and crime prevention were even present in prehistoric civilisations. The Roman Emperor, Augustus Caesar, separated military and police functions when he established a security force, the Praetorian Guards, to protect himself from assassination (Minnaar, 2005). Schneider (2005) describes VIP protection as the implementation of all necessary tasks and related activities by trained professionals in order to primarily ensure the safety and security of a VIP. The Department of Trade and Industry (2016, p. 5) describes a VIP protector as “a security service provider who renders a service consisting of the protection or safeguarding of a natural person”.

VIP protection differs from many other security-related tasks in the sense that it incorporates holistic and integrated protection. This integrated protection includes protection on foot, in-transit protection (vehicular or other), static protection (venue or residential protection) and transition between the foot, transit and static protection phases. VIPs are most vulnerable during the transition between these phases, that is, while getting into or out of a vehicle, or while arriving at or leaving a venue. The implication of this is that VIP protectors need to be alert at all times and observe their surroundings (Schneider, 2012). Quick and effective decision making is therefore a critical skill for a VIP protector (Schneider, 2012; Steyn & Patta, 2000).

High risk close protection is a term often associated with protective operations in dangerous places where there is a high possibility of a direct or indirect attack. In most instances, high risk VIP protection may be based purely on the location of the

operation and the nationality of the VIP, say, the protection of an American businessman in Iraq. There are, however, many other instances where an operation could also be considered high risk, say, a situation in which the CEO of a large organisation is targeted by a disgruntled employee. Another example is providing witness protection to key witnesses who might have damaging information on dangerous suspects (Schneider, 2009).

According to Schneider (2012), there are many different definitions of VIP protection. However, they all have three factors in common. The first is to ensure the safety of the VIP. The second is to ensure the VIP's peace of mind by offering protection from embarrassment and maintaining the dignity of the VIP. The third and last factor is to ensure the VIP's comfort.

2.7.3.2 *Cash-in-transit guards*

Cash-in-transit guards play a vital role in the protection and safe transportation of valuable commodities. The nature of the work, however, can place them in direct confrontation with violent criminals. In simple terms, a cash-in-transit guard's primary duty is to transport valuables from one location to another. Hence every piece of money in a person's wallet has spent at least part of its life in an armoured vehicle before it reaches that person (Wetstein, 2013).

The Department of Trade and Industry (2016, p. 5) describes a cash-in-transit guard as "a security service provider who protects or safeguards cash or other valuables when being transported from one point to another and includes, protecting and escorting assets during collection, in-transit and delivery operations".

In the 1950s and 1960s, banks used taxis to transport money to and from the Reserve Bank of South Africa. It was during this period that crime, such as robberies, escalated. Authorities were forced to come up with a plan to avoid or minimise such crimes. Fidelity Guards started offering services to transport cash in a vehicle with protective features. In the early stages of this service, the organisation only had one vehicle at its disposal. Ten years later the demands for cash-in-transit services was so high that Fidelity Guards could no longer do everything on their own (Kole, 2015).

Cash-in-transit robberies are generally committed by multiple professional offenders. These offenders have a tendency to plan the robbery, study their target and carry high-powered weapons (Smith & Louis, 2010). Studies have found that these offenders collect information about the organisations they wish to target. They also study where and when cash will be transported (Smith & Louis, 2010; Wetstein, 2013).

Owing to the violent nature and prominent media attention cash-in-transit robberies received, in 1999, they were declared a priority crime by the South African Police Service (Schneider, 2013). According to Schneider (2013), in most cash-in-transit robberies, military assault rifles are used. The aim of an offender during a cash-in-transit robbery is to seize money by violent means. Cash-in-transit guards are therefore under constant threat because of the nature of their work, and the fact that their vehicles are highly visible (Poisat et al., 2014).

2.7.3.3 *Armed response officers*

After 1994, there was a substantial increase in violent crime in South Africa and the police consequently lacked the resources to deal with this increase. Accordingly, the fear of crime among members of the public increased, as did the perception that criminals were acting with freedom. This resulted in residents feeling helpless, and those who could afford it, enlisted the services of private security organisations, particularly armed response. Private security organisations seemed to be able to respond to calls for assistance faster than the police (Minnaar, 2005).

Responding to burglar alarms from private homes and businesses is strictly speaking viewed as part of the police's activities in combating and preventing crime in South Africa. However, in the last few years, this role has been increasingly delegated to private security organisations. The takeover of this function by private security organisations, however, was more by default than by design (Minnaar & Ngoveni, 2004; Minnaar, 2005). According to Singh (2005), armed response units are dispatched to these alarm callouts. The Department of Trade and Industry (2016, p. 7) describes an armed response officer as "a security officer who reacts or responds to

signals from security equipment used by a client and includes the driving of a motorised vehicle in the performance of the reaction duties”.

Armed response officers often see danger as an incentive for the job. This is because many of them become addicted to the action and adrenaline. However, given the constant dangers of this type of employment, armed response officers feel constantly at risk (Diphoorn, 2015). According to Diphoorn (2015), owing to the violent nature of crime in South Africa, an attack can rapidly become serious.

2.7.3.4 *Security guards*

The need for security guards in South Africa originated in 1868 in Griqualand West (then Cape Province) where diamonds were discovered. There was a need for reliable men to protect these diamond fields (Kole, 2015).

Security guards are individuals who are privately and formally employed to protect assets or people. They normally wear uniforms in order to maintain a high visibility to prevent illegal and inappropriate actions. The main duty of a security guard is therefore the prevention and avoidance of crime (Mbuvi, 2015). Their duties may include static guarding of a client’s premises, entrance checks, patrolling grounds, responding to emergencies, control room duties and intelligence gathering (Löfstrand et al., 2016).

Security guards often work in dangerous or life-threatening conditions, including protecting people and property in areas that are exposed to violence. For example, industrial sites and businesses could be targets for robberies, as well as banks (Pillay & Claase-Schutte, 2004). Even though guarding is mostly routine, guards must continually be alert to threats against themselves and the assets they protect (Lubbe, 2010). Nonetheless, research has found that many security guards experience their work as boring, lonely, unrewarding, tiring and under-stimulating. Their work might necessitate them standing or sitting at a designated post, sometimes for up to 12 hours, almost as if waiting for something to happen. Being on their feet for 12 hours can be a highly painful experience, leading to swollen feet, painful joints and aching spinal cords (Sefalafala, 2012).

2.8 CHAPTER SUMMARY

In this chapter, stress was defined in order to gain a better understanding of the concept. Different models of stress were described and the sources of stress outlined, specifically within a high stress security environment. The consequence of stress on both the individual and organisation was highlighted. The chapter concluded with an overview of the security industry in South Africa and the research population.

The next chapter deals with personality and coping, and specific attention is focused on the Big Five personality factors.

CHAPTER 3

COPING AND PERSONALITY

3.1 INTRODUCTION

In this chapter the concept of coping is explained. This is followed by definitions of coping, appraisal of stressful events and various healthy and unhealthy coping strategies. A summary of existing questionnaires to measure coping is provided. The concept of personality is defined and the general background on personality discussed. A brief explanation of personality and stress and personality and coping is provided. This is followed with a discussion of the most popular models of personality. The chapter concludes with a proposed conceptual model for coping with stress in a high stress security environment.

3.2 BACKGROUND

Coping has multiple functions (Folkman, 1982; Folkman & Moskowitz, 2000). These include, but are not limited to, the regulation of distress and the management of the problems causing distress (Folkman & Moskowitz, 2000). Coping strategies are therefore absolutely essential for a person's performance and health (Balcar et al., 2011; Bergh & Geldenhuys, 2016; Folkman, Lazarus, Pimley, & Novacek, 1987; Mark & Smith, 2008). Fortunately, research suggests that stress management training can be beneficial in reducing the potential negative effects of stress (Bergh & Geldenhuys, 2016; Carr et al., 2011; George & Le Fevre, 2010; Gumani, 2012; Weiten, 2014).

Coping can be regarded as a dynamic process that changes over time (Carver & Connor-Smith, 2010; Stone & Neale, 1984). Some strategies of coping are more stable than others across various stressful encounters, while others are linked to particular stressful situations (Carver, Scheier, & Weintraub, 1989; Lazarus, 1993). For example, thinking positively about a situation is fairly stable and depends significantly on personality, whereas seeking social support is unstable and depends largely on the social context (Lazarus, 1993). Coping depends on appraisal of whether anything can be done to change the situation. If something can be done, problem-

focused coping is applied, and if nothing can be done, emotion-focused coping will be used (Folkman et al., 1987; Lazarus, 1993).

If a person's relationship with the environment is changed by coping actions, the conditions of psychological stress may also be changed for the better. This is known as problem-focused coping. This type of coping involves attempts to do something constructive about the stressful event, for example, gathering information, making decisions, planning, resolving conflicts or acquiring resources (Dewe et al., 2012; Folkman & Moskowitz, 2000; Lazarus, 1993; Rothmann, Jorgensen & Hill, 2011; Taylor, 2015). In emotion-focused coping, people only change the way they attend to or interpret what is happening (Carver et al., 1989; Folkman & Moskowitz, 2004; Lazarus, 1993; Rothmann et al., 2011). Emotion-focused coping therefore involves efforts to control emotions experienced due to the stressful event (Billings & Moos, 1981; Dewe et al., 2012; Folkman & Lazarus, 1980; Taylor, 2015; Tennen, Affleck, Armeli, & Carney, 2000). Pienaar and Rothmann (2003) found that seeking social support is an active coping strategy for people working in the police force. Seeking social support has traditionally been viewed as an emotion-focused coping strategy, and not an active strategy for coping (Endler & Parker, 1990; Folkman & Moskowitz, 2004).

According to Lazarus (2000), there has been a tendency in coping research to play the problem-focused and emotion-focused coping functions off against each other in order to compare their respective effectiveness. However, it is misleading to separate these two functions of coping and compare their effectiveness, because although conceptually different, both strategies are interdependent and work together, one supplementing the other in the overall coping process. Depending on the nature of the event, people use both problem-focused and emotion-focused coping. People who are able to change their coping strategies to meet the demands of a situation cope better with stress than those who do not (Taylor, 2015).

Tennen et al. (2000) distinguish between two different views of coping. In the first view, coping represents a group of adaptational activities that involve effort. From this standpoint, coping can be seen as a conscious choice. Adaptive behaviour that does not require concentration or effort therefore does not qualify as coping. The second

viewpoint is in disagreement, and found the first viewpoint too restrictive, as effective coping strategies may become an automatic reaction over time. Such thoughts and behaviours are no longer conscious or effortful, but are still examples of coping.

People have a tendency to deal with stressful events in a particular way, that is, by adopting a coping style. Some people cope with a threatening event with an avoidant (minimising) coping style, say, denial or substance abuse (Billings & Moos, 1981; Carr et al., 2011; Folkman & Moskowitz, 2004; Rothmann et al., 2011; Taylor, 2015), whereas others use an approach or active coping style by gathering information or taking direct action (Folkman & Moskowitz, 2004; LeBlanc et al., 2008; Rothmann et al., 2011; Taylor, 2015). An active coping style is more successful than an avoidant coping style, even though each style may have advantages (Gershon et al., 2009; Rothmann et al., 2011; Taylor, 2015). In many cases, the victims of traumatic incidents react by using avoidance behaviour (Maree et al., 2002). People using a minimising coping style or avoiding threatening events may effectively deal with short-term threats. However, if the stress persists over time, avoidance fails (Anshel, 2000; LeBlanc et al., 2008; Taylor, 2015). Pienaar et al. (2007) found that South African police officers who make use of avoidance coping have more suicidal thoughts.

Folkman et al. (1987) and Rexrode, Petersen, and O'Toole (2008) contend that people become more mature in their coping behaviours as they grow older. According to Balcar et al. (2011), the different ways in which a person copes are mostly taught through nonconscious learning experiences. These experiences are then altered by the person's biological, psychological and social qualities or tendencies. Additional ways of mastering stressful situations are then consciously learnt and practised to be applied either voluntarily or habitually. However, it is not possible for a person to intentionally choose his or her coping reaction to each different stressful situation encountered (Balcar et al., 2011). Coping strategies therefore have a tendency to be repeated and to acquire the nature of a habitual response or strategy (Balcar et al., 2011; LeBlanc et al., 2008). Such a coping style then becomes part of the individual's personality structure (Balcar et al., 2011). According to Louw and Viviers (2010), several researchers are convinced that coping strategies are an extension of personality traits and have an influence on a person's wellbeing. Schneider (2011)

posits that some of the most important skills a professional security operator needs to have are stress identification and coping with stress.

Individuals are able to use a variety of coping strategies across different situations, rather than the rigid application of only a few strategies (Folkman & Moskowitz, 2004). No strategy for coping, however, guarantees a successful outcome. The coping strategies that are likely to be effective will vary depending on the exact nature of the situation (Dewe et al., 2012; Folkman & Moskowitz, 2004; Stone & Neale, 1984; Weiten, 2014). Even the healthiest coping responses may turn out to be ineffective in some circumstances (Folkman & Moskowitz, 2004; Weiten, 2014). The choice and frequency of using coping strategies also differ from individual to individual on the basis of their perceived usefulness and effectiveness (Carr et al., 2011; Gumani et al., 2013; Louw & Viviers, 2010). Gumani et al. (2013) found that police officers tend to make use of informal coping strategies as a result of the unawareness of workplace programmes and the stigma attached to debriefing. According to Sibanyoni (2014), occupational researchers have reported that no intervention programmes are available in the private security industry to assist security personnel with daily challenges.

Reducing stress in the workplace can contribute to a person's quality of work life (Carr et al., 2011). The use of the term "coping" often implies that coping is inherently healthful. When one says that someone coped with his or her problems, this suggests that he or she dealt with the situation effectively. In reality, coping responses may be adaptive or maladaptive. Research has found that coping strategies are the key contributing factor of whether stress leads to distress (Weiten, 2014).

In most cases, the causes of stress cannot be prevented (Carr et al., 2011; Meško et al., 2013), but the consequences can be overcome by using appropriate strategies for coping with stress (Meško et al., 2013). According to Tuckey et al. (2012), it would be difficult to design systems that allow police officers to avoid exposure to potentially traumatic events and other challenging operational incidents. A person's work setting, personality traits and coping skills all affect his or her overall wellbeing (Cummings & Worley, 2015). Some people thrive on stressful situations, while others are overwhelmed by them. This is because people develop coping mechanisms to deal

with stress (Robbins & Judge, 2015). Stress management is focused on preventing negative outcomes either by changing the organisational conditions causing the stress or improving employees' abilities to cope with stress (Cummings & Worley, 2015; George & Le Fevre, 2010).

There is not one better stress management technique (Folkman, 1982; Folkman & Moskowitz, 2004; Hobfoll et al., 1991; Mitchell & Everly, 2001; Waters & Ussery, 2007). To be most effective, stress management should become part of a person's lifestyle and not merely a technique to be used if he or she becomes stressed (Folkman & Moskowitz, 2004; Hobfoll et al., 1991; Mitchell & Everly, 2001). However, individuals can be educated about coping skills (Carr et al., 2011; Folkman & Moskowitz, 2004; George & Le Fevre, 2010; Sisley et al., 2010; Tennen et al., 2000). Health training programmes can inform people about the functionality of stress in an effort to break the link between physiological arousal and negative appraisals (Jamieson, Nock, & Mendes, 2011). According to Taylor (2015), people will change their health habits if they have sound information about their own habits.

It seems evident from the coping literature that people can either actively cope with stress or they can avoid dealing with their stressors. Active coping is a healthy strategy, while avoidance is an unhealthy one. For the purpose of this research, coping strategies within a high stress security environment were divided into healthy or unhealthy strategies. Both healthy and unhealthy strategies were used in the development of the HRCQ.

The concept of coping is now defined and the researcher's own definition of coping formulated.

3.3 DEFINING COPING

According to Pienaar and Rothmann (2003) and Rothmann et al. (2011), coping has been described from different perspectives as being:

- both a personality trait and a reaction determined by an event;

- a dynamic process and a static construct;
- a strategy that is mature and adaptive, but also a reaction that is neurotic, maladaptive and inflexible; and
- a divided but complex concept.

Mark and Smith (2008) also suggest that despite the extensive use of the term “coping”, there are difficulties surrounding its definition, as it can be seen as a process, a behaviour, a stable trait or as situation specific. According to Dewe et al. (2012), there is an extensive debate surrounding the definition of coping.

As indicated in Table 3.1, there are different definitions of the concept of coping.

Table 3.1

Definitions of coping

Author	Definition
Folkman & Lazarus (1980, p. 223)	“The cognitive and behavioural efforts made to master, tolerate, or reduce external and internal demands and conflicts among them.”
Folkman (1982, p. 96)	“The process of managing external and/or internal demands that tax or exceed the resources of the person.”
Stone & Neale (1984, p. 893)	“Those behaviours and thoughts which are consciously used by an individual to handle or control the effects of anticipating or experiencing a stressful situation.”
Folkman et al. (1987, p. 172)	“The thoughts and acts people use to manage the demands of stressful transactions.”
Lazarus (1993, p. 8)	“Coping is a process. It is a person's ongoing efforts in thought and action, to manage specific demands appraised as demanding or overwhelming. People alter their circumstances, or how they interpret it, to make it appear more favourable.”
Pienaar & Rothmann (2003, p. 81)	“The efficacy with which individuals deal with their emotional responses to stressors and act to resolve the stressors, and the cost of their effectiveness to individuals.”

Author	Definition
Strümpfer (2003, p. 73)	“The activities undertaken to master, tolerate, reduce, or minimise environmental or intrapsychic demands perceived to represent threats, existing harm, or losses.”
Folkman & Moskowitz (2004, pp. 746–747)	“The thoughts and behaviours that people use to manage the internal and external demands of situations that are appraised as stressful.”
Delahaij et al. (2006, p. 17A-1)	“The capability to stay cool and not letting emotional and physiological reactions interfere with cognitive processing”.
Balcar et al. (2011, p. 27)	“Coping actions involve cognitive, emotional, behavioural and physiological processes that are selectively applied in various combinations to alleviate a person’s acute or chronic overload with demands that he or she is unable to master at the time.” “This is done by making use of habitual skills.”
Rothmann et al. (2011, p. 2)	“The thoughts and actions that are initiated in response to a specific encounter.”
Weiten (2014, p. 564)	“Any active efforts to master, reduce, or tolerate the demands created by stress.”
Villada, Hidalgo, Almela, & Salvador (2016, p. 91)	“The way we face a threat or a challenge in an attempt to prevent or reduce associated distress.”
Skomorovsky & LeBlanc (2017, p. 1569)	“Cognitive and behavioural efforts to manage stressful situations.”

The main theme in the definitions of coping in Table 3.1 is the efforts individuals make to manage or master the demands placed upon them. Only a few different definitions of coping could be found in the literature because most of the researchers used the definitions as cited by Lazarus and Folkman.

Strümpfer (2003) and Bergh and Geldenhuys (2016) further distinguish between anticipatory coping and proactive coping. Anticipatory coping involves preparation for a stressful situation that is expected to happen, for example, knowing that a client will be difficult. Proactive coping involves the collection of resources and the attainment

of skills that are not intended to address any particular stressor, but to be prepared in general, knowing that stressful events will happen. Proactive coping is essentially more beneficial to an individual because it is regarded as the ability to identify potential sources of stress before they occur (Strümpfer, 2003).

For the purpose of this study, a combination of the definitions of Balcar et al. (2011, p. 27) and Weiten (2014, p. 564) was used. Hence the following definition of coping was formulated:

“Any active cognitive, emotional or behavioural effort that is selectively applied in various combinations to master, reduce or tolerate the demands created by stress at the time.”

Security personnel have to use a combination of mastering, reducing or tolerating stressful demands placed on them at the time of the stressful event. Verbal abuse from clients or the public, as an example, has to be tolerated.

3.4 APPRAISAL OF STRESSFUL EVENTS

Lazarus (1993) describes appraisal as the process that mediates between the demands, constraints and resources of the environment, on the one hand, and the goal hierarchy and personal beliefs of the individual, on the other.

People's appraisals of stressful events are subjective. The experience of feeling stressed depends on what events the person notices and how he or she chooses to appraise or interpret the event (Beheshtifar & Nazarian, 2013; Bergh & Geldenhuys, 2016; Folkman & Moskowitz, 2004; Lazarus, 1993; Taylor, 2015). Events that are stressful for one person may provoke little or no stress in another (Carr et al., 2011; Guman, 2012; Jamieson et al., 2011; Lazarus, 1993; Taylor, 2015). For an event to become a stressor, a person must think of it as a stressor and acknowledge the danger and the difficulty of coping with it (Carr et al., 2011; Greenberg, 2011; Osa-Afiana, 2015). Former Special Forces operator Wynand du Toit described how he, in order to control his emotions, chose to interpret news neutrally while he was held as a prisoner of war in Angola (Du Toit, 2015). Reappraisal is usually associated with positive

emotions and overall wellbeing. It involves altering the way a situation is appraised in order to change the emotional impact (Richardson, 2017).

Regardless of whether stress is positive or negative, people appraise it in terms of the influence it has on available internal and external coping resources (Bergh & Geldenhuys, 2016). Figure 3.1 illustrates the appraisal process.

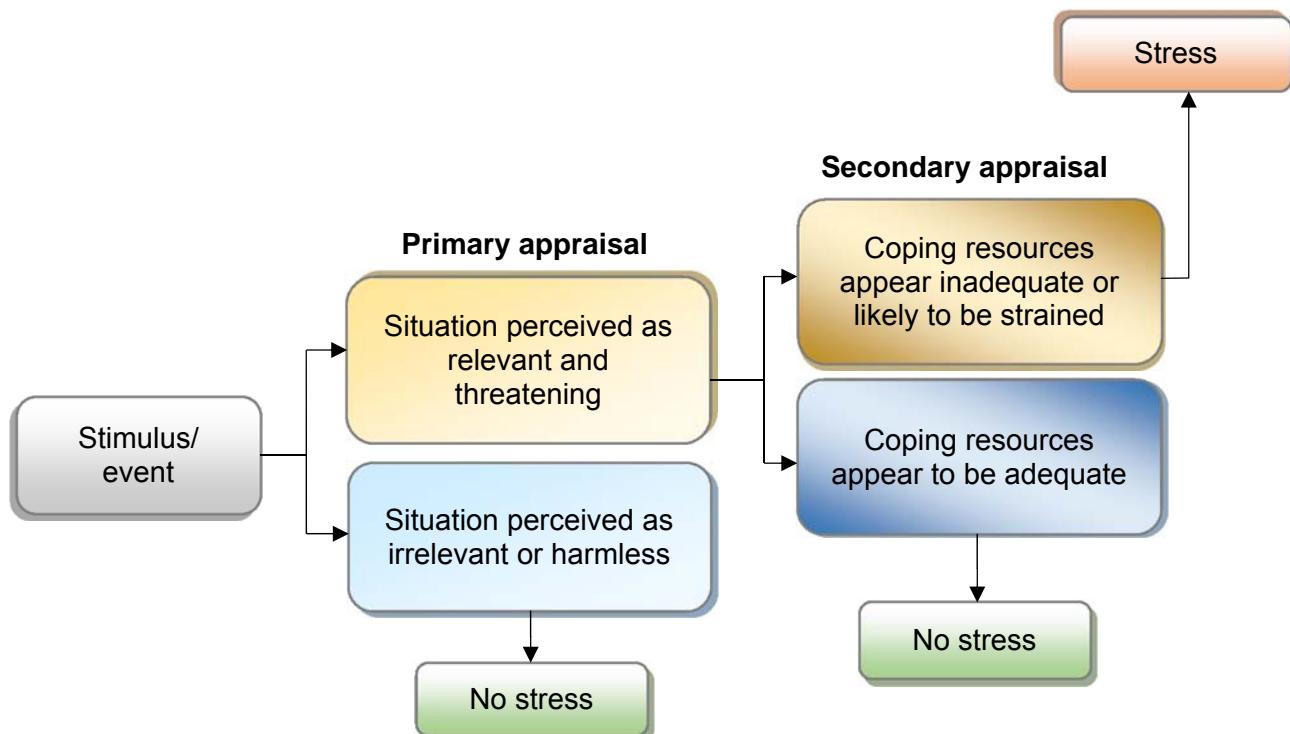


Figure 3.1. Primary and secondary appraisal of stress

Source: Weiten (2014, p. 555)

Primary appraisal is an initial evaluation of whether an event is irrelevant to the person, relevant but not threatening, or stressful (Dewe et al., 2012; Osa-Afiana, 2015; Weiten, 2014). According to Keller et al. (2012), Mark and Smith (2008) and Taylor (2015), primary appraisal occurs when a person tries to understand what the event is and what it means.

Events may be appraised in terms of their harm, threat or challenge (Dewe et al., 2012; Folkman & Lazarus, 1980; Lazarus, 1993; Rexrode et al., 2008; Taylor, 2015). When people believe they possess sufficient resources to cope with stress, they experience it as a challenge, but when situational demands are deemed to exceed resources, they experience it as a threat (Folkman, 1982; Greenberg, 2011; Jamieson et al., 2012;

Rexrode et al., 2008). Harm is the assessment of the damage that has already been done – for example, being fired from work. Threat is the assessment of possible future damage and can be regarded as an unpleasant state of mind that may seriously impair functioning – for example, not being able to pay monthly accounts because of a loss of income. Events may also be appraised in terms of their challenge – for example, the potential to overcome the event or even benefit from it (Dewe et al., 2012; Folkman, 1982; Lazarus, 1993; Taylor, 2015). Challenge assessments lead to more confident expectations that the individual can cope with the stressful event and may be associated with exceptional performance (Folkman & Lazarus, 1980; Folkman, 1982; Lazarus, 1993; Taylor, 2015).

Secondary appraisal assesses whether coping resources are sufficient to meet the demands of the environment (Dewe et al., 2012; Folkman, 1982; Lazarus, 1993; Rothmann et al., 2011; Taylor, 2015). When resources are more than adequate to deal with the situation, the person may feel little stress and experience a sense of challenge instead. Alternatively, when the person perceives that resources will probably not be sufficient to overcome the stressor, he or she may experience a great deal of stress (Lazarus, 1993; Osa-Afiana, 2015; Taylor, 2015; Weiten, 2014). This elicits negative emotions like fear. However, when the event is perceived as challenging, it will elicit positive emotions such as eagerness, excitement and confidence (Delahaij et al., 2006; Folkman & Moskowitz, 2000).

The Roman emperor and philosopher, Marcus Aurelius Antonius (A.D. 121-180), is cited as saying the following: “If you are distressed by anything external, the pain is not due to the thing itself, but to your estimate of it, and this you have the power to revoke at any moment” (Greenberg, 2011, p. 187). According to Jamieson et al. (2011), theorists have speculated for years that humans can cognitively control their responses to stress – they are able to show mind over matter.

The concepts of unhealthy and healthy coping strategies are now discussed in more detail.

3.5 UNHEALTHY COPING STRATEGIES

It is commonly assumed that people cannot perform the same kinds of intellectual activities unconsciously as they do consciously, such as making plans or assessing risks. Studies of patients in psychotherapy, however, have indicated that people can in fact unconsciously anticipate consequences or make decisions and plans. This can assist people to gain control over their irrational beliefs, feelings and behaviours. People keep desires and/or thoughts suppressed because they can unconsciously decide, by using past experience, that expressing certain repressed desires and/or thoughts will be harmful (Weiss, 1990). According to Lazarus (2000), research on stress and coping should also address unconscious processes and ego defence. There is a growing belief that a large percentage of human appraisals occur without self-awareness of the factors that influence the emotional process.

The Oxford dictionary of psychology (Colman, 2009, p. 194) describes a defence mechanism as “a pattern of feelings, thoughts, or behaviours that follow in reaction to a person’s perception of any psychological threat to the person”. This enables an individual to avoid conscious awareness of any conflicts, ideas or desires that may cause anxiety. People develop defence mechanisms in order to cope with the anxiety of unconscious conflicts (Bergh & Geldenhuys, 2016).

The following unhealthy coping mechanisms are used more frequently to manage daily stress.

3.5.1 Displacement

According to Hobfoll et al. (1991), blaming others or lashing out at them is a common occurrence in people affected by war-related stress. In so doing, the person harms not only himself or herself, but also his or her loved ones and colleagues. This strategy is used as a means to avoid any responsibility for problems, and is usually related to a feeling of being overwhelmed by difficulties (Hobfoll et al., 1991). The Oxford dictionary of psychology (Colman, 2009, p. 217) describes displacement as “diverting emotional feelings, usually anger, from their original source to a substitute object”. For example, when a stressed individual slams the door, kicks the couch or screams at

his or her spouse, the individual is displacing his or her anger onto irrelevant objects. Gershon et al. (2009) found that police officers would smash things to relieve stress, yell at others and even become physical by pushing, shoving, grabbing and hitting their pets, fellow officers, spouse or children. Former South African police officer, Johan Marais, described how he would shout at his wife as a result of not coping with his stress. In his book, the wife of another police officer wrote a letter explaining the effect of stress on her husband and how he would shout at his children (Marais, 2010). Tuckey et al. (2012) likewise found that police officers take out their frustrations on their families at home. Social constraints often force people to refrain from expressing their anger, and they consequently end up lashing out at the people they are closest to (Weiten, 2014).

Displacement was regarded as a defence mechanism in the development of the HRCQ, whereby security employees would divert their stress onto substitute objects, for example suspected criminals or even loved ones.

3.5.2 Denial

Denial can be an effective short-term solution when dealing with severe stress. However, problems may accumulate and become unmanageable if people continually deny the existence of stress (Carver et al., 1989; Hobfoll et al., 1991). According to Lazarus (2000), everyone uses denial from time to time and it is certainly not always unreasonable. Denial in adults has traditionally been viewed as immature and unreasonable, and it may be effective or ineffective, depending on the person and the threatening context (Lazarus, 2000). According to Maree et al. (2002), cash-in-transit guards may use denial in an attempt to forget negative incidents. Denying a stressful event may help a person manage his or her reaction to that event (Pienaar & Rothmann, 2003). Denial involves a conscious effort not to acknowledge thoughts, feelings, desires or aspects of reality that would be painful or unacceptable (Colman, 2009). A person pretends that the stressors are non-existent or that they are not causing any substantial distress (Rothmann et al., 2011). It protects a person from an unpleasant reality by refusing to notice or face it (Weiten, 2014). For example, a smoker might say that the evidence linking cigarette use to health problems is scientifically insignificant.

In this study, in the development of the HRCQ, denial was regarded as an infective coping strategy. Owing to the high stress environment in which cash-in-transit guards, VIP protectors, armed response officers and security guards work, the denial of stress can lead to unmanageable emotions.

3.5.3 Self-indulgence

Stress sometimes leads to reduced impulse control or self-indulgence. When distressed, many people engage in unwise and/or increased patterns of eating, smoking, using drugs, spending money, gambling and so forth. If things are not well in one area of their lives, people may try to compensate by using alternative forms of satisfaction (Weiten, 2014).

Drug and alcohol use are often regarded as an easy way to cope with stress. Small amounts may assist people by regulating highly intense emotions, especially during initial periods of distress. However, continued usage or the use of large amounts of illegal or prescription drugs or alcohol can be extremely destructive (Hobfoll et al., 1991). Drinking occurs, in part, as an effort to reduce the impact of stress. People with a lot of negative life events, chronic stressors and limited social support are more likely to become problem drinkers. Many people start drinking to increase positive emotions and lessen negative ones. Alcohol can act as a temporary coping method for managing stress by lowering anxiety and depression and improving self-esteem (Taylor, 2015; Tennen et al., 2000). Alan Leschner, former director of the National Institute on Drug Abuse, as cited in Waters and Ussery (2007, p. 176), stated that there are two basic reasons for drinking alcohol or taking drugs – “to feel good and to feel better”. Even though alcohol and nicotine are deadlier drugs than many classified drugs, they are still socially acceptable (Bergh & Geldenhuys, 2016).

Unhealthy behaviours such as excessive alcohol intake, drug use, smoking and overeating are ineffective coping strategies used by police officers (Anshel, 2000; Pienaar & Rothmann, 2003). Gershon et al. (2009) and Maran et al. (2015) concur that excessive alcohol intake can be regarded as an ineffective, negative coping strategy used by police officers. Alcohol is also used by military personnel as a

bonding tool and a coping strategy (Du Preez, Sundin, Wessely, & Fear, 2012). Diphorn (2015) found that armed response officers who participated in a study, were heavy smokers and several of them drank alcohol regularly. Smokers may use nicotine to engage neuroregulators because they produce temporary improvements in performance and may reduce anxiety and tension (Taylor, 2015).

Former South African police officer, Johan Marais, described throughout his book how he used alcohol excessively and called brandy and coke police coffee. He started using different illegal drugs and also started living immorally through inappropriate sexual behaviour (Marais, 2010). In his biography, as told by Hanlie Retief, South Africa's most legendary detective, Piet Byleveld, described how alcohol served the purpose of dealing with the trauma and stress of his work in murder and robbery. It was also mentioned that he was a chain smoker and that he used Grandpa (pain medication) a lot (Retief, 2011). Wynand du Toit, former Special Forces operator, described that while he was held as a prisoner of war in Angola he started smoking in order to calm himself (Du Toit, 2015).

A new manifestation is the tendency to engage in the online world of the internet. Internet addiction involves spending an excessive amount of time on the internet and the inability to control online use. People who manifest this condition tend to feel anxious, depressed or empty when they are not online (Weiten, 2014).

In the development of the HRCQ in this study, the focus was only on substance abuse and no other forms of self-indulgence. As indicated in the literature review, substance abuse seems to be more prominent among people working in an operational type of environment (Diphorn, 2015; Manzoni & Eisner, 2006; Maran et al., 2015; Pienaar & Rothmann, 2003; Sibanyoni, 2014).

3.5.4 Learned helplessness

Learned helplessness is a condition where a person's motivation to solve problems and the ability to learn from the experience is reduced because of exposure to unsolvable problems or unavoidable physical or emotional stress (Colman, 2009). It is a passive behaviour that is formed by exposure to unavoidable negative events.

When confronted with stress, people sometimes simply give up and submissively accept setbacks that might have been dealt with effectively. Learned helplessness seems to occur when people come to believe that events are beyond their control (Seligman, 2011; Weiten, 2014). It is a person's real or perceived inability to be in control of his or her life in general or concerning specific events (Bergh & Geldenhuys, 2016).

In the HRCQ, learned helplessness was included in learned resourcefulness (training).

3.5.5 Self-blame (negative self-talk)

According to Hobfoll et al. (1991), a common trend among people affected by war-related stress is turning every problem into an overwhelming crisis. They have a tendency to create a sense that a crisis waits in every corner and that it is unavoidable. Blaming oneself, however, is a normal response when people are confronted with stressful situations. It is the tendency to become highly self-critical and it can contribute to the development of depression and other psychological disorders. It is therefore an unhealthy approach to coping with stress (Weiten, 2014). Wynand du Toit would lie awake at night with remorse and self-doubt about decisions he had made, which had resulted in him being taken a prisoner of war (Du Toit, 2015).

According to Ellis, as cited in Seligman (2011) and Weiten (2014), individuals believe that one can short-circuit one's emotional reactions to stress – one feels the way one thinks. He argues that problematic emotional reactions are caused by negative self-talk, which he refers to as catastrophic thinking. Catastrophic thinking, as illustrated in Figure 3.2, involves unrealistic negative appraisals of stress that exaggerate the extent of a person's problems. People unconsciously believe that stressful events cause their emotional turmoil. He continues that emotional reactions to personal setbacks are actually caused by overly negative appraisals of stressful events.

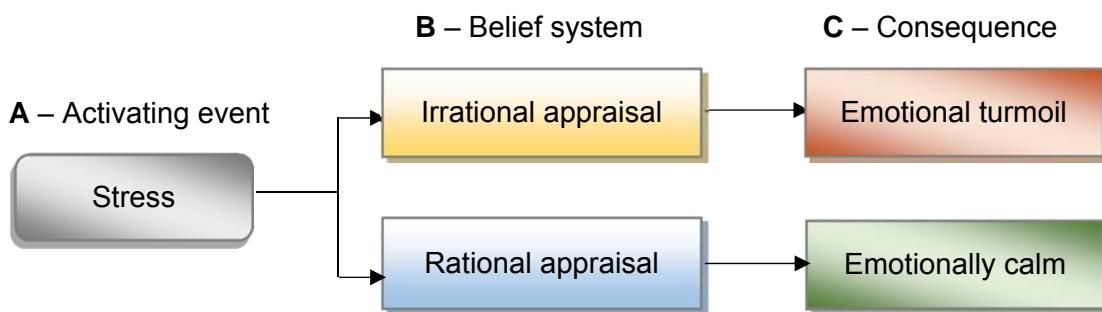


Figure 3.2. Ellis's A-B-C Model of Emotional Reactions

Source: Weiten (2014, p. 583)

Unrealistic appraisals of stress are derived from individuals' irrational assumptions. Catastrophic thinking is therefore grounded on indefensible viewpoints such as the following: "I must have approval from everyone" or "I must perform well in all activities". These faulty assumptions, which people often hold unconsciously, generate catastrophic thinking and emotional turmoil. How can unrealistic appraisals of stress be reduced? People must learn how to detect catastrophic thinking and how to dispute the irrational assumptions that causes it (Weiten, 2014).

Positive emotions help people to think more freely, thoughtfully and creatively. This, in turn, can expand the person's outlook, resulting in a wider variety of possible coping strategies when faced with difficulty (Gloria & Steinhardt, 2016).

Self-blame (negative self-talk) was included in the HRCQ under the heading "positive self-talk".

Healthy coping strategies that are beneficial for a person's health are now discussed.

3.6 **HEALTHY COPING STRATEGIES**

Constructive coping refers to the healthy efforts made to deal with stressful events, without guaranteeing success (Weiten, 2014). Psychologists have different opinions on what makes certain coping strategies more constructive. However, there is consensus on the following key themes regarding constructive coping (Weiten, 2014):

- It involves confronting problems directly. It is therefore a conscious effort to realistically evaluate options to try and solve problems.
- It is based on a reasonably realistic appraisal of the person's coping resources, without excessive self-deception or negative thinking.
- It involves learning to recognise, and in some cases, control potentially disruptive emotional reactions to stress.

Police (operational) work involves unique sources of stress and a variety of coping strategies to deal with these stressful circumstances (Louw & Viviers, 2010). In the light of this statement, the constructive coping mechanisms highlighted below are deemed a healthy approach to coping with stress in an operational environment.

3.6.1 Training

The brain is organised in such a way that response time can be improved through practice, training and experience in advance of dealing with highly stressful events. Such preparation involves altering complex cognitive processes into simple cognitive processes. Once a response has been learned, the brain no longer needs deliberation to select the correct strategy, it only has to select between a set of pre-learned responses (Leach, 2004). Training can therefore be regarded as being highly effective to reduce the effects of stress. It can be developed, changed and controlled fairly easily (Kavanagh, 2005; Taylor, 2015). In stress exposure training, people are exposed to simulated stressors and are required to perform certain skills. This can create an awareness of potential stressors and teach them strategies to maintain performance under stress, leading to increased self-confidence. Stress exposure training reduces some of the uncertainty involved in stressful situations and develops coping strategies that can help the person to manage the effects of a stressor, even once the stress response has begun (Kavanagh, 2005).

The result of training on performance is better when the training includes some kind of behavioural practice and when the training occurs in natural surroundings (Kavanagh, 2005). Military drills are dominant responses and will only be effective if the situation that elicits this response is similar to the situation in which the response

is learned. This means that threats resulting from familiar situations may stimulate effective coping responses, while threats arising from major environmental change may lead to an unsuccessful reaction. Consequently, drilling reduces the negative effects stress has on performance, but can also increase the risk of incorrect responses (Delahaij et al., 2006).

According to Pillay and Claase-Schutte (2004) and Schneider (2011), security personnel can be trained to deal effectively with dangerous and negative working conditions. LeBlanc et al. (2008) also found that police officers rely on their training and skill sets to deal with stressful situations. Cash-in-transit guards who are inadequately trained to protect themselves are more likely to suffer serious injuries or may even die during an attack (Wetstein, 2013). Training therefore not only enhances the safety of security personnel, but can also have additional benefits such as increased confidence levels and physical health (Schneider & Minnaar, 2015). Wynand du Toit, former Special Forces operator, also explains how relying on training may save your life (Du Toit, 2015). Training can consequently increase a person's self-efficacy and as a result lessen job stress (Robbins & Judge, 2015).

Stress management training is beneficial in educating people about different coping strategies (Adams & Buck, 2010; Carr et al., 2011; Dolan & Adler, 2008; Schneider & Minnaar, 2015; Tuckey et al., 2012). Research indicates that training can improve psychological hardiness and resilience (Dolan & Adler, 2008). Gumani (2012) found that stress management training programmes play a vital role in educating South African police officers about coping. According to Wetstein (2013), when police officers are trained in stress management techniques, their ability to follow proper procedures during periods of intense stress increases. Security personnel can therefore similarly benefit from stress management training. Meško et al. (2013) also posit that stress management training might decrease absenteeism rates that are caused by stress.

3.6.2 Learned resourcefulness

Learned resourcefulness can be described as the positive expectations a person holds about his or her own capabilities to cope with stressful situations. This expectation is

shaped by experiences of controllability and success in stressful situations. If people have positive expectations about their own performance under stress, they will make more positive appraisals of their coping possibilities. This will reduce stress reactions and subsequent performance impairments (Delahaij et al., 2006). In learned resourcefulness, according to Gumani (2012), individuals master cognitive and behavioural skills in order to use these skills to control the way they will behave in the future, when faced with similar stressful situations. It is an individual's learned behaviours and skills that are used to self-regulate or control his or her behaviour (Bergh & Geldenhuys, 2016).

Rory Steyn, VIP protector of the late president Nelson Mandela, explains how he and his men would make use of their experience to deal with dangerous situations when protecting the president and other VIPs (Steyn & Patta, 2000).

Learned resourcefulness was combined with training in the HRCQ because it was regarded as the application of what a person has learned.

3.6.3 Physical exercise

Exercise helps to maintain mental and physical health (Carr et al., 2011; Cummings & Worley, 2015; Hawkins et al., 2018; Johnsen et al., 2013; Taylor, 2015). According to Maree et al. (2002), cash-in-transit guards should participate in exercise programmes to help control any repressed anger. Gumani et al. (2013) suggest that police officers can spend time with other people by participating in sport and exercise. It also prevents preoccupation with thoughts about traumatic scenes and redirects negative thoughts about work and life in general. Exercise can serve as a buffer that reduces the potentially damaging physical effects of stress. People who are fit display less physiological reactivity to stress than those who are less fit. Evidence indicates that one does not have to be a dedicated athlete to benefit from exercise. Participation in an exercise programme can lead to improvements in one's mood and ability to deal with stress (Weiten, 2014). Security personnel should therefore be made aware of the positive effect that physical exercise can have in managing their stress (Schneider & Minnaar, 2015). Löfstrand et al. (2016) found that doing martial arts helps private security personnel to feel better about themselves.

The nature of the work done by armed response officers requires them to patrol in their vehicles all day and therefore does not demand a lot of physical exercise (Diphoorn, 2015). This may hinder effective coping strategies.

At one time, scientists believed that only aerobic exercises had health benefits, but new evidence suggests that any kind of exercise has benefits, especially for middle-aged and older adults (Taylor, 2015). Exercises such as aerobics, walking, jogging, swimming and cycling have long been recommended by doctors as a way to deal with excessive levels of stress. These forms of physical exercise increase lung capacity, lower the resting heart rate and provide mental escape from work pressures, thereby effectively reducing stress levels (Robbins & Judge, 2015).

Regular exercise improves not only physical health, but also mood and general wellbeing. Health psychologists have also found beneficial effects of exercise on cognitive functioning, especially planning and higher-order reasoning (Taylor, 2015).

3.6.4 Social support

Social support fulfils a valuable role in reducing stress and increasing a person's wellbeing (Cummings & Worley, 2015; Maran et al., 2015; Poisat et al., 2014; Sibanyoni, 2014; Vanheule et al., 2008). It can lessen the negative effects of stress on performance (Delahaij et al., 2006). When people believe they benefit from the friendship and support of other people, their ability to resist the unpleasant effects of stress increases (Greenberg, 2011; Lakey, Vander Molen, Fles, & Andrews, 2016; Louw, 2014). Family and friends can be regarded as the most valuable source of social support (Greenberg, 2011; Hobfoll et al., 1991; Moos & Swindle Jr, 1990). Poisat et al. (2014), however, contend that social support provided by co-workers is more important in reducing work-related stress.

Social support leads to physical and emotional comfort in times of need, whether it is provided by a person's family, co-workers or other important people (Louw, 2014). According to Taylor (2015), it is the most fundamental psychological resource a person can have. Social ties are emotionally satisfying in that they mute the effects of stress

and may reduce the possibility of stress leading to poor health. Social support refers to various types of aid and emotional sustenance provided by members of a person's social networks. Studies have found evidence that social support is positively related to physical health (Taylor, 2015; Weiten, 2014). When a person has friends, family or work colleagues to talk to, it provides an outlet when stress levels become too much. Increasing a person's social support network can make someone available to hear his or her problems and offer an objective perspective on the stressful situation (Robbins & Judge, 2015).

Taylor (2015) distinguishes between explicit and implicit social support. Explicit social support includes open emotional support and help from others. Implicit social support includes the comfort that comes from knowing that a person has access to close others who will be supportive (Taylor, 2015; Weiten, 2014). Social support can be (1) tangible (e.g. financial assistance), (2) informational (e.g. providing information on the stressful event), and (3) emotional (e.g. reassuring the person that he or she is a valuable individual) (Taylor, 2015).

3.6.5 Group cohesion

The esprit de corps of the US Army Rangers Special Forces unit is said to contribute to the success of the unit and it subsequently forms part of the Ranger Creed (Bohrer, 2002). Group cohesion is the strong association between members of a group and their commitment to one another. Several studies have found that high levels of group cohesion can be associated with more effective psychological coping and better performance under stress. A cohesive group may be regarded as an optimal support system in a time of crisis because it provides members with emotional support, physical support, information and companionship (Du Preez et al., 2012; Kavanagh, 2005). De Beer and Van Heerden (2014) also found unity and dedication between team members in a military context as a contributing factor in coping more effectively with stressful situations. Group cohesion can therefore be regarded as the degree to which members of a group support and validate one another (Robbins & Judge, 2015). Military unit cohesion can be viewed as an ongoing social integration process that could buffer the negative effects of stress on mental health (Du Preez et al., 2012; Thomassen et al., 2015). Group cohesion, according to Bergh and Geldenhuys

(2016), is the degree to which members of a group are concerned about one another and are motivated to stay in the group.

Being able to trust and count on the physical support of a cohesive team is crucial for cash-in-transit guards, VIP protectors, armed response officers and security guards. Because of the dangerous environment they work in, they have to rely on the support of other team members. The working relationship between cash-in-transit guards is such that they assist and support one another. In an interview with cash-in-transit guards, the relationship between colleagues was described as follows: "we watch out for each other, we understand each other, go through the same emotions and know the dangers" (Maree et al., 2002, p. 99). Löfstrand et al. (2016) similarly found that private security employees have a strong need for a sense of togetherness in order to manage the pressures of the job and the negative environment in which they work.

3.6.6 Humour

Laughing about a stressful event can help a person to manage his or her reaction to that event (Carr et al., 2011; Kugel, 2014; Pienaar & Rothmann, 2003). The Oxford dictionary of psychology (Colman, 2009) describes humour as anything that is funny, entertaining, or has the capacity to make people laugh. Humour involves turning stressful situations into a funny story and laughing at oneself.

In a study on coping styles, it was found that 40% of participants used humour to deal with stress. Empirical evidence that has been collected over the past 25 years indicates that humour lessens the impact of stress (Weiten, 2014). Taylor (2015) and Wellenzohn, Proyer, and Ruch (2016) concur that humour is an effective defence against stress. Humour can involve laughing at one's own shortcomings or focusing appreciatively on the funny aspects of something (Bergh & Geldenhuys, 2016).

Rory Steyn explains how he and his colleagues would use practical jokes on each other to create humorous situations (Steyn & Patta, 2000). By turning stressful situations into a joke, police officers ensure that these situations do not affect them, specifically their emotions, and that they are able to continue with their work (Gumani et al. 2013). Wynand du Toit, former Special Forces operator, reflected on seeing the

humour in a difficult situation (Du Toit, 2015). Humour from shared experiences helps security personnel to stick together as it provides comfort, thus creating a bond between officers who regularly find themselves in hostile and unpredictable situations (Löfstrand et al., 2016).

According to Weiten (2014), humour can help reduce the effects of stress and promote wellness in the following ways:

- Humour influences appraisals of stressful events, and jokes can help people to see their problems as less threatening.
- Humour increases the experience of positive emotions, which can help people to bounce back from stressful events.
- A good sense of humour encourages social interactions, which can promote social support.

3.6.7 Relaxation

Relaxation is essential in helping people to cope with stress and maintain good health. By relaxing, people can return to normal after negative life events have disrupted their regular patterns of personal expressiveness and sociability (Iwasaki, Mannell, Smale, & Butcher, 2005). Relaxation helps to calm a person's emotions and to decrease problematic physiological arousal (Folkman & Moskowitz, 2000; Greenberg, 2011; Sisley et al., 2010; Weiten, 2014). George and Le Fevre (2010) found that many stress management interventions focus strongly on relaxation. Taking a short break from a stressful event can be extremely useful as it interrupts the stress cycle. It helps to restore balance and the feeling of being somewhat more in control of the situation (Carr et al., 2011; Greenberg, 2011; Robbins & Judge, 2015). Participating in enjoyable leisure time activities such as hobbies or spending time in nature has also been linked to better health (Taylor, 2015).

Pillay and Claase-Schutte (2004) posit that security personnel can benefit from being trained in relaxation techniques. Security personnel can also benefit from having recreational facilities. Iwasaki et al. (2005) found that relaxation significantly predicted

mental or physical health among police officers and emergency response personnel. Former famous South African detective, Piet Byleveld, would sit in a quiet place in the veld, listening to music in order to relax and take a time-out (Retief, 2011). According to Gumani et al. (2013), police officers create a quiet environment for themselves as this helps them cope better with the stressful events of the day. They listen to soft music, watch television or read a book. This helps with temporary disengagement from their difficult cases in order to regain the mental strength to handle these effectively at a later stage. Wynand du Toit explained how he listened to music, wrote a fictitious story and did some exercises to relax and lift his spirits during his time as a prisoner of war in Angola (Du Toit, 2015).

3.6.8 Sleep

The Oxford dictionary of psychology (Colman, 2009, p. 704) describes sleep as “an alternating state of muscle relaxation, decreased metabolic levels, and suspended consciousness in which a person is mostly unresponsive to events in the environment”. Poor sleep can be as a result of many factors, with shift work being one of the most prominent. Shift work disrupts the biological and social sleep-wake-cycle, compelling individuals to attempt to sleep at times that are incompatible with their internal daily routine (Davy, 2014).

Police officers suffering from sleep deprivation tend to be more impatient and are more regularly involved in domestic violence (Waters & Ussery, 2007). A continuous lack of quality sleep can lead to accidents, affect relationships and physical health, and result in the decline of mental health and wellbeing (Selwood, 2014; South African Depression and Anxiety Group, 2011). Sleep deprivation also leads to irritability (Gumani, 2012; Selwood, 2014; Taylor, 2015) and diminishes a person’s ability to reason, analyse complex situations and make effective decisions (Gumani, 2012; Kavanagh, 2005; Taylor, 2015). There is a growing concern that the chronic loss of sleep, through restricted sleep, and the associated health and work-related problems, are becoming widespread in society (Davy, 2014).

People who are sleep deprived may be doing more harm than they think, as insufficient sleep (less than 7 hours a night), influences their quality of life (South African

Depression and Anxiety Group, 2011; Taylor, 2015). Sleep loss significantly increases the risk of suicidal behaviour because sleep deprivation leads to increased hopelessness, a major contributor to suicidal thoughts and behaviour (South African Depression and Anxiety Group, 2011). Sleep loss can also be linked to increased mortality (Selwood, 2014; Weiten, 2014). Recent research suggests that a lack of sleep can hinder a person's ability to regulate emotions and behaviours, leading to deviant behaviour (Robbins & Judge, 2015).

Former famous South African detective, Piet Byleveld, indicated that he would lie awake at night thinking about difficult cases (Retief, 2011). People need sleep to allow their bodies to recharge and function effectively (Greenberg, 2011; Selwood, 2014; Sisley et al., 2010). Good sleep habits can help to decrease physiological vulnerability to stress and are therefore crucial for stress management (Weiten, 2014).

3.6.9 Healthy diet

Ongori and Agolla (2008) found in their study that healthy eating habits help individuals to manage stress. Highly demanding jobs are characterised by time pressure. Former famous South African detective, Piet Byleveld's eating habits would be even worse than normal when working on a difficult case (Retief, 2011). Vorster, Badham and Venter (2013) posit that people should drink at least two litres of water a day. When pressured for time, people may favour time-effective and convenient fast-food over healthy meals (Fodor et al., 2014). People also tend to use eating as a means of coping with intense negative emotions (Iacobino, Powers, & Oltmanns, 2014). Stress has thus been linked to unhealthy eating behaviours (Kuijer, Boyce, & Marshall, 2015). Stress can therefore have a direct and negative impact on diet. When stressed, people tend to eat more fatty foods, fewer fruits and vegetables, and are more likely to snack and miss breakfast (Taylor, 2015).

3.6.10 Religion

In a study by Pienaar and Rothmann (2003), it was found that religion is regarded as a key coping strategy in the South African Police Service. Religion plays an important role in the entire stress process – from the way in which people appraise events to

how they respond psychologically and physically to those events over the long term. People also use religion specifically to help them cope with the immediate demands of stressful events. Religion helps them find the strength to endure and to find purpose and meaning in situations that can challenge the most fundamental beliefs. There is increasing evidence that spirituality affects both mental and physical health (Folkman & Moskowitz, 2004).

According to Rothmann et al. (2011), religion may be such a specific coping strategy that it cannot exclusively be defined as either social, emotional or avoidant. Religion seems to serve the purpose of all of these, depending on the meaning for the user.

Pienaar et al. (2007) reported that South African police officers who did not use religion as a coping strategy, tended to have more suicidal thoughts. Spirituality can lead to good health as it helps individuals to draw on their inner resources and strength to cope effectively (Gumani, 2012; Pienaar & Rothmann, 2003). According to Gumani et al. (2013), religion helps police officers to gain the mental strength to continue working, emotional relief in the form of achieving a state of tranquillity, as well as spiritual healing and spiritual assurance that God is in control of all the situations in their lives. De Beer and Van Heerden (2014) also found religion to be a contributing factor to coping better with stressful situations in a military context. According to Taylor (2015), attending a church sermon, praying or otherwise tending to spiritual needs is good for your health. Wynand du Toit explained how reading the Bible and relying on God helped him during his time as a prisoner of war (Du Toit, 2015).

3.6.11 Treatment and therapy

According to Hobfoll et al. (1991), people sometimes need to hear that they cannot cope with stress alone or even with the support of loved ones. They need to ask for help from a counsellor or psychologist. Effective treatment and therapy can help to reduce the consequence of stressors on the person and his or her functioning. Maree et al. (2002) posit that cash-in-transit guards can benefit from therapy in helping them to deal with suppressed anger. Pillay and Claase-Schutte (2004) suggest that the provision of psychological counselling could be beneficial to decrease or minimise the negative effects of stress for security personnel. Debriefing and counselling can, for

example, help combat veterans to prevent the symptoms of post-traumatic stress disorder (Kavanagh, 2005). As a therapeutic intervention, Johan Marais wrote a book about his traumatic experiences while serving in the South African Police Service. In his book, he also referenced a letter from the wife of another former South African police officer whose wife described how therapy had helped her husband return to a more normal life (Marais, 2010). Cognitive behavioural therapy has been acknowledged as an effective method of reducing stress, depression and anxiety among police officers and can therefore be beneficial for security personnel (Wetstein, 2013). According to Poisat et al. (2014), therapy and support groups as interventions may assist cash-in-transit guards to effectively cope with stress.

The Oxford dictionary of psychology (Colman, 2009, p. 764) describes therapy as “any form of treatment for a disorder by a method other than surgery”. Carr et al. (2011) identified counselling and therapy as positive means of coping with stress. Positive reappraisal, as part of cognitive behavioural therapy, can have benefits for helping a person to cope with stress (Jamieson et al., 2012). Stress leads to emotional arousal, and not talking about these suppressed emotions can become problematic, ultimately leading to more stress. Even though there is no guarantee, physiological arousal can be reduced by expressing emotions. Evidence suggests that writing or talking about problems can be valuable in coping with stress (Taylor, 2015; Weiten, 2014). Communication allows a person to gain information about the event or about effective coping strategies and also elicits emotional support from others (Taylor, 2015).

Since therapy can be regarded as a form of support offered to a person, treatment and therapy were included under social support in the HRCQ.

3.6.12 Positive self-talk

Positive self-talk involves self-encouragement by highlighting the positive aspects of a person’s skills and experience (Greenberg, 2011; Taylor, 2015). Gumani et al. (2013) found that when police officers are confronted with constant difficulties, they resort to self-encouragement instead of displaying vengeful behaviour. Security personnel attempt to regain their self-worth and status by telling themselves that the work they do involves intellectual ability (Löfstrand et al., 2016).

The next section provides a brief discussion on questionnaires measuring coping.

3.7 COPING QUESTIONNAIRES

According to Carver et al. (1989), it is not possible to measure all coping strategies in one questionnaire, as there are simply too many of them. Folkman and Moskowitz (2004) concur that there is no gold standard to measure coping.

Some researchers suggest that there are insignificant differences between police and other populations, while others argue that the study of police populations necessitates measurement instruments that are specifically custom made to the unique working environment of law enforcement (Duxbury et al., 2015).

Some of the available questionnaires used to measure coping are as follow:

- **Ways of Coping Questionnaire (WCQ):** The WCQ consists of statements about thoughts and actions that people use to deal with the demands of specific stressful situations (Folkman & Lazarus, 1980). The questionnaire asks if, and to what extent, a person had used certain thoughts and actions in a specific stressful experience (Folkman & Lazarus, 1988; Lazarus, 1993). According to Rexrode et al. (2008), the WCQ is one of the most commonly used.
- **Coping Orientations to Problems Experienced (COPE) Questionnaire:** The COPE Questionnaire was designed to assess (1) people's active coping efforts, (2) coping responses that may possibly hinder active coping, and (3) aspects of coping that are less obviously related to self-regulatory functions (Carver et al., 1989). People are provided with statements and asked to indicate what they usually do when they experience a stressful event (Carver, 2013).
- **Brief COPE:** The Brief COPE measures coping responses in stressful situations. It evaluates the slightest differences in coping and the person's ability to balance general coping strategies (How would you react if?) with those used in response to the current stressful situation (How did you react to specific stressful situations?) (Maran et al., 2015; Taylor, 2015).

- **Coping Strategy Indicator:** The Coping Strategy Indicator is a self-report questionnaire that assesses specific responses to real-world stressors rather than a person's beliefs about typical coping reactions (Amirkhan, 1990). The questionnaire comprises 33 responses relating to a recent problem, within the previous six months, which the person thought was important and caused him or her to worry. The degree to which each of the responses has been used to manage that particular incident is indicated on a three-point scale (Amirkhan, 1990).
- **Coping Strategies Inventory:** The Coping Strategies Inventory is a self-report questionnaire designed to assess coping thoughts and behaviours in response to a specific stressor and was adapted from the Ways of Coping Questionnaire. Participants are requested to first describe, in a paragraph or two, the circumstances of a stressful event. After describing the stressful event, they are requested to respond to questions using a five-point Likert scale. They must indicate for each item the extent to which they used that specific coping response in dealing with the event described earlier (Tobin, 2001).
- **Multidimensional Coping Inventory (MCI):** The MCI is a self-report instrument that was developed to measure three different coping styles, namely task-oriented coping, emotion-oriented coping and avoidance-oriented coping. The questionnaire consists of 44 questions and uses a five-point frequency scale to respond to questions (Endler & Parker, 1990).
- **New Measure of Daily Coping:** The New Measure of Daily Coping is an open-ended response format questionnaire that was developed to assess coping on a daily basis. The questionnaire consists of different parts. Firstly, participants must describe the most troublesome event or issue of the day. This might be something that had happened in the past, on the specific day, or that they anticipate will happen in the future. The next page contains eight questions relating to the problem, with possible responses, to record participant's appraisal of the problem (Stone & Neale, 1984).

None of the questionnaires that could be found in literature were developed within a high stress security environment.

3.8 PERSONALITY

“The outstanding characteristic of man is his individuality” (Allport, 1937, p. 3). Personality is concerned with all the behaviour of a person, both obvious and less obvious (Cattell, 1950). McCrae and Costa Jr (1997) suggested that the structure of individual differences in personality is uniform across a number of cultures, and that it may in fact be universal. According to Hogan (2005), personality is two things – generalisations about human nature, and investigations of individual differences. Personality can thus be used to interpret and understand a person’s behaviour (Hogan & Smither, 2008). Our experience with other people tell us that they are all unique and, to a degree, they are all consistent. Every person has a unique pattern of traits and characteristics that are not fully duplicated in any other person, and these traits or characteristics are fairly stable over time (Coetzee & Schreuder, 2013; Greenberg & Baron, 1993). Personality can therefore be used to explain why people do not act the same way in similar situations (Weiten, 2014).

The influence of personality on coping is only partly understood, regardless of many studies on the topic (Richter, Lauritz, Du Preez, Cassimjee, & Ghazinour, 2013). It is nonetheless evident from research that personality predicts important health outcomes, that is, mortality, blood pressure and health perceptions (Iacovino et al., 2014). Personality traits are key psychological predictors of health, and the relationship between personality and health is evident over decades, as childhood personality traits predict health in middle age (Weston, Hill, & Jackson, 2015). Research indicates that personality traits are some of the strongest predictors of wellbeing. Poor wellbeing does not only affect job performance, work attendance or decision making, but it also has a significant influence on a person’s physical health, life satisfaction, and family and social relationships (Pierce et al., 2016).

Coping ought to be redefined as a personality process. This is because the coping process aims at self-regulating a person’s personality in specific stressful situations according to his or her goals, needs and feelings (Vollrath, 2001). People have consistent coping preferences that they apply in many different situations. These coping preferences are normally associated with personality traits (Govender, 2008). Coping strategies can thus be regarded as an extension of a person’s personality traits

(Louw & Viviers, 2010). Personality can influence coping in many ways, even prior to coping, as personality influences the frequency of exposure to stressors and the type of stressors experienced (Carver & Connor-Smith, 2010). Personality also influences the way in which people appraise a stressful situation (Carver & Connor-Smith, 2010; Ebstrup, Eplov, Pisinger & Jørgensen, 2011).

According to Balcar et al. (2011), effective coping strategies that are repeated over time will become part of a person's personality structure. Evidence suggests that personality factors play a significant role in determining human performance in a variety of contexts. This may be particularly true in situations that are highly stressful, challenging or pose a threat to physical wellbeing (Maddi, Matthews, Kelly, Villarreal, & White, 2012). A study by Richter et al. (2013) supported the fact that personality and coping are interrelated and that certain personality traits are likely to facilitate specific coping behaviours.

Hence Louw (2014) contends that stable personality traits can play a significant role in the stress management process. The personality characteristics that each person brings to a stressful event influence how he or she will cope with that event (Taylor, 2015). An individual's personality can therefore influence his or her health and overall wellbeing (Caplan & Jones, 1975; Cummings & Worley, 2015; Iacobino et al., 2016; Weston & Jackson, 2016).

An individual's personality can also affect his or her decisions (Robbins & Judge, 2015). Personality traits may influence a person's exposure to stressful life events, a process known as stress generation. People with specific personality traits such as neuroticism, experience dependent stressful life events more frequently. Dependent stressful life events are, to some extent, the result of the person's own behaviour, for example, ending a close relationship. Independent stressful life events, such as illness and death of a loved one, are not the result of the person's behaviour and are therefore unrelated to personality traits (Iacobino et al., 2016). People therefore shape the circumstances in which they live. Neuroticism, impulsivity and low agreeableness are personality characteristics that may place people at risk of selecting situations that could lead to the occurrence of stressful events (Iacobino et al., 2016).

According to Magnano, Paolillo, Platania, and Santisi (2017), there are two perspectives on how personality can influence coping. Firstly, people have stable coping styles or dispositions for dealing with stressful events. Secondly, a person may be predisposed to cope in a certain way when confronted with difficulty because of his or her personality characteristics. Coping is therefore significantly related to personality and could play a key role in the prevention of and recovery from mental disorders (Hengartner et al., 2017).

Personality is now defined and discussed in order to gain a better understanding of the concept.

3.8.1 Defining personality

The word “personality” originated from the Latin word, *persona*, which refers to a theatrical mask worn by Roman actors in Greek dramas. These masks were worn to project a false role or appearance (Allport, 1937; Govender, 2008; Hogan & Smither, 2008). An individual’s personality therefore reflects the role he or she has to play in everyday life (Hogan & Smither, 2008). The Oxford dictionary of psychology (Colman, 2009) informally describes personality as the personal qualities that make a person socially popular. “Personality is easy to observe but hard to pin down” (Carver & Connor-Smith, 2010, p. 680). According to Greenberg (2011), it is difficult to explain personality in a single sentence because what makes a person unique is complex and hard to put into words.

Hogan (2005), Hogan and Smither (2008) and Roberts and Hogan (2001) suggest that there are two different definitions of personality. The first is from the perspective of the actor and the second from the perspective of the observer. The actor’s interpretation is a person’s opinion of himself or herself – in other words, his or her identity. Personality as interpreted by the observer, is his or her opinion of a person from someone else’s perspective – in other words, a person’s reputation.

“Personality is one of the most abstract words in our language” (Allport, 1937, p. 25). Allport (1961) stated that everyone seems to know what personality is, but that no one can describe it accurately. According to Eysenck (1991), there is no agreement on

the definition of personality. Personality theorists often have different perspectives in their definition of personality (Govender, 2008). There are virtually as many definitions of personality as there are personality theorists (Hogan & Smither, 2008). Carver and Connor-Smith (2010) suggest that the psychology of personality is an extremely broad topic that has culminated in various theoretical approaches. Bergh and Geldenhuys (2016) concur that there is no universally accepted definition of personality, as definitions usually reflect the personal experiences and theoretical and assessment preferences of the theorists.

Table 3.2 provides various definitions of the concept of personality.

Table 3.2

Definitions of personality

Author	Definition
Allport (1937, p. 48)	“Personality is the dynamic organisation within the individual of those psychophysical systems that determine his unique adjustments to his environment.”
Cattell (1950, p. 2)	“Personality is that which permits a prediction of what a person will do in a given situation.”
Eysenck (1970, p. 2)	“Personality is the more or less stable and enduring organisation of a person’s character, temperament, intellect and physique, which determines his unique adjustment to the environment.”
Taylor, (2004, p. 1)	“Personality can be seen as those characteristics of people that account for consistent patterns of feeling, thinking, and behaving”.
Grivas (2006, p. 103)	“A group of relatively unchanging personal characteristics that are unique to an individual and determine their thoughts, feelings and behaviour in a wide range of situations.”
Colman (2009, p. 565)	“The sum total of the behavioural and mental characteristics that are distinctive of an individual”.
Greenberg (2011, p. 141)	“The unique and relatively stable pattern of behaviour, thoughts and emotions shown by individuals.”
Louw (2014, p. 3)	“An individual’s unique pattern of thoughts, feelings and behaviour that persist over time and across situations.”

Author	Definition
Weiten (2014, p. 469)	“An individual’s unique set of consistent behaviour traits.”
Robbins & Judge (2015, p. 154)	“The sum total of ways in which an individual reacts to and interacts with others.”
Bergh & Geldenhuys (2016, p. 305)	“A profile of consistency in attributes and behaviour in the person across time and situations, as well as the uniqueness of personality in each person.”
Iacobino et al. (2016, p. 536)	“The collection of relatively stable and global traits that influence thoughts, feelings and behaviours.”

As described in Table 3.2, three themes are evident in the definitions of personality. Firstly, it reflects on the uniqueness of a person; secondly, it refers to characteristics or traits that are fairly stable over time, and thirdly, it determines a person’s thoughts, feelings and behaviour in different situations.

For the purpose of this research, the following definition of personality was formulated:

“The relatively stable and unique characteristics of an individual that determine how he or she adapts to different situations.”

Personality and stress, followed by personality and coping is now discussed.

3.8.2 **Personality and stress**

Personality can influence a person’s reaction to stress in several ways. Anxious people generally cope less well with stress (McCrae & Costa Jr, 1986; Villada et al., 2016). People with higher levels of anxiety display more noticeable physical responses to stressors, for example, increased heart rate. By contrast, individuals with low anxiety are better able to deal with the physiological effects of external stressors. They are more likely to experience an improvement in performance when certain stressors are introduced (Kavanagh, 2005). A number of studies have shown that anxious, neurotic people report more stress than others (Weiten, 2014). Anxiety

and depressive symptoms are not only harmful to the person experiencing such symptoms, but can also negatively impact on others. Those who suffer from anxiety and depressive symptoms experience increased health problems, and are likely to have inadequate interpersonal relationships (Gloria & Steinhardt, 2016).

3.8.3 Personality and coping

Suicide ideation is an aspect of suicidal behaviour that normally includes thoughts associated with committing suicide. It is defined as “the domain of thoughts and ideas about death, suicide, and serious self-injurious behaviour” (Pienaar et al., 2007, p. 246). Research indicates that neuroticism is positively linked to suicidal thoughts, possibly because neuroticism is associated with depression. Increased suicidal thoughts have also been associated with low levels of extraversion, which reflect a low tendency to experience positive emotions (Pienaar et al., 2007). According to Govender (2008), there is limited research on personality traits and coping strategies among South African police members. Govender (2008), however, found that extraversion, conscientiousness, openness to experience and agreeableness all had a positive correlation with healthy coping strategies. Neuroticism correlated with unhealthy coping strategies.

Another study by Louw and Viviers (2010), also in the South African Police Service, found that stress levels and the Big Five personality traits did not have any effect on each other. Neuroticism was the only factor that presented a low positive relationship with police stress, assuming that police officers scoring high on neuroticism would distance themselves from high workloads.

Research suggests that people who have been exposed to extreme difficulty over time show an increase in neuroticism and decrease in certain aspects of agreeableness and openness to experience (Sudom, Lee, & Zamorski, 2014). Weston et al. (2015) found that high conscientiousness, extraversion, openness, agreeableness and low neuroticism could be associated with better health or the absence of disease. Two personality traits that are consistently linked to health and healthy behaviours are conscientiousness and neuroticism (Weston et al., 2015; Weston & Jackson, 2016).

The most popular models of personality are discussed in this next section. A critique of each model is also provided.

3.9 MODELS OF PERSONALITY

Personality can be studied at three different levels. The first is at trait level. This offers a unique description of a person and can be referred to as the psychology of the stranger. The second level includes personal concerns. These personal concerns are life ambitions, coping strategies, motivational constructs and developmental constructs that are contextualised in time, place or role. The third level has to do with a person's actual identity. This is in the form of the person's life story, that is, his or her past, present and anticipated future (McAdams, 1995; Taylor, 2004; Van Zyl, 2012).

A trait characterises a range of seemingly similar behavioural tendencies and means that a person's conduct is in many instances perceived as roughly consistent (Allport & Odbert, 1936). McAdams (1995) suggests that traits are reasonably stable over long periods of time and can predict a person's behaviour fairly well. Trait constructs predict that certain coping responses are more likely to be used under certain conditions. A person's behaviour is thus a joint function of his or her personality and the situation (Vollrath, 2001). Personality traits are consistent patterns of behaviour, feelings and thinking. A trait is stable over time and across situations and helps to summarise, predict and explain a person's behaviour (Govender, 2008; Van Zyl, 2012). Traits provide answers to the question, "What kind of person is this?" (Strümpfer et al., 2010). A trait is any relatively lasting way in which one person differs from another. Trait psychologists use factor analysis to identify and cluster unique and similar factors when developing personality questionnaires (Coetzee & Schreuder, 2013). A trait is thus a permanent characteristic that makes one behave in a particular way in a variety of situations (Weiten, 2014). It is a tendency of people to act, think and feel in a particular way. Traits are inherited and represent learned potential or characteristics that direct and motivate behaviour, giving structure to personality (Bergh & Geldenhuys, 2016).

Eysenck's Three-Factor Model of Personality is now discussed.

3.9.1 The Three-Factor Model of Personality

Eysenck's model, as illustrated in Figure 3.3, measures psychoticism, extraversion and neuroticism. These factors, according to Eysenck, are strongly determined by genetic factors (Eysenck, 1991; Eysenck & Eysenck, 1985). Eysenck was of the opinion that these three factors are sufficient to measure personality (Eysenck & Eysenck, 1985). He therefore preferred to use fewer but more inclusive trait factors in his model. He also highlighted the necessity of having a theoretical explanation for each trait, and not only empirical findings (Eysenck, 1992). Many traits are biologically determined and influenced by the environment. People therefore respond to situations by making use of habitual responses (Bergh & Geldenhuys, 2016; Eysenck, 1991). These responses can be grouped into super traits from which personality type will emerge (Bergh & Geldenhuys, 2016).

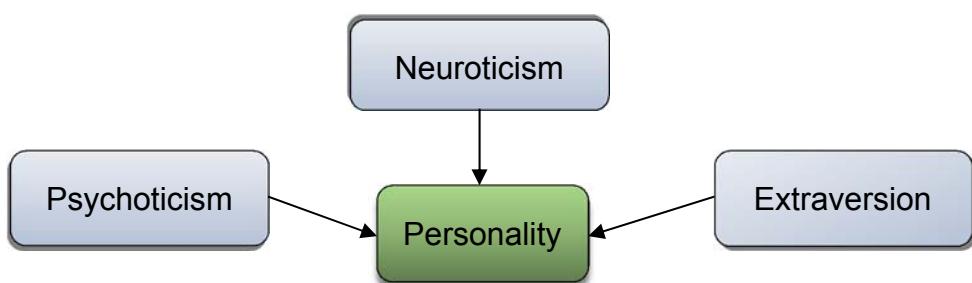


Figure 3.3. Overview of Eysenck's Three-Factor Model of Personality

Some researchers posit that the Three-Factor Model of Personality closely resembles the Five-Factor Model, while others suggest that it contributes as much to trait psychology as Cattell's Sixteen-Factor Model. There are also critics who maintain that the Three-Factor Model presents personality as too simplistic (Bergh & Geldenhuys, 2016; Govender, 2008).

The three main factors of the Three-Factor Model are as follows (Bergh & Geldenhuys, 2016; Eysenck & Eysenck, 1985; Francis, Craig, & Robbins, 2008):

- extraversion versus introversion;
- neuroticism versus stability; and
- psychoticism versus tough-mindedness (impulse control).

Each of the main types is explained by subfactors or specific traits, as indicated in Table 3.3.

Table 3.3

Three-Factor Model with the main factors and their subfactors

Extraversion versus introversion	Neuroticism versus emotional stability	Psychoticism versus tough-mindedness
Activity	Low self-esteem	Aggressiveness
Sociability	Unhappiness	Assertiveness
Risk-taking	Anxiety	Achievement orientation
Impulsiveness	Obsessiveness	Manipulation
Expressiveness	Lack of autonomy	Sensation seeking
Lack of reflection	Hypochondria	Dogmatism
Lack of responsibility	Guilt	Masculinity

Source: Bergh and Geldenhuys (2016, p. 356)

- The **extraversion scale** assesses a continuum ranging from introversion to extraversion. A person with a high score on the extraversion scale will display sociability, friendliness, excitability and sensation-seeking behaviour (Francis et al., 2008).
- The **neuroticism scale** assesses a continuum ranging from emotional stability to neurotic disorder. A person with a high score on the neuroticism scale will display anxiety, depression, shyness and low self-esteem (Francis et al., 2008).
- The **psychoticism scale** assesses a continuum ranging from tough-mindedness to psychotic disorder. A person with a high score on the psychoticism scale will display aggression, egocentrism and impulsiveness (Francis et al., 2008).

The Five-factor Model of personality, as suggested by McCrae and Costa Jr, is now discussed. The Five-factor Model was used to measure personality in this research, therefore a description of how each factor can influence coping is provided.

3.9.2 The Five-Factor Model of Personality

According to Goldberg (1990, p. 1216; 1993, p. 26), the origin of the Big Five taxonomy is in the lexical hypothesis of Sir Francis Galton: “The most important individual differences in human transactions will come to be encoded as single terms in some or all of the world’s languages.” Supporters of the Five-Factor Model never intended to reduce personality to a mere five traits. They endeavoured to provide a scientifically conclusive framework in which to organise the numerous individual differences that characterise people. Essentially, these broad domains incorporate hundreds, if not thousands, of traits (Goldberg, 1993). The Five-Factor Model has been accepted by many scholars since the 1980s as the best comprehensive system of basic, independent personality factors (Ebstrup et al., 2011; Vollrath, 2001).

Goldberg (1990) found in three independent studies that it is reasonable to conclude that analysis of any soundly large sample of English trait adjectives, in either self or peer descriptions, will produce a variant of the Big Five factor structure. Almost all such terms can be represented within this model. The Five-Factor Model has been proven to be reliable across a variety of different cultures (Govender, 2008; McCrae & Costa Jr, 1997), and has emerged in recent years as a potential framework for describing normal personality (Bartone et al., 2013).

According to Eysenck (1991), there is no statistical support for the Five-Factor Model, other than an overlap with the three factors in his model. Other researchers have criticised the five-factor approach as being too global to be of practical value in understanding actual behaviour, and they argue that the Big Five factors are too broad to adequately predict important life outcomes or criteria (Bartone et al., 2013). It is nonetheless regarded as the most comprehensive taxonomy of personality in the work context (Louw, 2014) and is supported by an impressive body of research (Bergh & Geldenhuys, 2016; Robbins & Judge, 2015). According to Fick (2016), the Five-Factor Model is recognised by almost all personality researchers.

The five factors, as indicated in Figure 3.4, are conscientiousness, neuroticism, agreeableness, extraversion and openness to experience (Bergh & Geldenhuys, 2016; Fick, 2016; McAdams, 1995; McCrae & Costa Jr, 1997).

Extraversion has traditionally been termed “surgency”, neuroticism has been termed “emotional stability” and openness to experience has been termed “culture” or “intellect” (Goldberg, 1993).

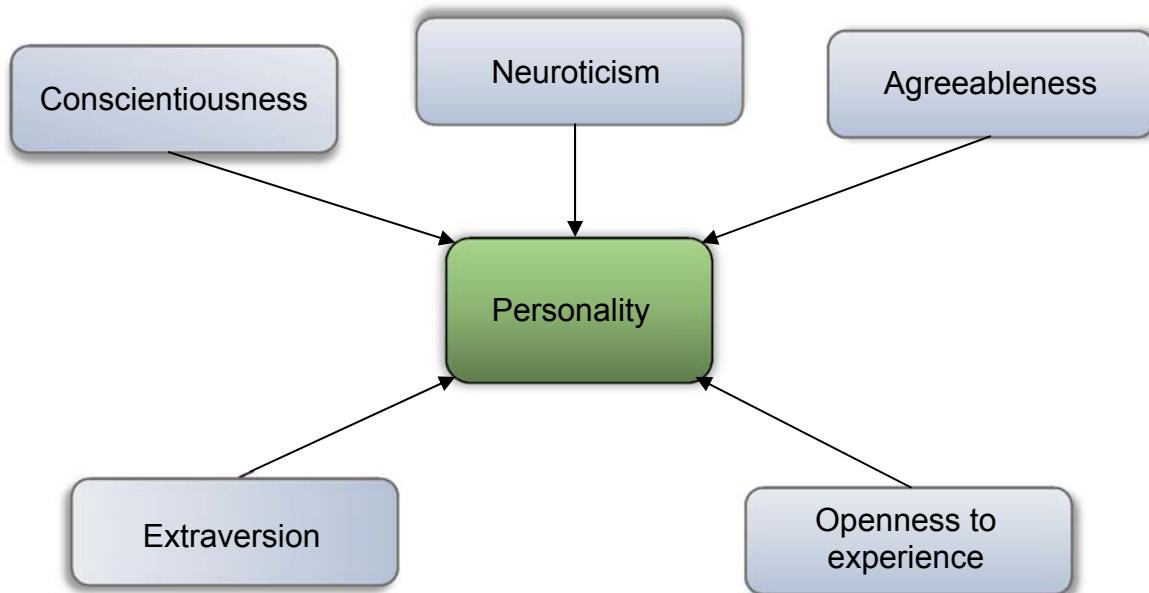


Figure 3.4. Overview of the Five-Factor Model of Personality

Source: Weiten (2014, p. 470)

The five factors are discussed below.

3.9.2.1 *Conscientiousness*

Conscientiousness can have both proactive and constraining elements because it entails both movement and focus. The proactive aspect can clearly be seen in the need for achievement and commitment in work, whereas the constraining aspect is seen in moral persistence and carefulness (Costa Jr, McCrae, & Dye, 1991). Conscientiousness can thus be described as “the degree to which a person is persevering, responsible, and organised; as opposed to lazy, irresponsible, and impulsive” (Taylor, 2004, p. 26). Conscientious people are naturally thorough, careful, hardworking and self-controlled (Duckworth, Peterson, Matthews, & Kelly, 2007). It is the degree of effectiveness and efficiency with which a person plans, organises and carries out tasks (Govender, 2008; Taylor & De Bruin, 2016). Conscientious people are more purposeful, strong willed and determined, and have the will to achieve

(McCrae & Costa Jr, 2010). Bogg and Roberts (2013, p. 278) define conscientiousness as “the relatively stable pattern of individual differences in the tendencies to follow socially prescribed norms, to be goal directed, planful, delay gratification, and to follow norms and rules”.

Conscientious people habitually make use of active coping strategies (Bogg & Roberts, 2013; Govender, 2008; Magnano et al., 2017; Richter et al., 2013). They tend to plan for predictable stressors and avoid impulsive actions that can lead to financial, health or interpersonal problems (Carver & Connor-Smith, 2010). The reason for this could be that people high in conscientiousness have an increased appraisal of their coping abilities, as well as higher levels of perceived control in a stressful situation (Bogg & Roberts, 2013; Gartland, O'Connor, & Lawton, 2012).

Van Zyl (2012) found that low conscientiousness could be a predictor of risk-taking behaviour as the person has fewer inhibitions. Conscientiousness is correlated with less illness and reduced mortality. Conscientious people live longer because they are less prone to engage in health-impairing behaviour such as, drinking, excessive eating, smoking, drug abuse, lack of exercise and various risky practices (Bogg & Roberts, 2013; Taylor, 2015; Weiten, 2014). This can be described as the tendency to engage in healthy behaviours, such as exercising and wearing seat belts (Weston & Jackson, 2016). Conscientiousness is a trait that allows a person to deal with stress more productively because conscientious people are more likely to take action and seek social support (Weston & Jackson, 2016). Hengartner et al. (2017) posit that conscientiousness contributes to social activity, implying that a high score on conscientiousness will allow access to interpersonal resources and social support.

3.9.2.2 *Neuroticism*

Neuroticism is possibly the oldest and most universal trait that can be found in the personality literature. It has its origins in psychopathology and was described by Sigmund Freud as neurosis. The Five-Factor Model, however, describes traits in terms of normal personality (Taylor, 2004). Neuroticism therefore draws a comparison between psychological adjustment, emotional stability and psychological maladjustment (McCrae & Costa Jr, 2010; Taylor, 2004). It relates to the ease and

frequency with which a person becomes upset and distressed (Carver & Connor-Smith, 2010). Emotional stability is thus the most stable and noticeable aspect of psychological uniqueness (Strümpfer et al., 2010). Neuroticism refers to individuals' emotional stability and the general tendency to experience negative affect in response to their environment (Taylor & De Bruin, 2016).

Research suggests that people high in neuroticism generally make use of less effective coping strategies (McCrae & Costa Jr, 1986). It is assumed that neurotic people have a low threshold for activation of the autonomic nervous system and are therefore more prone to anxiety and fear responses (Endler & Parker, 1990). Neurotic people tend to experience more negative feelings such as fear, sadness, embarrassment, anger, guilt and disgust. They are also more prone to irrational ideas, less able to control their impulses, and generally cope poorly with stress (McCrae & Costa Jr, 2010; Taylor, 2004). Neuroticism can also be linked to low perceived ability to cope (Carver & Connor-Smith, 2010; Govender, 2008). Neurotic people are more likely to engage in passive or maladaptive coping behaviours such as hostile reactions, escape fantasies, self-blame, withdrawal, wishful thinking and indecisiveness (Magnano et al., 2017; Richter et al., 2013). Neurotic people may perceive existing problems as more severe than they are (Weston & Jackson, 2016).

Skomorovsky and Stevens (2013) found that neuroticism had a negative impact on adjustment to military life, which hampers professional functioning. Neuroticism can be linked to an increased rate of nearly all major mental disorders (Weiten, 2014). It can be related to poor health, including chronic disorders such as arthritis, diabetes, chronic pain and coronary artery disease (Taylor, 2015). It can also be associated with poor health habits such as excessive drinking and drug use as a means of coping with stress (Taylor, 2015; Weston & Jackson, 2016). According to Iacobino et al. (2016), neuroticism strongly predicts stressful life events that could be considered dependent on a person's behaviour, such as marital problems, job loss, financial problems and relationship problems. Iacobino et al. (2016) also found that neuroticism and impulsivity influenced the development of new health problems during a person's late mid-life. Neuroticism is therefore generally related to lower levels of health (Weston & Jackson, 2016) and a lowered ability to resist hardship (Hengartner et al., 2017; Von Soest, Wagner, Hansen, & Gerstorf, 2017).

3.9.2.3 Agreeableness

Agreeableness is primarily a dimension of interpersonal behaviour and ranges from compassion to antagonism. It can influence a person's self-image and helps to form social attitudes and his or her life philosophy (Costa Jr et al., 1991). According to Taylor (2004), agreeableness can further be described in terms of an individual's ability to be sympathetic, trustworthy, cooperative and selfless. It also involves being kind, forgiving, accommodating and friendly (Govender, 2008). It is being sympathetic to others and eager to assist them and believing that others will be equally helpful in return (McCrae & Costa Jr, 2010). Agreeable people are able to inhibit their negative feelings and become less angry over other people's wrongdoings (Carver & Connor-Smith, 2010). It is "the degree to which a person is able to get along with other people, and has compassion for others" (Taylor & De Bruin, 2016, p. 14).

People who are more agreeable tend to use social support as a preferred coping strategy (Govender, 2008). Agreeableness can be linked to low interpersonal conflict and thus less social stress (Carver & Connor-Smith, 2010). Agreeableness represents the intention to maintain positive relationships. Low agreeableness can be associated with poor interpersonal adjustment and responding less constructively to interpersonal conflict. Agreeableness can therefore impact on social relationships, leading to more stressful life events (Iacobino et al., 2016). Research indicates that agreeableness not only predicts the occurrence of dependent stressful life events, but it may also indirectly predict new health problems (Iacobino et al., 2016). According to Hengartner et al. (2017), agreeableness, like conscientiousness, contributes to social activity, implying that a high score on agreeableness promotes access to interpersonal resources and social support. Hengartner et al. (2017) also found that low agreeableness specifically contributes to the use of medication in stressful situations. Von Soest et al. (2017) posits that agreeableness can be associated with intentions of nurturance and close relationships.

3.9.2.4 Extraversion

Extraversion refers to a tendency to be assertive, positive, talkative, warm, social, energetic, affectionate and fun loving (Govender, 2008). Extraverts are more sociable

and they like being around people (McCrae & Costa Jr, 2010). Extraversion refers to “the degree to which a person enjoys being around other people, likes excitement and stimulation and is cheerful in nature” (Taylor & De Bruin, 2016, p. 11).

Extraverts are more prone to engage in social interaction and are less likely to avoid stressful situations than introverts (Endler & Parker, 1990). Extraverts tend to use problem-focused (active) coping strategies and positive reappraisal in dealing with stressful events (Govender, 2008; Richter et al., 2013). They are inclined to regard events as challenges rather than threats, and are likely to have a positive appraisal of their own coping resources (Carver & Connor-Smith, 2010). Extraverts are predisposed to seek social support (Magnano et al., 2017), which may improve social integration because social behaviour is stimulated (Von Soest et al., 2017).

Extraversion was found to be a strong predictor in different risk-taking behaviours such as gambling, substance abuse and violent behaviour. A possible reason for this is that extraverts are described as stimulation seekers (Van Zyl, 2012). These behaviours can be regarded as unhealthy coping strategies.

3.9.2.5 *Openness to experience*

Openness to experience refers to a tendency to be curious, flexible, original, artistic and insightful (Govender, 2008). Open people tend to reflect on ideas and actively seek out new experiences. They enjoy new ideas and have a wide range of interests (Taylor, 2004). Openness to experience is “the degree to which people are willing to experience new or different things and are curious about themselves and the world” (Carver & Connor-Smith, 2010, p. 683; McCrae & Costa Jr, 2010, p. 20; Taylor & De Bruin, 2016, p. 13).

McCrae and Costa Jr (1986) found that people who are closed to experience prefer to use faith as a coping mechanism, whereas people open to experience prefer to make use of humour. Both were equally effective ways of coping and among the most effective coping mechanisms in their study. Govender (2008) similarly suggests that people open to experience tend to make use of humour and emotional coping strategies to deal with difficult events. They are also more likely to engage in positive

reappraisal. McCrae and Costa Jr (2010) assert that people who are both open and closed to experience may be healthy, depending on the situation they find themselves in. According to Carver and Connor-Smith (2010), openness may advance not only active coping strategies such as cognitive restructuring and problem solving, but also avoidance strategies such as wishful thinking. Individuals who are open to experience tend to make use of more creative coping strategies to relieve stress (Weston et al., 2015).

Openness to experience was found to be a predictor of risk-taking behaviour such as smoking and experimenting with alcohol and drugs (Van Zyl, 2012). These are all deemed to be unhealthy coping strategies.

The Sixteen-Factor Model of Personality, as suggested by Cattell is discussed below.

3.9.3 The Sixteen-Factor Model of Personality

The 16-factor personality traits are the result of extensive factor analytic research (Bergh & Geldenhuys, 2016; Cattell, 1945). Cattell focused on discovering the basic structural elements of personality and believed that human characteristics such as creativity, autocracy, unselfishness or leadership skills could be predicted from these fundamental personality traits (Cattell & Mead, 2008). Raymond Cattell was said to be one of the most prominent trait psychologists of the 20th century. He initially identified 20 primary personality factors and selected 16 to be included in the 16 Personality Factor Questionnaire (Coetzee & Schreuder, 2013).

Allport and Odber (1936) had a list of 17 953 terms of different trait names to describe personality. The criterion for inclusion in the list was any term that distinguished the behaviour of one person from that of another. They described personality in terms of the following four general categories: (1) personality traits, (2) temporary mood states, and (3) consequences of personality traits. The fourth category was a miscellaneous category of words that did not fit into any of the other categories (Allport & Odber, 1936; Van Zyl, 2012). The first category consisted of 4 504 terms (Allport & Odber, 1936).

Cattell based his Sixteen-Factor Model of Personality on the foundations laid by Allport and Odber. He reduced their list of descriptive terms by only focusing on the first category of stable personality traits (Van Zyl, 2012). This was done by grouping similar terms into more meaningful clusters (Cattell, 1945; Eysenck, 1991; Van Zyl, 2012) and by conducting a literature review on typologies, factor analytic studies, temperament and intelligence. Twenty-one new clusters were added after the literature review (Van Zyl, 2012). These factors were further reduced by means of factor analysis to the final list of 16 factors (Eysenck, 1991; Van Zyl, 2012).

Cattell's Sixteen-Factor Model of Personality has proven to have a strong empirical foundation. However, it was criticised by personality researchers who were unable to replicate the 16 factors (Eysenck, 1991; Govender, 2008; Van Zyl, 2012). The validity of the tests Cattell used was also questioned, as well as his over-reliance on factor analysis (Govender, 2008). Another criticism was that Cattell's initial process was too subjective (Van Zyl, 2012). However, it is still extensively used in the work context, as well as other applications, with much supportive evidence (Bergh & Geldenhuys, 2016).

Cattell identified the following 16 primary factors of personality as illustrated in Figure 3.5.

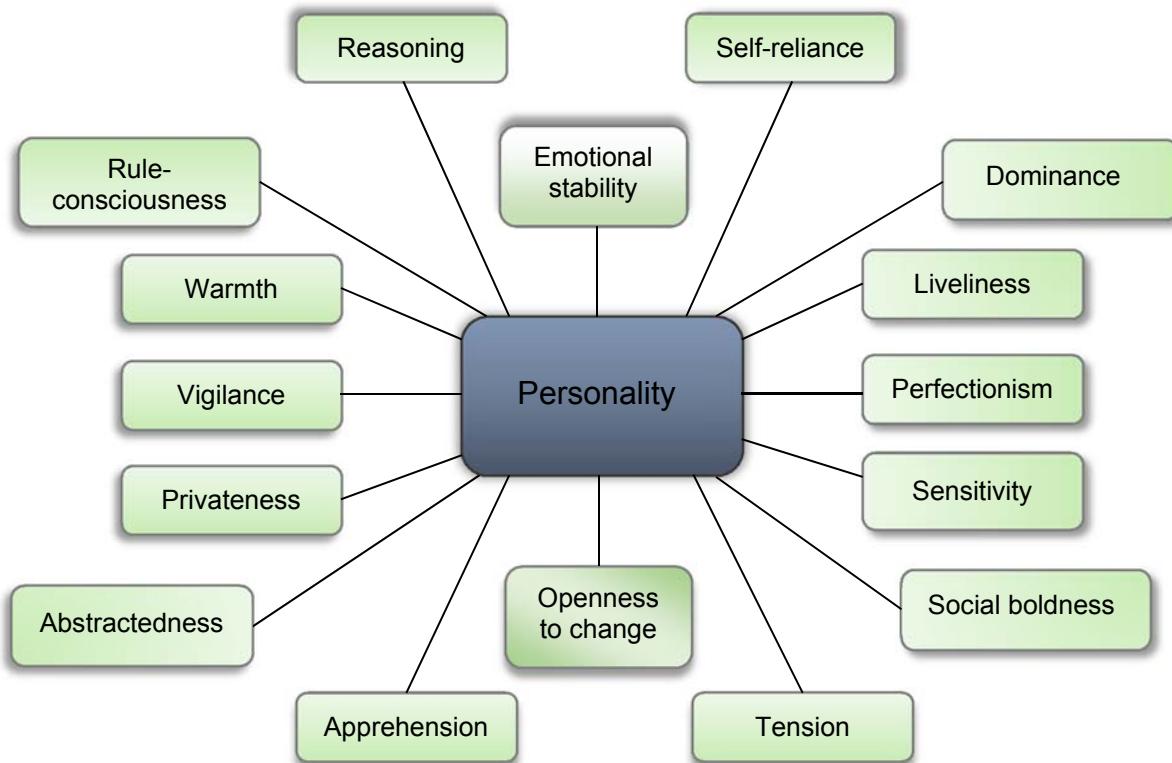


Figure 3.5. Overview of the Sixteen-Factor Model of Personality

Source: Cattell and Mead (2008, p. 136)

3.9.4 Summary of the personality models

The following points can be highlighted based on the discussion of the three most popular models of personality:

- All three models use traits to describe and measure personality.
- The main aim of all three models is to describe people.
- All the models have been well researched.
- There is some overlap of what is being measured in the Three-Factor Model suggested by Eysenck and the Five-Factor Model suggested by Costa and McCrae.

The next section discusses a proposed model for dealing with stress in a high stress security environment.

3.10 PROPOSED CONCEPTUAL MODEL FOR DEALING WITH STRESS IN A HIGH STRESS SECURITY ENVIRONMENT

The literature review discussed in chapters 2 and 3 provides a comprehensive overview of stress, coping and personality. These discussions were considered in developing a proposed conceptual model for dealing with stress in a high stress security environment. The proposed conceptual model is illustrated in Figure 3.6, and briefly discussed in this section.

The model consists of the following four components: (1) a stressor, (2) appraisal of the stressor, (3) coping strategies that may be either healthy or unhealthy, and (4) positive outcomes when coping effectively or negative consequences when not coping effectively. It is postulated that a security employee's personality can have a moderating effect that will influence his or her appraisal and choice of coping strategy.

The first component of the model illustrates that security personnel are exposed to personal, operational and/or organisational stressors (sections 2.5 and 2.5.1). Stressors are environmental conditions that are likely to be appraised as demanding and have implications for a person's wellbeing. Personal stressors could be financial problems or illness. Operational stressors could be physical threats, violence or exposure to danger. Typical organisational stressors could be excessive paperwork, staff shortages and inadequate or poor quality equipment, or even repetitive activities and routine patrolling.

The second component in the model is the security employee's primary appraisal of the stressor (sections 2.4.1 and 3.4). If the security employee appraises the situation as harmless, there will be no stress. However, stressors can be appraised as harmful, threatening or challenging. Harm appraisals are generally about damage that has already occurred, for example, suffering an injury or making a mistake. Threat appraisals deal with potential future harm that may impact physical or psychological wellbeing, such as criminals using firearms during a crime or aggressive drunks who need to be dealt with. The expectation is normally danger or conflict. Challenge appraisals are regarded as an opportunity to gain something from the stressful situation, for instance, the security employee might gain confidence in his or her own

ability to handle a similar difficult situation in the future. If the stressor is appraised as either harmful, threatening or challenging, the security employee will go through a process of secondary appraisal to evaluate his or her strategies available to cope with the stressful situation. The perceived intensity of the stressor could ultimately influence the choice of coping strategy.

The third component of the proposed model, once the stressor has been appraised, deals with the security employee's ability to cope with the stressful event. In this study, coping was defined by the researcher as "any active cognitive, emotional or behavioural efforts that are selectively applied in various combinations to master, reduce or tolerate the demands created by stress at the time" (section 3.3). Owing to the nature of their work, security personnel have to use a combination of either mastering, reducing or tolerating stressful demands that are placed upon them on a daily basis, such as poor working conditions, violence or a lack of support. As indicated in the Figure 3.6, a security employee can either utilise healthy or unhealthy coping strategies, or a combination of both, to cope with his or her stress. Healthy coping strategies are proposed to be training, physical exercise, social support, group cohesion, humour, healthy sleeping habits, healthy diet, religion, relaxation, positive self-talk (discussed in section 3.6) or dealing with uncertainty (section 2.5). Unhealthy coping strategies are proposed to be displacement, denial or substance abuse (discussed in section 3.5).

Based on the literature review, the last component in the model suggests the positive outcomes when coping effectively or the negative consequences of not coping effectively (section 2.6). If a security employee uses healthy coping strategies, this indicates that he or she is coping effectively with stress. The positive outcomes will be overall personal wellbeing, a productive healthy organisation and good relations with the greater community. However, if the security employee uses unhealthy coping strategies, the consequences will be mostly negative.

Poor coping increases a security employee's risk of serious health problems. These health problems may include heart disorders, diabetes, hypertension, accident proneness, sleep disturbances and depression. A security employee could ultimately commit suicide as a result of not being able to deal with his or her stress.

Poor coping can further lead to costly health benefits for the organisation, high turnover, high absenteeism, poor performance and accidents. It may also lead to low motivation, a decrease in teamwork and interpersonal conflict.

The greater community could similarly be negatively affected because of the use of more violence on the part of security personnel. High levels of stress can also affect the safety of other people as a security employee's cognitive ability and decision-making may be negatively affected (section 2.6). High absenteeism, poor performance (as organisational consequences) and accidents (as a personal consequence) can also impact negatively on the service being rendered to the community. This could ultimately lead to a lack of trust in security personnel and their organisations.

It is postulated that a security employee's personality can have a moderating effect and may therefore influence his or her appraisal of a stressor and the choice of coping strategy (discussed in section 3.8). Personality can influence coping in different ways, even prior to coping. Personality consequently influences the way in which a security employee appraises a stressful situation and his or her choice of coping strategy.

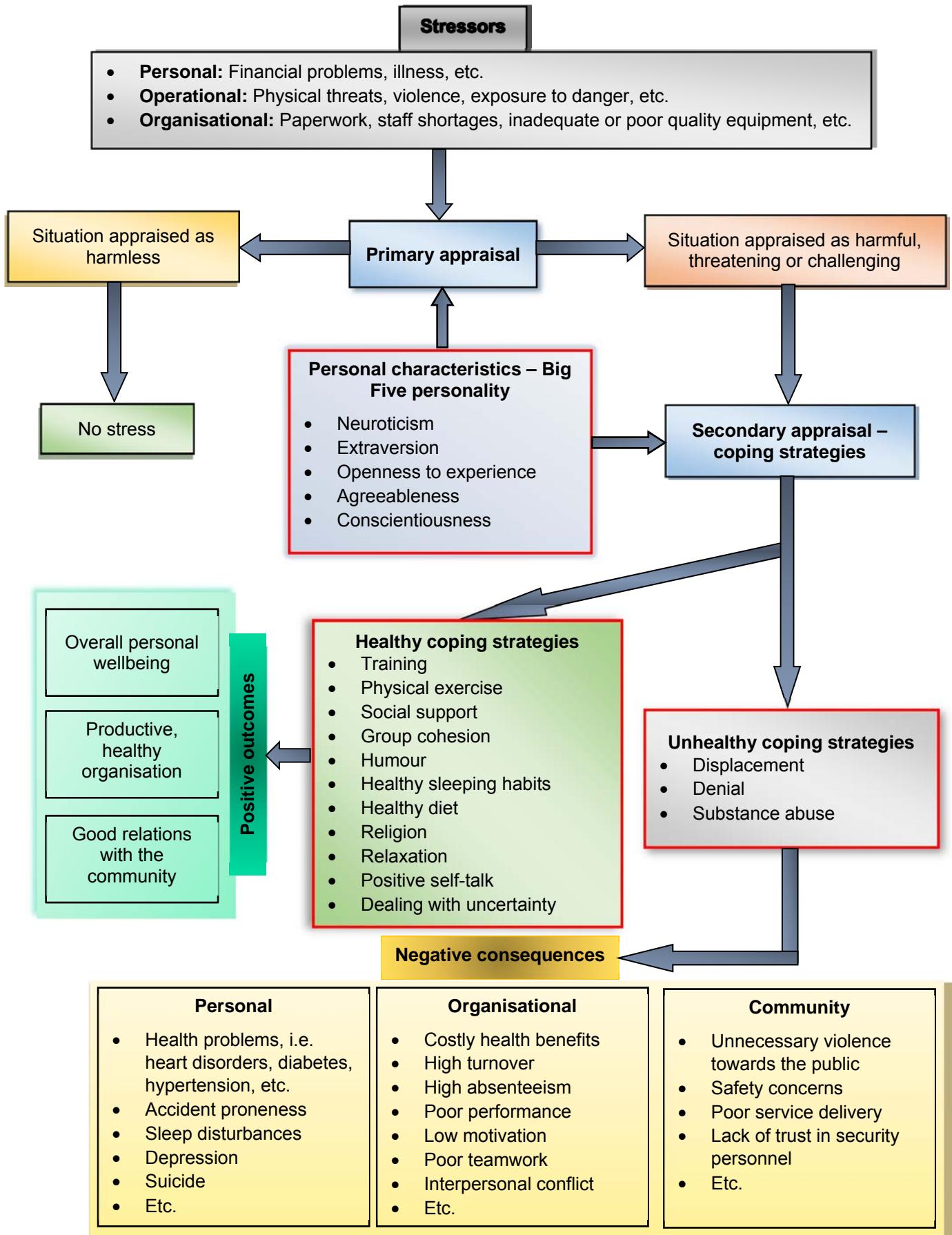


Figure 3.6. Proposed conceptual model for coping with stress in a high stress security environment

3.11 CHAPTER SUMMARY

This chapter provided the background on and definitions of coping. A model explaining how the appraisal of stressful events can influence coping was discussed. Different healthy and unhealthy coping strategies were also highlighted and a brief discussion on questionnaires measuring coping was provided. In the second part of the chapter, the focus moved to personality. A background and definition of personality was provided. A brief explanation of personality and stress, personality and coping, and the three most popular models of personality followed. The chapter concluded with a proposed conceptual model for coping with stress in a high stress security environment.

The next chapter deals with the research methodology used in this study.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 INTRODUCTION

Chapter 4 discusses the research methods and data analysis approaches that were used to determine how people cope in high stress security occupations. This understanding assisted with the development of a valid coping questionnaire and stress management model that security organisations can use to help their personnel cope more effectively with the high stress they experience. The chapter concludes with a description of the statistical procedures that were used as part of the research.

4.2 RESEARCH DESIGN

Trafford and Leshem (2008) posit that a research design explains the strategy of how the research was conducted. It indicates what type of data was used, and the sources and methods of data collection.

This research was guided by a problem statement and specific research aims. A comprehensive literature review was conducted in order to establish the current state of knowledge together with the identification of the main theories relating to the topic. The aim of the study was to develop a model that organisations and individuals should be able to use to manage stress more effectively. A valid questionnaire was developed that organisations could use as a screening instrument to determine how people cope with or manage stress in high stress security occupations. Chapter 2 discussed the concept of stress in detail, while chapter 3 discussed coping and personality. This chapter focuses on the research design and methodology used in the research.

This research was both exploratory and descriptive in nature. The aim of exploratory research is to explore a topic. This usually takes place when a new interest is examined or when the subject of the study is relatively new (Babbie, 2014). The purpose of this research study was to determine whether personality influences the coping strategies that are used to cope with stress in high stress security occupations. The purpose of descriptive research is to describe situations and events (Babbie,

2014). The High Risk Coping Questionnaire (HRCQ) was used to determine which healthy and unhealthy coping strategies are used by people who work in high stress security occupations.

4.3 STUDY POPULATION AND SAMPLING

This section provides an overview of the study population and the sampling method used.

4.3.1 Study population

“A population is a collection of objects, events or individuals having some common characteristic that the researcher is interested in studying” (Mouton, 1996, p. 134).

The study population in this study was the security industry in South Africa. It included any active security employee being employed in South Africa and working for a registered security organisation.

4.3.2 The unit of analysis in the study

The objects or entities that are studied are referred to as the unit of analysis – in other words, that which one wishes to investigate (Mouton, 1996).

People are probably the most common object of research in social sciences (Mouton, 1996). VIP protectors, cash-in-transit guards, armed response officers and security guards formed the unit of analysis in this study.

The next section focuses on sampling and how the data was collected during the research.

4.3.3 Sampling and data collection

In social science, sampling refers to “procedures which involve some form of random selection from a target population” (Mouton, 1996, p. 132). According to Gravetter

and Forzano (2012), the most commonly used sampling method in behavioural science research is convenience sampling.

In an effort to maximise participation in this research, because participation in the study was voluntary, a convenience sample was used. Security organisations invited their employees to participate in the research. An email containing information on the research and the links for completing the questionnaires were drafted and sent to organisations that were willing to participate. The email has then been distributed by operations managers and human resources to security personnel in the organisation, requesting them to participate. The majority of data, however, was gathered during training sessions at a large security organisation by using paper-and-pencil administration of the questionnaires.

The biographical information that was collected during the research, as well as the reason for collecting the information, is now discussed.

4.3.4 Biographical information

Biographical questions were developed to acquire information for descriptive purposes. Robbins and Judge (2015) describe biographical information, such as age, gender, race and length of service, as personal characteristics that are objective and easily obtained.

Age in terms of generations, gender, years of service, race and occupation were requested from the participants in the study (annexure 6). The biographical information was used to determine whether the items and constructs in the HRCQ had the same meaning for the respondents of different groups.

The next section provides a detailed discussion on how the HRCQ was developed.

4.4 QUESTIONNAIRE DESIGN

The two most popular techniques for collecting information are asking people questions in an interview or making use of a self-administered questionnaire (Siniscalco & Auriat, 2005). According to Rexrode et al. (2008), better reliability scores are achieved with a self-report questionnaire than an interview, specifically when sensitive issues are being measured (e.g. the use of substances). It was deemed necessary to develop a questionnaire to measure coping in a high stress security environment (as opposed to interviews), since statements relating to unhealthy coping strategies could be perceived as sensitive, i.e. the use of substances.

4.4.1 The process of designing a questionnaire

According to Barry, Chaney, Stellefson, and Chaney (2011), instruments with a sound theoretical foundation provide the most accurate and efficient measurements. Establishing a theoretical framework for a questionnaire is therefore imperative because validity is closely related to theory.

Figure 4.1 outlines the process that was used to develop the HRCQ. In the first part of the process, the developer must decide whether or not to develop a new questionnaire. In the current study, the researcher decided to develop a coping questionnaire to measure coping within high stress security occupations. No relevant coping questionnaire could be found in the South African context. The coping questionnaires that could be found in the literature (as discussed in section 3.7, chapter 3) were not designed to measure coping within a security or operational type of environment, which meant that the researcher would therefore have had to adapt them for use within a high stress security environment.

Sousa, Matson, and Lopez (2016) found that one of the major shortcoming associated with adapting questionnaires is that there is no guarantee that respondents will understand the adapted items appropriately, which compromises the reliability and validity of the adapted questionnaire.

The first step in developing the HRCQ was to outline the specific context of the concept being measured. This step essentially determines the purpose of an instrument and provides a reference point for the questions to be developed. The concept was based on published literature (Barry et al., 2011). An extensive literature study on stress and coping was conducted. Psychologists in private practice were also asked to indicate which healthy and unhealthy coping strategies their patients mostly used. Both the literature and the feedback from psychologists were then used to determine which constructs to include in the HRCQ.

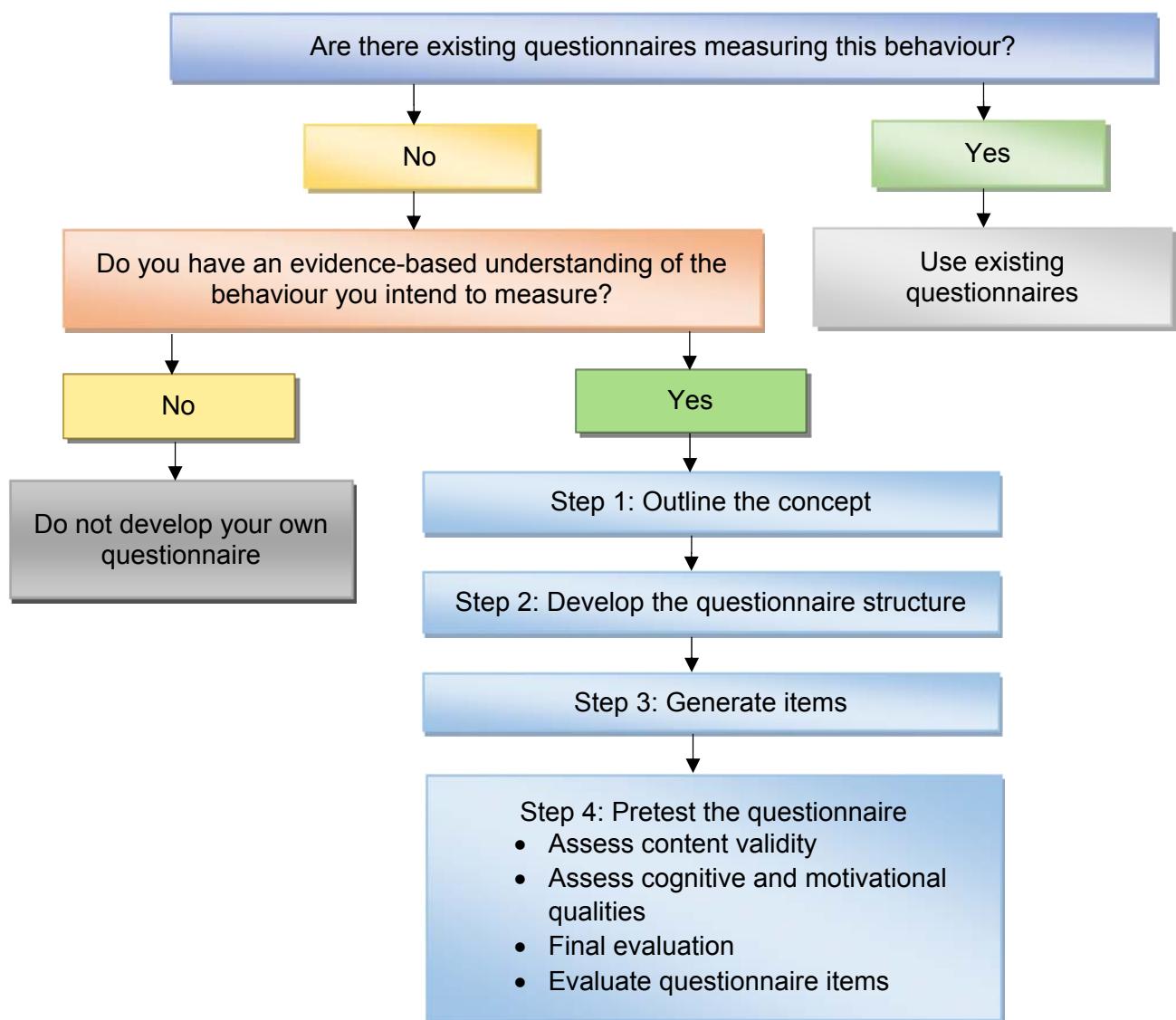


Figure 4.1. Questionnaire development process

Source: Adapted from Barry et al. (2011, p. 98)

The second step was to develop the structure of the questionnaire. The researcher decided to use a five-point Likert scale for the HRCQ, as it is more reliable than a dichotomous “yes” or “no” scale, and it provides more stable results (Barry et al., 2011). A more comprehensive discussion on how the structure of the HRCQ was developed is provided in section 4.4.2, which deals with questionnaire construction.

The third step was to write quality items. The essential objectives were to write items that all respondents would understand in a similar manner, provide accurate responses to and that were easy to answer. A more comprehensive discussion of how the items in the HRCQ was developed is provided in section 4.4.3, which deals with guidelines for developing questions.

The fourth step was to pre-test the questionnaire. This step consisted of the following four actions (Barry et al., 2011):

- The first action was to assess the content validity. People who are experts on the content are generally asked to review the items in order to determine each item’s clarity and its relevance to the construct being measured. In this study, the final draft of the HRCQ was sent for expert review, which is discussed in more detail in section 4.4.4.1.
- The second action was to assess cognitive and motivational qualities. The objective was to determine if respondents understood each item as planned and whether questions could be answered appropriately. It indicated whether all the words were understandable, all the questions were interpreted in the same way and whether all the questions had an answer that could be marked by every respondent. In the current study, the final questionnaire was completed by a group of 21 volunteers after the required changes had been made after receiving the experts’ feedback. A detailed discussion is provided in section 4.4.4.2, which deals with the sample of the target population.
- The third action was the final evaluation of the questionnaire. In the current study, a final evaluation of the HRCQ was done to ensure that nothing had been overlooked in the previous action steps.

- The fourth and final action was to evaluate the questionnaire items. This is regarded as the core of the questionnaire development process as items are evaluated to decide which ones to include in the final questionnaire. A detailed discussion is provided in section 4.7, which deals with statistical analysis.

4.4.2 Questionnaire construction

According to Carver et al. (1989), any instrument should be kept within reasonable bounds. Hinkin (1998) asserts that there are no explicit rules for guiding how many items should be in a questionnaire. However, a questionnaire should be kept short to minimise response biases caused by boredom or fatigue.

The researcher tried to keep the HRCQ as short as possible, without compromising the content. A total of 69 questions were included in the final draft of the questionnaire.

According to Giesen, Meertens, Vis-Visschers, & Beukenhorst (2012), every questionnaire should have a clear name. Since the aim of the research was to develop a coping questionnaire to measure coping in high stress security occupations, the researcher decided to name the questionnaire the High Risk Coping Questionnaire (HRCQ).

The following recommendations were used in developing the format of the HRCQ:

- Questions flowed in a logical order (O'Rourke & O'Rourke, 2001) and the answer options similarly followed a logical order (Tourangeau, Couper, & Conrad, 2004). Questions measuring the same construct were grouped together and the same five-point Likert scale was used throughout the questionnaire to answer all questions.
- A neutral option is expected to be visually placed in the middle of a response scale (Tourangeau et al., 2004). The neutral option was placed in the centre of the five-point scale and was labelled “neither agree nor disagree”.

- No acronyms (Siniscalco & Auriat, 2005) or abbreviations (Babbie, 2014) were used that might lead to confusion and misinterpretation. Only complete sentences were therefore used (Barry et al., 2011).
- A balanced scale was used to try and lessen the notion of acquiescence, that is, the tendency to agree with statements (Johns, 2010). Eighteen (out of 69) statements were included to measure unhealthy coping strategies. Respondents were expected to disagree with these statements if they used more healthy coping strategies.
- Statements were adequately spaced with an uncluttered layout and no statements were crammed together that could create an overwhelming appearance (Babbie, 2014; Giesen et al., 2012; Gravetter & Forzano, 2012). Each statement was placed in a separate line with sufficient space to ensure that the respondents could read it easily.
- All statements were clearly numbered (Giesen et al., 2012), including the biographical questions.

4.4.2.1 Instructions and background information

The HRCQ has clear instructions, informing respondents exactly what is expected of them and how they should answer the questionnaire (Babbie, 2014; Giesen et al., 2012). Good visual design combined with clearly written instructions can help increase response rates (Moroney & Cameron, 2016). The instructions for completing the HRCQ are contained in annexure 4.

The following guidelines for using instructions, as suggested by Giesen et al. (2012), were used in the development of the HRCQ:

- General background information was placed in a supplementary document (annexure 3 – informed consent). Background information was included in an email with the links to the questionnaires that were sent to participants. The researcher explained all background information to the respondents who volunteered to complete the questionnaires in groups.

- All questions used the same instructions and instructions were consequently placed at the beginning of the questionnaire.
- Explanations and instructions were brief and to the point.

4.4.2.2 Answer options and scale construction

It is important to have a clear visual indication of where answers to questions should be entered (Giesen et al., 2012). Adequately spaced boxes in which a respondent can mark his or her choice provide the best format and appear more professional (Babbie, 2014; Gravetter & Forzano, 2012).

A five-point Likert scale was used for the HRCQ. In the online version of the questionnaire, a statement was provided and the five answer options presented below the statement, as indicated in Figure 4.2. An answer sheet was developed to be used for paper-and-pencil administration, with a printed question booklet (annexures 4 and 5).

Question 5: I deal with stress on my own				
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 4.2. An example of an answer option in the online version of the HRCQ

4.4.3 Guidelines for developing questions

Two approaches can be used in developing questionnaire items, namely a deductive and an inductive approach. A deductive approach suggests that a theoretical foundation will provide enough information to generate items, while an inductive approach may be applicable where the theoretical foundation for a construct may not be sufficient to generate items (Hinkin, 1998).

A deductive approach was used to develop the HRCQ owing to the wealth of research on stress and coping. This allowed sufficient theory to use as the basis for developing constructs and items in the HRCQ.

A minimum of four items were included within a construct to test for homogeneity Hinkin (1998). The construct with the most items had seven statements.

The following limitations were identified in the questionnaires measuring coping (chapter 3 section 3.7) and were considered in the development of the HRCQ:

- Some of the questionnaires can be extremely time-consuming to complete because they are either extremely long or specific situations have to be written down first before responding to the questions to determine coping styles. This may discourage individuals from completing such a questionnaire. The HRCQ was therefore kept as short as possible.
- None of the questionnaires were developed in the South African context, and the language and metaphors used may be difficult to understand, especially when English is the participants' second language. This may lead to confusion and inaccurate interpretation of what the questionnaire aims to measure. Scientific guidelines for developing questionnaire items, as discussed at the end of this section, were applied to ensure understanding of items.
- None of the questionnaires were developed and standardised within an operational type of environment. The HRCQ was therefore developed within an operational security environment in the South African context (sections 4.7.2 and 4.7.3).

The HRCQ measured both healthy and unhealthy coping strategies as discussed in chapter 3 (sections 3.5 and 3.6). Coping strategies associated with police, military and the security industry were included in this study. The theoretical foundation was subsequently used to determine the statements that were posed to respondents.

Table 4.1 indicates how the theory was linked with the constructs and statements in the HRCQ.

Table 4.1

Theory linked to the constructs and statements in the HRCQ

Coping construct	Literature used to derive constructs and statements	HRCQ statement
Uncertainty	<ul style="list-style-type: none"> Most police families live in constant fear. The partners and children of police officers worry about the danger the officer faces every time he or she leaves the house. This can lead to additional stress being experienced by police officers (Waters & Ussery, 2007). Dealing with uncontrollable events is part of the work of VIP protectors (Steyn & Patta, 2000). Police work is described as nerve racking because you never know what is waiting when you enter a building (Marais, 2010). If people feel that they can predict, change or remove a negative event, they experience less stress, even if they can do nothing about it (Beheshtifar & Nazarian, 2013; Dolan & Adler, 2008; Folkman & Moskowitz, 2000; Taylor, 2015). 	<ul style="list-style-type: none"> I know that my family will be taken care of should anything happen to me. I feel comfortable dealing with situations where the outcome is uncertain. I am prepared to deal with difficult situations in my work. I can work in conditions where there are no guidelines.
Social support ✓	<ul style="list-style-type: none"> When people believe they benefit from the friendship and support of other people, their ability to resist the unpleasant effects of stress increases (Greenberg, 2011; Lakey et al., 2016; Louw, 2014). Family and friends can be regarded as the most valuable source of social support (Greenberg, 2011; Hobfoll et al., 1991; Moos & Swindle Jr, 1990). Social support provided by co-workers is more important in reducing work-related stress (Poisat et al., 2014). People sometimes need to hear that they cannot cope with stress alone or even with the support of loved ones. They need to ask for help from a counsellor or psychologist (Hobfoll et al., 1991). 	<ul style="list-style-type: none"> I deal with stress on my own. I talk to a friend when I stress. I talk to a family member when I stress. I talk to a colleague when I stress. I ask advice from other people on how to deal with my problems. I talk to a therapist (counsellor) about my work stress.

Coping construct	Literature used to derive constructs and statements	HRCQ statement
Group cohesion	<ul style="list-style-type: none"> A cohesive group may be regarded as an optimal support system in a time of crisis because it provides members with emotional and physical support (Du Preez et al., 2012; Kavanagh, 2005). Group cohesion is the strong association between members of a group and their commitment to one another (Du Preez et al., 2012; Kavanagh, 2005). In an interview with cash-in-transit guards, the relationship between colleagues was described as follows: "we watch out for each other, we understand each other, go through the same emotions and know the dangers" (Maree et al., 2002, p. 99). 	<ul style="list-style-type: none"> I trust my colleagues with my life. I am loyal to my colleagues. I believe my colleagues are loyal to me. I know my colleagues will help me when I need them.
Physical exercise ✓	<ul style="list-style-type: none"> Participation in an exercise programme can lead to improvements in one's mood and ability to deal with stress (Weiten, 2014). Exercise helps to maintain mental and physical health (Carr et al., 2011; Cummings & Worley, 2015; Hawkins et al., 2018; Johnsen et al., 2013; Taylor, 2015). Cash-in-transit guards should participate in exercise programmes to help control any repressed anger (Maree et al., 2002). 	<ul style="list-style-type: none"> I do physical exercises to help me relax. I do physical exercises to help control my frustration. I do physical exercises to help control my anger. I enjoy doing physical exercises.
Relaxation ✓	<ul style="list-style-type: none"> Taking a short break from a stressful event can be extremely useful as it interrupts the stress cycle (Carr et al., 2011; Greenberg, 2011; Robbins & Judge, 2015). Participating in enjoyable leisure time activities such as hobbies has been linked to better health (Taylor, 2015). Police officers create a quiet environment for themselves as this helps them cope better with the stressful events of the day. They listen to soft music, watch television or read a book (Gumani et al., 2013). A new manifestation is the tendency to engage in the online world of the internet (Weiten, 2014). 	<ul style="list-style-type: none"> I make time in the day to relax. I have a hobby to take my mind off my problems. I watch television to relax. I read to relax. I listen to music to relax. I spend a lot of time on Internet. I spend a lot of time on social media, for example Facebook.

Coping construct	Literature used to derive constructs and statements	HRCQ statement
Healthy sleeping habits ✓	<ul style="list-style-type: none"> • People who are sleep deprived may be doing more harm than they think, as insufficient sleep (less than 7 hours a night), influences their quality of life (South African Depression and Anxiety Group, 2011; Taylor, 2015). • Former famous South African detective, Piet Byleveld, indicated that he would lie awake at night thinking about difficult cases (Retief, 2011). • Good sleep habits can help to decrease physiological vulnerability to stress and are therefore crucial for stress management (Weiten, 2014). • People need sleep to allow their bodies to recharge and function effectively (Greenberg, 2011; Selwood, 2014; Sisley et al., 2010). 	<ul style="list-style-type: none"> • I sleep at least seven hours uninterrupted. • I wake up very early in the morning, worrying about my problems. • I fall asleep easily when I go to bed. • I sleep through when I go to bed. • I feel rested when I wake up.
Healthy diet	<ul style="list-style-type: none"> • When pressured for time, people may favour time-effective and convenient fast-food over healthy meals (Fodor et al., 2014). • When stressed, people tend to eat fewer fruits and vegetables, and are more likely to snack and miss breakfast (Taylor, 2015). • People should drink at least two litres of water a day (Vorster et al., 2013). 	<ul style="list-style-type: none"> • I eat fresh fruit every day. • I eat fresh vegetables every day. • I eat breakfast every day. • I eat “junk food” every day, for example hamburgers. • I drink about two litres of water a day.
Humour	<ul style="list-style-type: none"> • Laughing about a stressful event can help a person to manage his or her reaction to that event (Carr et al., 2011; Kugel, 2014; Pienaar & Rothmann, 2003). • Humour can involve laughing at one's own shortcomings or focusing appreciatively on the funny aspects of something (Bergh & Geldenhuys, 2016). • By turning stressful situations into a joke, police officers ensure that these situations do not affect them, specifically their emotions (Gumani et al., 2013). • Wynand du Toit, former Special Forces operator, reflected on seeing the humour in a difficult situation (Du Toit, 2015). 	<ul style="list-style-type: none"> • I can see the humour in a difficult situation. • I make jokes about situations in my work. • I can laugh at mistakes I make. • I create opportunities to laugh. • I can laugh about difficult situations.

Coping construct	Literature used to derive constructs and statements	HRCQ statement
Training	<ul style="list-style-type: none"> • Security personnel can be trained to deal effectively with dangerous and negative working conditions (Pillay & Claase-Schutte, 2004; Schneider, 2011). • Training not only enhances the safety of security personnel, but can also have additional benefits such as increased confidence levels (Schneider & Minnaar, 2015). • Individuals master cognitive and behavioural skills in order to use these skills to control the way they will behave in the future when faced with similar stressful situations (Gumani, 2012). • Stress management training is beneficial in educating people about different coping strategies (Adams & Buck, 2010; Carr et al., 2011; Dolan & Adler, 2008; Schneider & Minnaar, 2015; Tuckey et al., 2012). 	<ul style="list-style-type: none"> • I feel that I am well trained to do my work. • I am trained to deal with difficult situations. • I am trained to deal with dangerous situations. • I can use my past experience to deal with situations in my work. • I have done stress management training before.
Positive appraisal	<p>✓</p> <ul style="list-style-type: none"> • Positive self-talk involves self-encouragement by highlighting the positive aspects of a person's skills and experience (Greenberg, 2011; Taylor, 2015). • Security personnel attempt to regain their self-worth and status by telling themselves that the work they do involves intellectual ability (Löfstrand et al., 2016). • Positive emotions help people to think more freely, thoughtfully and creatively (Gloria & Steinhardt, 2016). 	<ul style="list-style-type: none"> • I tell myself that I can deal with any stressful situation. • I see stress as an opportunity to learn and improve myself. • I tell myself that I will be able to deal with a difficult situation. • I tell myself that the work I do is helping other people. • I tell myself that I am good enough to do my work.
Religion	<p>✓</p> <ul style="list-style-type: none"> • Religion helps to find the strength to endure and to find purpose and meaning in situations that can challenge the most fundamental beliefs (Folkman & Moskowitz, 2004). • Religion helps police officers to gain the mental strength to continue working and spiritual assurance that God is in control of all the situations in their lives (Gumani et al., 2013). • Attending a church sermon, praying or otherwise tending to spiritual needs is good for your health (Taylor, 2015). 	<ul style="list-style-type: none"> • I am a spiritual person. • I pray for guidance when I stress. • I use my faith to help me make sense of things that happen in my work. • I use my faith to help me through difficult times.

Coping construct	Literature used to derive constructs and statements	HRCQ statement
Substance use ✓	<ul style="list-style-type: none"> Drug and alcohol use are often regarded as an easy way to cope with stress (Hobfoll et al., 1991). Alan Leschner, former director of the National Institute on Drug Abuse, as cited in Waters and Ussery (2007, p. 176), stated that there are two basic reasons for drinking alcohol or taking drugs – “to feel good and to feel better”. Unhealthy behaviours such as excessive alcohol intake, drug use and smoking are ineffective coping strategies used by police officers (Anshel, 2000; Pienaar & Rothmann, 2003). 	<ul style="list-style-type: none"> I drink alcohol to help me relax. I drink alcohol to give me courage to deal with my problems. I sleep better after taking sleeping pills. I smoke to help me relax. I use medication to relax.
Displacement ✓	<ul style="list-style-type: none"> Displacement is described as “diverting emotional feelings, usually anger, from their original source to a substitute object” (Colman, 2009, p. 217). Police officers smash things to relieve stress, yell at others and even become physical by pushing, shoving, grabbing and hitting their pets, fellow officers, spouse or children (Gershon et al., 2009). Blaming others or lashing out at them is a common occurrence in people affected by war-related stress (Hobfoll et al., 1991). Research has found that police officers who tend to use more force when apprehending suspects, consistently reported higher levels of stress (Manzoni & Eisner, 2006). 	<ul style="list-style-type: none"> I kick something when I get angry. I break things when I get angry. I throw things when I get angry. I shout at people close to me when I am frustrated. I blame someone else when I make a mistake. I use more force to stop a suspect when I feel stressed.
Denial ✓	<ul style="list-style-type: none"> Cash-in-transit guards may use denial in an attempt to forget negative incidents (Maree et al., 2002). Denial involves a conscious effort not to acknowledge thoughts, feelings, desires or aspects of reality that would be painful or unacceptable (Colman, 2009). A person pretends that the stressors are non-existent or that they are not causing any substantial distress (Rothmann et al., 2011). 	<ul style="list-style-type: none"> I believe that there is no such thing as stress. I feel that there is no stress in my life. I believe that only weak people stress. I know that stress does not affect me.

Note. The ✓ indicates coping strategies identified by psychologists in private practice.

Statements were used in the HRCQ to determine a respondent's agreement or disagreement regarding the use of different coping strategies (Babbie, 2014). Respondents tend to be more willing to provide an answer if the statements are more personal (Moroney & Cameron, 2016). To personalise the questionnaire, the statements in the HRCQ were phrased as "I". This was done so that the respondent would provide an answer on how he or she personally deals with stress, and not how people generally deal with it.

English is regarded as the business language in the security organisations that formed part of the study. Therefore the research participants had an understanding of English. In order to ensure an easy understanding of the statements the following guidelines were used in developing the items:

- **Short items are best:** Statements were as simple and short as possible (Hinkin, 1998) to help eliminate confusion (Moroney & Cameron, 2016; Slattery et al., 2011). The longest statement had only 16 words.
- **Avoid hypothetical questions:** Evidence suggests that hypothetical questions are not good for predicting behaviour (Siniscalco & Auriat, 2005). No hypothetical statements were used as the coping strategies were stated straightforwardly.
- **Vocabulary and language:** The vocabulary and language style used was easy for participants to understand and appropriate for the target group (Gravetter & Forzano, 2012; Giesen et al., 2012; Slattery et al., 2011). The researcher used everyday language for all the statements.
- **Avoid double-barrelled questions:** No questions that asked for two things and therefore necessitated two separate answers were asked (Barry et al., 2011). Only statements requiring a single answer were used. The words "and" and "or" was consequently avoided in the statements (Babbie, 2014; Giesen et al., 2012).
- **Make use of commonly used words:** No jargon, figurative use of language, technical terms or abstract terms that may be unknown to respondents were used (Barry et al., 2011; Giesen et al., 2012; Siniscalco & Auriat, 2005). To eliminate any confusion, no psychological or technical terms were used.
- **Make items clear:** To avoid misunderstanding, items were stated clearly so that respondents knew exactly what the researcher was asking (Babbie, 2014; Giesen

et al., 2012). Statements were therefore easy to understand (Moroney & Cameron, 2016; Sousa et al., 2016) as elementary English was used.

- **Avoid negative items:** Negative items may lead to misinterpretation as respondents tend to overlook the word “not” in a sentence and may respond positively, whereas their intention was in fact not to agree with the statement (Babbie, 2014). Negative terms such as “not”, “never” and “no” should therefore be avoided in a questionnaire (Taylor & De Bruin, 2016). Limited negative words were used in the statements to measure unhealthy coping strategies and to try and eliminate acquiescence. The above guidelines were used to avoid any confusion.

4.4.4 Pretesting the questionnaire

The HRCQ was pretested in order to reformulate and eliminate ambiguous or unnecessary questions. It also determined whether the instructions were understood and followed properly (Siniscalco & Auriat, 2005). Giesen et al. (2012) and Slattery et al. (2011) suggest that a questionnaire should be tested with the target population, and should be given to at least ten people for whom the questionnaire will be relevant.

Giesen et al. (2012) also recommends that an online questionnaire should be tested before data collection to ensure effective functioning. In the current study, the researcher tested the online version of the HRCQ before it was sent to potential respondents. The questionnaire was completed and the results downloaded to ensure that everything worked properly. These results were then deleted from the Survey Monkey database, so that these results would not be confused with actual data collected from the study population. The researcher completed the questionnaire again at a later stage to ensure that it was still working properly. This data was again deleted.

The HRCQ was pretested by completing the following two steps, namely an expert review and the administration thereof to a sample of the target group (pilot study).

4.4.4.1 Expert review

Expert reviewers tends to be only a few individuals, ranging from two or three expert methodologists to over 20 reviewers (Olson, 2010).

Eight experts reviewed the HRCQ. Six of them were registered industrial psychologists, one a registered psychometrist, and one a test developer and psychometrist in the field of psychometrics/industrial psychology. Two of the reviewers were male and six were female. There were seven white individuals and one coloured. Years of experience ranged between seven years and 32 years, with the majority having between 12 to 20 years of experience. One person had an honours degree, four a master's degree and three a doctorate. All of the reviewers had extensive experience in the use of psychometric tests.

An email was send to experts, inviting them to participate in reviewing the HRCQ. They were provided with information regarding the purpose of the study and background information regarding the study population. The concepts of stress, coping, healthy coping and unhealthy coping were defined to ensure these were understood the same by all reviewers. The rating scale to be used was also provided. Each coping construct proposed to be measured by the HRCQ was defined. Reviewers were then requested to read through the coping constructs and to indicate for each statement whether it was relevant, clear and understandable. A space was provided should any comments be made. They were also requested to indicate if each construct has sufficiently been covered. Annexure 2 presents the questionnaire for expert review.

Table 4.2 is a summary of the feedback provided by the expert reviewers and how it was applied to create the final questionnaire.

All of the reviewers indicated that sufficient coping strategies were included in the questionnaire. It was therefore not required to add any additional statements.

Table 4.2

Feedback from the expert reviewers (n = 8)

Coping strategy	Number of experts in agreement		Reviewer's comments	Researcher's decision
	Item clear	Item relevant		
Dealing with uncertainty: Being able to deal with uncertainty in a high stress security environment				
1 I know that my family will be taken care of should anything happen to me.	8	7		Item retained
2 I feel comfortable dealing with situations where the outcome is uncertain.	8	8		Item retained
3 I am prepared to deal with difficult situations in my work.	7	6	<ul style="list-style-type: none"> • All work has difficult situations to deal with so it is part of the work. • Is a difficult situation the same as an uncertain one? Maybe use the word unpredictable. 	Item retained for further statistical analysis to ensure a variety of items.
4 I can work in conditions where there are no guidelines.	7	8	Maybe say: "where there are no guidelines related to my work".	Item retained and not changed.
Relaxation: Taking a break from a stressful event in order to interrupt the stress cycle				
5 I make time in the day for myself to relax.	8	8	Maybe delete <u>for myself</u> .	Item changed to: I make time in the day to relax (deleted the words <u>for myself</u>).
6 I have a hobby to take my mind off my problems.	8	8		Item retained
7 I do something enjoyable to lessen my stress, for example watching television.	7	8	<ul style="list-style-type: none"> • Items 6 and 7 could be seen as similar. • Make statement more specific. 	Item changed to: I watch television to relax (the sentence was shortened to make it more specific).
8 I read to relax.	8	8		Item retained
9 I listen to music to relax.	8	8		Item retained

Coping strategy	Number of experts in agreement		Reviewer's comments	Researcher's decision
	Item clear	Item relevant		
Support: Having a network that can be trusted to offer advice and support when stress levels become too much, as well as the association between members of a group and their commitment to each other				
10 I deal with stress on my own.	8	7		Item retained
11 I talk to a friend when I stress.	8	8		Item retained
12 I talk to a family member when I stress.	8	8		Item retained
13 I talk to a colleague when I stress.	8	8		Item retained
14 I ask advice from other people on how to deal with my problems.	8	7		Item retained
15 I talk to a therapist (counsellor) about my work stress.	8	8		Item retained
16 I trust my colleagues with my life.	6	5	• This is not really support. • Items 16 to 19 may load on a separate factor and not support.	Item moved to new construct – group cohesion.
17 I am loyal to my colleagues.	7	5		Item moved to new construct – group cohesion.
18 I believe my colleagues are loyal to me.	7	5		Item moved to new construct – group cohesion.
19 I know my colleagues will help me when I need them.	8	6	Not really measuring support, but more camaraderie.	Item moved to new construct – group cohesion.
Physical exercise: Doing physical exercises to reduce the potentially damaging effects of stress and also to help with improvements in mood				
20 I do physical exercises to help me relax.	8	8		Item retained
21 I do physical exercises to help control my frustration.	8	7		Item retained

Coping strategy	Number of experts in agreement		Reviewer's comments	Researcher's decision
	Item clear	Item relevant		
Physical exercise				
22 I do physical exercises to help control my anger.	8	6	Items 21 and 22 seems similar.	Item retained for further statistical analysis to ensure a variety of items.
23 I enjoy doing physical exercises.	8	5	Items 20 and 23 seems similar.	Item retained for further statistical analysis to ensure a variety of items.
Sleep: Having sound sleep patterns to allow a person's body to recharge and function effectively				
24 I sleep 7 hours uninterrupted.	8	8	Maybe say 6 to 8 hours of sleep.	Item changed to: I sleep at least seven hours uninterrupted (the words <u>at least</u> was added).
25 I wake up very early in the morning, worrying about my problems.	7	8	The word problems might be too broad.	Item retained. Clarity will be tested with the pilot group.
26 I fall asleep easily when I go to bed.	8	8		Item retained
27 I wake up a lot after going to sleep.	8	8	Maybe change to: I sleep through when I go to bed.	Item changed to: I sleep through when I go to bed (the sentence was changed for easier reading).
28 I feel rested when I wake up.	8	8		Item retained
Diet: Having healthy eating habits to allow a person's body and mind to function effectively during times of high stress				
29 I eat fresh fruit every day.	8	7	Maybe combine items 29 to 31.	Item retained for further statistical analysis to ensure a variety of items.
30 I eat fresh vegetables every day.	8	7		Item retained for further statistical analysis to ensure a variety of items.
31 I eat breakfast every day.	8	7		Item retained for further statistical analysis to ensure a variety of items.
32 I drink more than one can of cold drink a day, for example coca cola.	7	7	This will be difficult to measure as other drinks can also be unhealthy.	Item deleted after careful consideration.

Coping strategy	Number of experts in agreement		Reviewer's comments	Researcher's decision
	Item clear	Item relevant		
Diet				
33 I eat a lot of fast food, for example hamburgers.	8	8	Maybe change fast food to junk food.	Item changed to: I eat “junk food” every day, for example hamburgers (the words <u>a lot of fast food</u> was replaced with “junk food” and the words <u>every day</u> added).
34 I drink 2 litres of water a day.	8	8	<ul style="list-style-type: none"> • It is suggested to maybe add the word approximately. • Maybe say 1 to 2 litres of water. 	Item changed to: I drink about two litres of water a day (the word <u>about</u> was added – easier understandable for target group).
Training: Having positive expectations about one's own capabilities to effectively deal with work related problems				
35 I feel that I am well trained to do my work.	8	8		Item retained
36 I am trained to deal with difficult situations.	8	8		Item retained
37 I am trained to deal with dangerous situations.	8	8		Item retained
38 I can use my past experience to deal with situations in my work.	8	8		Item retained
39 I have done stress management training before.	8	8		Item retained
Humour: Turning stressful situations into a funny story and having the ability to laugh at oneself				
40 I can see the humour in a difficult situation.	8	8		Item retained
41 I make jokes about situations in my work.	8	8		Item retained
42 I can laugh at mistakes I make.	8	8		Item retained

Coping strategy	Number of experts in agreement		Reviewer's comments	Researcher's decision
	Item clear	Item relevant		
Humour				
43 I create opportunities to laugh.	8	8		Item retained
44 I can laugh about difficult situations.	8	7	This is maybe the same as item 40?	Item retained for further statistical analysis to ensure a variety of items.
Positive appraisal: Using self-encouragement by highlighting the positive aspects of one's own skills and experience				
45 I tell myself that I can deal with any stressful situation.	8	8	Stressful and difficult (item 47) may be closely related.	Item retained for further statistical analysis to ensure a variety of items.
46 I see stress as an opportunity to learn and improve myself.	8	8		Item retained
47 I tell myself that I will be able to deal with a difficult situation.	8	8		Item retained for further statistical analysis to ensure a variety of items.
48 I tell myself that the work I do is helping other people.	8	8		Item retained
49 I tell myself that I am good enough to do my work.	8	8		Item retained
Religion: Finding the purpose and meaning in situations that can challenge the most fundamental beliefs				
50 I am a religious person.	7	7	Rather use the word spiritual than religious.	Item changed to: I am a spiritual person (the word <u>religious</u> was replaced with the word <u>spiritual</u>).
51 I pray for guidance when I stress.	8	6	Not sure about the word "pray".	Item retained
52 I use my religion to help me make sense of things that happen in my work.	8	7	Rather use faith than religion.	Item changed to: I use my faith to help me make sense of things that happen in my work (the word <u>religion</u> was replaced with the word <u>faith</u>).
53 I use my faith to help me through difficult times.	8	7	Items 50 to 53 is a contentious topic.	Item retained

Coping strategy	Number of experts in agreement		Reviewer's comments	Researcher's decision
	Item clear	Item relevant		
Substance use: Using substances as a temporary coping method for managing stress to help lower anxiety and improve self-esteem				
54 I drink alcohol to help me relax.	8	8		Item retained
55 I drink alcohol to give me courage to deal with my problems.	8	8		Item retained
56 I sleep better after taking sleeping pills.	8	8		Item retained
57 I smoke to help me relax.	8	8		Item retained
58 I use medication to relax.	8	8		Item retained
Denial: Consciously making an effort not to acknowledge thoughts, feelings, desires or aspects of reality that would be painful or unacceptable in order to protect oneself from an unpleasant reality				
59 I believe that there is no such thing as stress.	8	8		Item retained
60 I feel that there is no stress in my life.	8	8		Item retained
61 I believe that only weak people stress.	8	8		Item retained
62 I know that stress does not affect me.	8	8		Item retained
Displacement: "Transferring" of emotions from their original source to a substitute object in order to avoid responsibility for problems				
63 I kick something when I get angry.	8	8		Item retained
64 I break things when I get angry.	8	8		Item retained
65 I throw things when I get angry.	8	8		Item retained

Coping strategy	Number of experts in agreement		Reviewer's comments	Researcher's decision
	Item clear	Item relevant		
Displacement				
66 I shout at people close to me when I am frustrated.	8	8		Item retained
67 When I make mistakes, it is usually someone else's fault.	7	7		Item changed to: I blame someone else when I make a mistake (the sentence was changed to be more personal and direct).
68 I use more force to stop a suspect when I feel stressed.	8	8		Item retained
69 I spend a lot of time on internet.	8	7	This item may load better on the relaxation construct.	Item moved to the relaxation construct. After consulting literature, it was decided to move this statements to the relaxation construct.
70 I spend a lot of time on social media, for example Facebook.	8	7	This item may load better on the relaxation construct.	Item moved to the relaxation construct. After consulting literature, it was decided to move this statements to the relaxation construct.

4.4.4.2 *Sample of target population (pilot study)*

The final questionnaire was administered to a sample population after the expert review was completed and proposed changes made. This was to determine whether they understand each item as planned and whether the questions can be answered appropriately.

The researcher contacted the HR manager of one of the security organisations that were willing to participate in the research, requesting a session to administer the HRCQ as part of the pilot study. The HR manager requested volunteers at one of their branches, explaining the purpose of the session to them in advance. On the day of the pilot study the researcher also explained the purpose of the research to the volunteers.

The HRCQ was pretested for the following reasons (Saunders, Lewis, & Thornhill, 2009):

- to determine how long it takes to complete the questionnaire;
- to ensure that the respondents understand and can follow the instructions on how to complete the questionnaire;
- to ensure that the respondents understand the wording of questions in the same way;
- to ensure that there are no unclear questions;
- to ensure that the researcher has the same understanding of the wording of questions as the respondents;
- to ensure that there are no questions that respondents may feel uneasy about answering; and
- to test whether the layout of the questionnaire is clear and attractive.

All of the above were applied to a sample group of respondents. In addition, the researcher asked whether the respondents would be willing to answer all the statements honestly and whether the rating scale was understood and made sense. A few statements were chosen and the respondents were asked what their

understanding of these statements was. This was done to ensure that the respondents had the same understanding of the statements as the researcher.

The following statements were further tested for understanding:

- I can work in conditions where there are no guidelines.
- I wake up very early in the morning, worrying about my problems.
- I sleep through when I go to bed.
- I eat “junk food” every day, for example hamburgers.
- I make jokes about situations in my work.

The researcher requested the respondents to read through the instructions on their own and then complete the HRCQ. There were 21 respondents in the sample group, of whom 16 were security guards and five employed at management level. The questionnaire was administered in two different sessions, with 12 respondents in the first session and nine in the second. The researcher made a note of the time it took for the first person to finish as well as when the last person completed the questionnaire. This was done for both sessions. The first person to complete the questionnaire was a manager, who took just under six and a half minutes to answer all the statements. The last person took just under 17 minutes to answer all the statements. The majority of the respondents finished in 12 to 14 minutes.

There was an overall satisfactory distribution of answers on the rating scale for all the questionnaires completed. No specific response patterns, that is, central tendency or only marking extreme scores, were evident in any of the questionnaires completed by the respondents.

The respondents provided the following feedback on the above questions:

- They felt comfortable with the layout of the questionnaire and said that it was easy to complete.
- The rating scale was understood and could be used to provide an answer to all statements.

- The instructions were clear and all the respondents stated that they knew what was expected of them after reading the instructions.
- They did not feel uncomfortable providing an answer to any of the statements and were willing to answer all statements honestly, even those on substance use. Some of them laughed and said that they, and everybody else, were aware that security guards usually drink a lot of alcohol.
- All of the statements and wording were clear and understandable. The respondents had the same understanding of the statements and words as the researcher.

There were no changes identified during the pilot study and the HRCQ could consequently be used the way it was for administration to the target group.

4.4.5 Questionnaire administration

There is considerable debate on how many respondents are required to properly test for statistical significance. Large samples help to obtain stable estimates that are accurate reflections of the true population (Hinkin, 1998). An item-to-response ratio of 1:5 was used in the HRCQ, as recommended by Hair, Black, Babin, and Anderson (2014) and Pallant (2011).

The HRCQ was completed both in-person and online by a total of 381 active duty security personnel working within a high stress security environment in South Africa.

4.4.5.1 In-person administration of questionnaires

In this study, questionnaires were administered to volunteers during training sessions at a large security organisation. Before each session, permission to administer the questionnaires was obtained from the relevant decision makers. A time was scheduled to administer the questionnaires on a day when the training programme was not too busy. One of the managers explained to trainees that the researcher was doing his doctorate and asked whether the trainees would be willing to assist. The researcher further explained the process and the potential outcomes of the research.

Volunteers were assured of confidentiality and that all the questionnaires would be completed anonymously.

The researcher was present when a manager explained the purpose of the research and asked if trainees were willing to assist the researcher. When someone was not willing to participate, they were not forced to do so. A single participant asked during the completion of the personality questionnaire (BTI) if he could stop, and he was allowed to stop and his answer sheet destroyed, without any consequences.

To ensure that each respondent's information was kept together, the answer sheets to both the HRCQ and the BTI, along with the biographical questionnaire and informed consent, were stapled together. Each volunteer then received the pre-stapled answer sheets and questionnaires. All of the volunteers signed a consent form stating that they were participating of their own free will and that their results could be used for the research (see section 4.6, ethical considerations, for confidentiality of information).

The researcher was present at all times during the completion of the questionnaires and respondents could ask if they did not understand a statement or any word in a statement.

4.4.5.2 *Online questionnaires*

The researcher used Survey Monkey as the hosting organisation for the HRCQ. The BTI is hosted on the JvR Psychometrics online platform.

An email containing information on the current research, as discussed in section 4.4.2.1 (instructions and background information), and the links to complete the two questionnaires, were created. This email was sent to the owners of organisations, the human resource managers and the operations managers. These individuals then forwarded the emails to their respective employees, asking them if they would be willing to participate in the research. This was done to protect the confidentiality of their employees in terms of contact details and anonymity.

A study by Toepoel, Das, and Van Soest (2009) found that the number of questions not being answered was the lowest in a four-items-per-screen format, and the highest in an all-items-per-screen format. The researcher decided to place three statements on a screen because this could help participants to focus on the statements, but would eliminate the need to scroll down the questionnaire. It also limited the number of mouse clicks needed to complete the questionnaire. Including more than three statements per screen meant that the respondents would have had to scroll down.

A process indicator and a next and previous page button were included in the electronic version of the HRCQ, as recommended by Giesen et al. (2012). Survey Monkey automatically saves the data as respondents complete the questionnaire.

The BTI, which was used in this study to measure the Big Five personality traits, is now discussed in more detail.

4.5 THE BASIC TRAITS INVENTORY (BTI)

The definitions of the BTI scales (factors and facets) were reproduced with the permission of the developers and distributor (annexure 19).

4.5.1 Description of and rationale for using the BTI

The background on the BTI is discussed, followed by a description of the inventory and the factors and facets it measures. The administration and scoring, interpretation and reliability are also highlighted. The section concludes with an explanation of the rationale for selecting the BTI for this study.

4.5.1.1 Background

The BTI was developed in 2002 and based on a need for a locally developed South African personality questionnaire. It is a user-friendly personality questionnaire that can be used to assess the Big Five factors of personality. Most of the initial standardisation sample ($n = 3\,146$) consisted of applicants for a clerical position in the

South African Police Service. Police trainees ($n = 184$) also formed part of this initial standardisation sample (Taylor & De Bruin, 2016).

South African police norms were used as the norm group in this study. This is because the work of security personnel and police officers is similar, as discussed in chapter 2. This norm group ($n = 5\ 205$) consisted of applicants for entry-level positions in the South African Police Service (Taylor & De Bruin, 2016).

4.5.1.2 *Description*

The items in the BTI are written in the form of statements and a respondent must indicate his or her degree of agreement with a statement on a five-point Likert scale, ranging from strongly disagree to strongly agree. Items are grouped according to their particular facets and are presented together for each factor, instead of in a random order. This is done to contextualise the items for the respondent. No formal differentiations are made between factors or their facets and the BTI is presented as a single list of 193 items (Taylor & De Bruin, 2016).

The BTI measures the Big Five personality factors. Each of the five factors is subdivided into four or five facets, allowing for a more meaningful and in-depth personality profile. The BTI uses language that people are likely to use every day, and not complicated psychological terms. It was designed to be administered to people 16 years and older with a Grade 10 reading level (Taylor & De Bruin, 2016).

A social desirability scale consisting of 13 items is positioned between facets throughout the questionnaire in order to provide a measurement of social desirability (Taylor & De Bruin, 2016).

Table 4.3 is a description of the five factors and the facets measured by the BTI.

Table 4.3

The five factors and facets measured by the BTI

Extraversion	
Extraversion refers to the degree to which an individual enjoys being around other people, likes excitement and stimulation and is cheerful in disposition.	
Ascendance	The degree to which a person enjoys entertaining and leading or dominating large groups of people.
Liveliness	The degree to which a person is bubbly, lively and energetic.
Positive affectivity	The tendency to frequently experience emotions such as joy, happiness, love, and be enthusiastic, optimistic and cheerful.
Gregariousness	The tendency to have a need for frequent social interaction and a preference for being surrounded by people.
Excitement-seeking	The degree to which a person has a need for adrenaline-pumping experiences and stimulation from noisy places, bright colours or other such intense sensations.
Neuroticism	
Neuroticism refers to a person's emotional stability, and the general tendency to experience negative affect in response to their environment.	
Affective instability	The tendency to be easily upset, have feelings of anger or bitterness and be emotionally volatile.
Depression	A tendency to experience guilt, sadness, and hopelessness, and to feel discouraged and dejected.
Anxiety	The tendency to experience worry, nervousness, apprehensiveness, and tension.
Self-consciousness	The degree to which a person is sensitive to criticism, and has frequent feelings of shame and embarrassment.
Conscientiousness	
Conscientiousness is the degree of effectiveness and efficiency with which a person plans, organises and carries out tasks.	
Order	The tendency to keep everything neat and tidy and in its proper place, and to be methodical.
Self-discipline	The tendency to start tasks immediately and carry them through to completion, and to be able to motivate oneself to complete unpleasant tasks.
Dutifulness	The tendency to stick to principles, fulfil moral obligations and be reliable and dependable.
Effort	The degree to which an individual sets ambitious goals and works hard to meet them, and is diligent and purposeful.
Prudence	The tendency to think things through carefully, check the facts and have good sense.

Openness to Experience	
Openness to Experience deals with the extent to which people are willing to experience new or different things and are curious about themselves and the world.	
Aesthetics	The tendency to have an appreciation for art, music, poetry and beauty, without necessarily having artistic talent.
Actions	The degree to which a person is willing to try new and different activities.
Values	The degree to which a person is willing to re-examine social, political and religious values.
Ideas	The degree to which a person has intellectual curiosity, enjoys considering new or unconventional ideas, and relishes philosophy and brain-teasers.
Imagination	The degree to which a person has a vivid imagination, enjoys fantasies and being creative-thinking.
Agreeableness	
Agreeableness relates to the degree to which an individual is able to get along with other people, and has compassion for others.	
Straightforwardness	The tendency to be frank and sincere, and value honesty.
Compliance	The degree to which a person defers to others, inhibits aggression and is able to forgive and forget.
Prosocial tendencies	The degree to which a person has a concern for the greater community, and willingly devotes time to help the less privileged.
Modesty	The degree to which a person is humble and self-effacing.
Tendermindedness	The tendency to have sympathy and concern for others.

Source: Taylor and De Bruin (2016, pp. 11–14)

4.5.1.3 *Administration and scoring*

The BTI is available in both Afrikaans and English. It can be completed online on the JvR Psychometrics online platform, or it can be administered in a reusable paper-and-pencil format (Taylor & De Bruin, 2016). Only the English version was used in this study.

Clear and easy to follow instructions are printed on question booklets. The instructions are likewise available online for completion on the online platform. Respondents can either read the instructions themselves, or the test administrator can read the

instructions aloud. The online version is scored automatically after a respondent has completed the questionnaire, while the paper-and-pencil version is scored by the Bureau Services at JvR Psychometrics (Taylor & De Bruin, 2016).

4.5.1.4 *Interpretation*

The individual profile report provides a summary of a respondent's performance by comparing his or her scores with the appropriate norm group. This is done by converting raw scores into McCall's T scores. T scores typically range between 20 and 90 and have a mean of 50 and a standard deviation of 10. Scores below 40 can be interpreted as low, and scores above 60 are regarded as high (Taylor & De Bruin, 2016).

For example, if a person has scored below 40 (low) on ascendance, as discussed in section 4.5.1.2 above, it means that he or she prefers to avoid situations that would draw attention to himself or herself and usually allows others to take the lead. If the person has scored above 60 (high), he or she may enjoy entertaining and leading or dominating groups of people. The person may be happy to be the centre of attention, and may actively seek out the spotlight (Taylor & De Bruin, 2016).

4.5.1.5 *Reliability*

The initial standardisation sample consisted of 5 352 participants of whom 1 735 were men, 3 323 women and 294 unspecified. The Cronbach alpha internal consistency reliability coefficients of each of the five factors are satisfactory, with extraversion ($\alpha = 0.87$), neuroticism ($\alpha = 0.92$), conscientiousness ($\alpha = 0.93$), openness to experience ($\alpha = 0.87$) and agreeableness ($\alpha = 0.89$) (Taylor & De Bruin, 2016). The Cronbach alpha scores of this study for the BTI were in line with the initial reliabilities, with extraversion ($\alpha = 0.81$), neuroticism ($\alpha = 0.92$), conscientiousness ($\alpha = 0.94$), openness to experience ($\alpha = 0.88$) and agreeableness ($\alpha = 0.91$). Annexure 15 summarise the Cronbach alpha scores for all the different facets of the BTI.

All of the Cronbach alpha scores fell above the minimum acceptable level for values ranging between 0.65 to 0.70, as suggested by Barry et al. (2011) and 0.70 by Hinkin (1998).

4.5.1.6 *Factor analysis*

The facets of the BTI were subjected to a maximum likelihood factor analysis with a Promax rotation to determine factor correlations (Taylor & De Bruin, 2016).

4.5.1.7 *Rationale for selecting the BTI*

The researcher selected the BTI for the study for the following reasons:

- It is a South African developed personality questionnaire.
- It was developed on a sound theoretical basis.
- It has South African Police Service norms that could be used for security personnel ($n = 5\ 205$). The norm group represents all race groups in South Africa, with the majority being black South Africans.
- It uses understandable language and has an easy rating scale.
- It can be used for people who are 16 years and older with a Grade 10 reading level.
- It does not take long to complete.
- It can be completed online as well as in paper-and-pencil format.

The question of ethical research is now discussed, including what was done during this research to ensure that ethical principles were adhered to.

4.6 ETHICAL CONSIDERATIONS

Ethical approval was granted by the University of South Africa's Ethics Review Committee (annexure 17) to conduct the study (2016_CEMS/IOP_070). Permission was also granted by the Security Industry Alliance (SIA) to complete the study in the security environment and to publish the results (annexure 18). This research was conducted by adhering to the ethical codes for conducting research.

Discussions were held with either the owners of organisations, area managers, operational managers or human resources personnel in order to request their assistance with the research. They were provided with the background information as discussed in section 4.4.2.1 in order to make an informed decision.

The same information was also shared with potential respondents to enable them to provide informed consent. Informed consent was obtained prior to the participants completing the questionnaires. Those participants who completed the questionnaires online received an email with the background information and they had to agree that they gave their consent before they could continue with the questionnaires. If these participants did not agree, they were blocked and could not continue with the questionnaires. By giving their consent they agreed that their results could be used in the research. Participants who completed the questionnaires in the paper-and-pencil format had to sign an informed consent form after the background information had been shared with them. All participants who completed the paper-and-pencil format of the questionnaires volunteered to complete the questionnaires during training sessions.

No personal information were requested from research participants. Participants were allowed to sign consent forms under a pseudo name, or use a pseudo name for online completion. The consent forms, with answer sheets and biographical information to the paper-and-pencil questionnaires, were locked away in a secure room to which only the researcher had access. All electronic information was stored on a secure password-protected database.

The researcher captured the HRCQ answer sheets and the BTI answer sheets were captured by personnel from JvR Psychometrics (they had no access to consent forms). No personal data, other than biographical information (age, gender and language) was recorded on the BTI answer sheets. Answer sheets were numbered sequentially after completion to ensure the same respondent's BTI, HRCQ and biographical information was kept together for statistical analysis. It was therefore totally anonymous.

The next section explains how the data collected during the research was statistically analysed. The specific statistical methods that were used are discussed in more detail.

4.7 STATISTICAL ANALYSIS

The statistical software that was used to conduct the statistical analysis was IBM SPSS (version 25) and IBM AMOS (version 25).

The online responses for the HRCQ were captured directly on a spreadsheet on the Survey Monkey database. The responses for the online completion of the BTI were likewise captured on the JvR Psychometrics database. All paper-and-pencil completed questionnaires were manually captured on the respective databases. Incomplete questionnaires were discarded from analysis.

Both descriptive and inferential statistics were used in this study. Descriptive statistics were used to help describe the data (Howell, 2004), while inferential statistics were used to interpret the data and draw conclusions (Montgomery & Runger, 2014; Weiten, 2014).

Judgment was delivered by Judge Mali on 2 May 2017 that psychometric instruments could be used in the workplace, as long as these instruments provide evidence of their reliability, validity, fairness and nonbiased nature in the South African context (Association of Test Publishers, 2017).

The process that was followed in the statistical analysis of the research data is depicted in Figure 4.3.

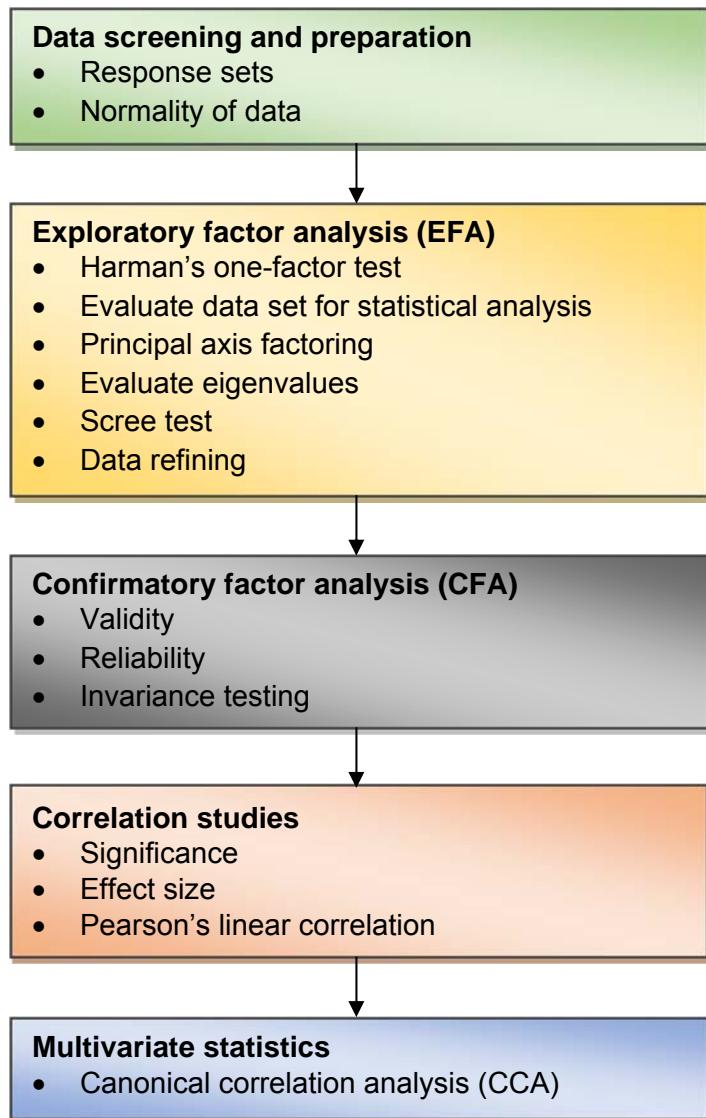


Figure 4.3. Overview of the statistical analysis process

4.7.1 Data screening and preparation for analysis

Data screening was done to ensure that all the data was ready to use before any further statistical analysis. It is necessary to screen the data to ensure that it is usable, reliable and valid. This included inspecting questionnaires for missing values, identifying any response sets (unresponsive cases) and examining the normality of the data in terms of the mean, standard deviation, skewness and kurtosis.

A response set is the tendency to use the same response to answer all or most of the questions, for example, agreeing with all statements (Gravetter & Forzano, 2012).

Normal distribution means that the scores of the variable are clustered around the mean in a symmetrical pattern, known as a bell-shaped or normal curve (Hair et al., 2014).

- **Mean:** Described in simple terms, the mean is the mathematical average of individual scores (Babbie, 2014; Gravetter & Forzano, 2012).
- **Standard deviation:** Standard deviation uses the mean of the distribution as a reference point and then describes the variability of the scores by assessing the distance between each score and the mean. If scores are clustered close to the mean, the standard deviation is small. However, if the standard deviation is large, it means that scores are scattered widely around the mean (Babbie, 2014; Gravetter & Forzano, 2012).
- **Kurtosis:** Kurtosis can be regarded as a measure of how peaked or flat a distribution is when compared with a normal distribution. A positive value is an indication of a somewhat peaked distribution, whereas a negative value indicates a somewhat flat distribution (Hair et al., 2014; Saunders et al., 2009). Awang (2012) postulates that kurtosis should not exceed 3.0, whereas Scholten, Velten, Bieda, Zhang, and Margraf (2017) are more conservative, and suggest that kurtosis should not exceed 7.0 for samples exceeding 300.
- **Skewness:** Skewness can be regarded as a measure of the symmetry of a distribution when compared with a normal distribution (Hair et al., 2014). It therefore describes the balance of the distribution. When positively skewed, the distribution shifts to the left, whereas the distribution in negative skewness shifts to the right (Hair et al., 2014; Howell, 2004; Saunders et al., 2009). According to Awang (2012), the absolute value for skewness is 1.0, whereas Scholten et al. (2017) suggests 2.0 when the sample size is large.

The development of the HRCQ is discussed in the next section. The HRCQ was developed by making use of both exploratory and confirmatory factor analysis. Factor analysis was used to define the underlying structures among variables by analysing the interrelationships between these variables (Hair et al., 2014).

4.7.2 Exploratory factor analysis (EFA)

EFA was used to search for structure among a set of variables (Hair et al., 2014). Harman's one-factor test was used to identify common method variance and to determine whether a single factor emerged or whether a general factor accounted for the majority of covariance in the HRCQ (Jakobsen & Jensen, 2015; Krishnaveni & Deepa, 2013). In the current study, more than one factor was identified and the researcher therefore continued with further exploratory factor analysis.

The data set was evaluated by making use of the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity to evaluate the factorability of the data. It is recommended that the KMO index be 0.6 as the minimum value for effective factor analysis, and the Bartlett test of sphericity should be significant ($p < 0.05$) for the factor analysis to be deemed appropriate (Field, 2009; Pallant, 2011). Both of these tests examine the presence of correlations between variables (Hair et al., 2014). The scores for the Kaiser-Meyer-Olkin measure of sampling adequacy was evaluated according to the following criteria: a score in the 0.90s was marvellous, in the 0.80s meritorious, in the 0.70s middling, in the 0.60s mediocre, in the 0.50s miserable, and any score below 0.50 unacceptable (Hair et al., 2014; Kaiser, 1974). Both tests indicated that the data set was appropriate for factor analysis. The factor loadings of the items were also inspected to determine the practical significance of the factors and whether they were worth considering for further analysis. The sample size in this research was $n = 381$. A factor loading of 0.30 was consequently used as the sample size was more than 350 (Hair et al., 2014).

Principal axis factoring using factor rotation with VARIMAX rotation and Kaiser normalisation was conducted to determine the factor structure of the HRCQ. Principal axis factoring was used because it accounts for measurement errors (Schmitt, 2011). Factor rotation presented data in a format that was easy to understand and exposed natural groupings of items that shared some important characteristic (DeVellis, 2003; Pallant, 2011). It also produced a more theoretically meaningful factor pattern (Hair et al., 2014). The VARIMAX rotational method was used because it attempts to minimise the number of variables (Pallant, 2011) in achieving a simplified factor structure (Hair et al., 2014).

Eigenvalues and a scree test were used to determine the number of factors to retain for further analysis.

- **Eigenvalue:** An eigenvalue represents the amount of information captured by a factor – in other words, the total variance explained by that factor. Only factors with an eigenvalue of 1.0 or more have been retained for further investigation (DeVellis, 2003; Hair et al., 2014; Pallant, 2011).
- **Scree test:** A scree test is based on a plot of the eigenvalues. When plotted, this information has a vertical portion on the left (high eigenvalues) transitioning to a horizontal portion on the right (low eigenvalues). Ideally, the factors have a point at which the information changes from vertical to horizontal, indicating an elbow. Only factors that lie above the elbow were retained (DeVellis, 2003; Hair et al., 2014; Pallant, 2011).

The data provided by the EFA needed to be refined after the decision was made on how many factors to retain. A three-step process was followed by, firstly, identifying communalities, secondly, looking for items with high cross-loadings, and lastly, removing items with a low loading.

- **Step 1 – removal of communalities:** Communalities provide information on how much of the variance in each item is explained, and a score of less than 0.30 could indicate that the item does not fit well with the other items in its factor (Pallant, 2011). These items were removed.
- **Step 2 – removal of high cross-loadings:** Variables with more than one significant loading are termed a cross-loading. The second step was to remove items with a significant cross-loading to ensure that items only associated with one factor. This was done to ensure construct validity (Hair et al., 2014). Items were individually inspected for theoretical and practical relevance to each construct before being removed.
- **Step 3 – removal of items with low loadings:** The third and last step of the factor clean-up process was to remove any remaining items with a loading of less than 0.5. The overall aim of the factor clean-up process was to have variables with a

factor loading of higher than 0.5 (Hair et al., 2014), because this would increase the overall reliability scores (DeVellis, 2003).

4.7.3 Confirmatory factor analysis (CFA)

CFA was used to test whether the measures of the constructs were consistent with the researcher's conceptual understanding of the constructs, therefore adding to construct validity (Awang, 2012; Hair et al., 2014). It was also applied because factor rotation (EFA) may lead to some standard errors. These errors were minimised by using CFA where the number of factors and the pattern of loadings, including constraints on the loadings, were specified in advance (Hair et al., 2014; Tarka, 2018).

IBM AMOS (version 25) was used to determine a model and how well the model fitted the theory that was used to determine coping strategies. The objective of generating a model was to find one that is not only statistically significant, but also has practical and theoretical meaning (Schumacker & Lomax, 2010). Goodness-of-fit indexes were used as an indication of how well a specified model duplicated the observed covariance among the indicator items, providing an estimate of the similarity between theory and reality (Hair et al., 2014).

Table 4.4 provides a summary of the goodness-of-fit measures that were used to determine how well the model fitted the theory.

Table 4.4

Summary of goodness-of-fit measures

Name of index and description	Level of acceptance
CMIN/DF CMIN/DF is the minimum discrepancy divided by its degrees of freedom, indicating an acceptable fit between a hypothetical model and the sample data (Arbuckle, 2011).	< 3 (Arbuckle, 2011)
GFI Goodness-of-fit index GFI is a measure that indicates how well a specified model reproduces the covariance matrix among the indicator variables (Hair et al., 2014).	> 0.9 (Awang, 2012)
RMSEA Root mean square error of approximation The RMSEA represents how well the model fits the population, and not only the sample that has been used (Hair et al., 2014).	< 0.05 (Awang, 2012)
SRMR Standardised root mean residual This is a measure of the average standardised residual for comparing the fit across models. A lower score represents a better fit (Hair et al., 2014).	< 0.08 (Awang, 2012)
NFI Normed fit index This is a ratio of the difference in the χ^2 value for the fitted model and the null model divided by the χ^2 value for the null model. The closer the score is to 1, the better the fit of the model (Hair et al., 2014).	> 0.9 (Awang, 2012)
TLI Tucker Lewis index This is a comparison of the normed chi-square values for the null and specified model, to some degree, taking model complexity, into account. The closer the score is to 1, the better the fit of the model (Hair et al., 2014).	> 0.9 (Awang, 2012)
CFI Comparative fit index This is a normed fit index where values closer to 1 indicate a better fit of the model. It is currently one of the most commonly used indices (Hair et al., 2014).	> 0.9 (Awang, 2012)
AGFI Adjusted goodness-of-fit This is a measure that takes the differing degrees of complexity of a model into account by adjusting the GFI by a ratio of the degrees of freedom used in a model to the total degrees of freedom available (Hair et al., 2014).	> 0.8 (Awang, 2012)
AIC Akaike information criterion This is a measure that is used to choose between models by statistically calculating a value for each model and selecting the one with the lowest derived value (Kieseppä, 2003).	Model with lowest value
BIC Bayesian information criterion This is a measure that is used to choose between models that are comparable with AIC, but it is slightly more conservative by correcting more harshly for the number of parameters being estimated. A small value represents a better fit of the data (Arbuckle, 2011; Field, 2009).	Model with lowest value

According to Cudeck and Browne (1983), judgment on the part of the researcher cannot be avoided in selecting a model. However, several goodness-of-fit indexes should be used to evaluate overall model fit (Cheung & Rensvold, 2002). According to Hair et al. (2014), there is no simple rule to guarantee a correct model. Hair et al. (2014) nonetheless suggest that at least three to four indexes should be used to provide evidence of model fit. Greiff and Scherer (2018) recommend that the cut-off scores should not be used as a golden rule, as these scores do not generalise to all contexts. The above authors thus suggest that critical evaluation of the context is necessary by the researcher.

4.7.3.1 *Validity*

Both content validity and construct validity were determined in the research. Content validity was used to determine if items in a construct actually measured the construct (Cronbach & Meehl, 1955). When an instrument has content validity, it means that the items make sense and comprehensively cover the subject being measured. A panel of experts, as comprehensively discussed in section 4.4.4.1, were used to determine content validity (Slattery et al., 2011).

Construct validity was used to determine if the coping constructs in the HRCQ measured what it claimed to measure (Barry et al., 2011; Coetzee & Schreuder, 2013; Cronbach & Meehl, 1955). Factor analysis, as discussed in sections 4.7.2 and 4.7.3, was used to determine construct validity (Coetzee & Schreuder, 2013).

4.7.3.2 *Reliability*

Internal consistency reliability, or homogeneity, was used to reveal the degree to which items measure aspects of the same construct and nothing else (Slattery et al., 2011).

Both Cronbach's alpha and composite reliability were reflected in this research. Composite reliability can be seen as true reliability because construct loadings are allowed to vary, whereas the loadings for coefficient alpha are constrained to be equal. Composite reliability (CR) has therefore been regarded as a better estimate of true reliability (Peterson & Kim, 2013). In this study, composite reliability was used as the

final indication of reliability for the HRCQ. According to Awang (2012), composite reliability should be 0.60 and higher. Hair et al. (2014) suggest that the lower limit of Cronbach's alpha should be 0.70, although it may decrease to 0.60 in exploratory research.

Average variance extracted was additionally used to determine reliability. Average variance extracted (AVE) provided an indication of the average percentage of variation explained by the items in a construct, and 0.50 or higher was utilised (Awang, 2012; Hair et al., 2014).

A practical difficulty with reliability is that human behaviour changes constantly (Cronbach, 1947). Folkman and Moskowitz (2004) therefore posit that the typical expectancy of internal consistency alpha values of above 0.85 is not necessarily appropriate for coping scales. Internal consistency may have limited applicability in assessing the psychometric adequacy of coping strategies because the use of one coping strategy may be sufficient to reduce stress, and thus lessen the need to use other strategies from either the same or other categories of coping.

4.7.4 Invariance

Invariance was assessed to determine whether the items and constructs in the HRCQ mean the same thing to members of different groups. This was important to ensure the interpretation of the results for different groups (Bialosiewicz, Murphy, & Berry, 2013; Cheung & Rensvold, 2002) and the fairness of tests, thus contributing to validity (Greiff & Scherer, 2018). Three progressive levels of invariance were assessed, implementing more restrictions at each level. These levels were configural invariance, metric invariance and scalar invariance (Scholten et al., 2017). According to Greiff and Scherer (2018), there are arguments that some levels of invariance are an unattainable ideal that can only be estimated in practice.

Configural invariance essentially tested whether or not the same items measured a construct across multiple groups (Bialosiewicz et al., 2013).

Metric invariance suggested that the construct had the same meaning to respondents (Bialosiewicz et al., 2013). A chi-square difference test was used to assess metric invariance. No significant difference in model fit provided evidence that the factor loadings were invariant (Bialosiewicz et al., 2013; Hair et al., 2010). A chi-square difference of 5 or higher is suggested (Cooper & Schindler, 2014; Pallant, 2011), and the higher the difference, the better (Cooper & Schindler, 2014).

Scalar invariance assessed whether item intercepts, the origin or starting value of a scale, were comparable across administrations (Bialosiewicz et al., 2013; Scholten et al., 2017). The mean scores can only be meaningfully compared across different groups if scalar invariance is achieved (Scholten et al., 2017).

4.7.5 Correlation studies

In this section, the different levels of significance, effect size and Pearson's linear correlation are discussed.

4.7.5.1 Level of significance

The significance level is an indication of the chance that a researcher is willing to take that the estimated coefficient is different from zero, when it is essentially not. The most widely used level of significance is $p < 0.05$ (Hair et al., 2014). A significance level of $p < 0.05$ means that there is a 95% chance of a correct decision (Cooper & Schindler, 2014; Neuman, 2014). There is thus a real relationship in the population, and not a relationship by chance (Neuman, 2014). The level of significance was consequently used to determine if there were real relationships in the results of this study.

4.7.5.2 Effect size

Effect size was used to evaluate whether a result is meaningful in the research context (Field, 2009). For this research, the effect size was determined between the differences in the mean scores for each individual construct of the HRCQ and the sample group. A one-sample test was used for this purpose.

A one-sample test entails measures that are taken from a single sample compared to a specified population. Being a single sample, only the sample standard deviation is available and it is thus used on behalf of the population standard deviation. When the population standard deviation is substituted by using the sample standard deviation, a t-distribution is used. A t-test was used to determine the statistical significance between the sample distribution mean and a parameter (Cooper & Schindler, 2014). In this research, the parameter was set at 3, which is the midpoint on the five-point Likert scale. The one-sample test was completed to test the difference in mean scores for the total sample group, per coping construct. The purpose of the one-sample test was therefore to assess how much each coping construct differed from the overall group mean score, if at all. According to Field (2009), the smaller the level of significance ($p < 0.05$) and the higher the t-value, the greater the contribution of that predictor will be.

Cohen's d, was used in this research to determine the effect size of the difference in mean scores of the one-sample test. Cohen's d presents the difference in terms of standard deviation units (Pallant, 2011). Pallant (2011) and Scholten et al. (2017) suggest the following effect sizes for Cohen's d:

- small effect = 0.20
- medium effect = 0.50
- large effect = 0.80

4.7.5.3 Pearson's linear correlation

Correlation is the degree to which two variables are related to each other (Howell, 2004; Saunders et al., 2009). The numerical value of the correlation, 0.0 to 1.0, indicates the strength or consistency of the relationship (Gravetter & Forzano, 2012; Saunders et al., 2009; Weiten, 2014). A coefficient near 0.0 indicates no relationship between the variables. The closer the correlation is to either -1.00 or +1.00, the stronger the relationship will be (Gravetter & Forzano, 2012; Saunders et al., 2009).

Pearson's correlation describes the linear relationship between two variables and is represented by the letter r (Cooper & Schindler, 2014). Pearson's correlation was calculated between the different coping strategies and the Big Five personality factors and its facets.

Table 4.5 suggests the size of effects, making use of Pearson's correlation coefficient r.

Table 4.5

Effect size

R	Effect size	% of total variance explained
0.10	Small effect	In this case the effect explains 1% of the total variance
0.30	Medium effect	The effect accounts for 9% of the total variance
0.50	Large effect	The effect accounts for 25% of the variance

Sources: Field (2009, p. 57); Gravetter and Forzano (2012, p. 357)

The multivariate statistics that formed part of the research are now discussed.

4.8 MULTIVARIATE STATISTICS

This section focuses on canonical correlation analysis, which was used to determine the interrelationship between coping strategies as dependent variables and the Big Five personality factors as independent variables.

4.8.1 Canonical correlation analysis (CCA)

CCA has the Pearson r correlation as its foundation (Nimon, Henson, & Gates, 2010; Sherry & Henson, 2005) and is a popular method to facilitate the understanding of complex relationships between different variables (Alkenani & Yu, 2013). The objective of CCA was to correlate numerous metric dependent (coping strategies) and independent (Big Five personality) variables simultaneously. The underlying principle was to develop a linear combination of each set of variables, both dependent and independent, in a manner that maximised the correlation between these two sets (Hair et al., 2014; Şimşek & Aydoğdu, 2016).

The canonical correlation is the most central statistic and represents the Pearson r correlation between the two sets of variables. The aim of CCA is to maximise this correlation in order to form the canonical functions. A canonical function or variate is therefore a set of standardised canonical coefficients from the two linear equations and there will be as many functions as there are variables in the smaller set (Nimon et al., 2010; Sherry & Henson, 2005). In this research it was five, as there are five factors in the Big Five personality. Functions were tested by adopting a hierarchical approach, where the full model was tested (functions 1 to 5), then functions 2 to 5 were tested and so on, until the last function was tested by itself. From the second function onwards, only variance that was not explained by the previous function is explained. This process continued until the last function (5) explained the remaining variance that was not explained by function 4 (Nimon et al., 2010; Sherry & Henson, 2005).

Wilks's lambda (λ) and the F-ratio were used during CCA to determine if the canonical model was significant across the functions (Sherry & Henson, 2005). It is the result of the unexplained variance on each of the variates and signifies the ratio of error variance to total variance for each variate. A value near zero indicated a high correlation, while a value near one indicated a low correlation (Hintze, 1997). Statistical significance was therefore attained when Wilks's lambda was smaller (Field, 2009).

The F statistic is normally the amount of systematic variance divided by the amount of unsystematic variance. It is basically the model compared against the error in the model. If the value of F is less than 1.0, it means that there is a nonsignificant effect and that there is more unsystematic than systematic variance (Field, 2009). The F statistic was used for testing the significance of Wilks's lambda (Hintze, 1997).

Wilks's lambda was used to determine the effect size for each function as it represents an inverse amount of variance not shared between the variable sets. This was done by subtracting lambda (λ) from one ($1 - \lambda = \text{effect}$) to determine the overall effect. The score obtained was then multiplied by 100 to indicate a percentage (Nimon et al., 2010; Sherry & Henson, 2005).

The research hypotheses that were tested in this research are now discussed.

4.9 RESEARCH HYPOTHESES

Based on the research problem indicated in chapter 1 and in an attempt to achieve the empirical research aim 2 of the study, the following research hypotheses were formulated:

H01: There are statistically significant interrelationships between the extraversion personality factor and coping strategies.

Ha1: There are no statistically significant interrelationships between the extraversion personality factor and coping strategies.

H02: There are statistically significant interrelationships between the neuroticism personality factor and coping strategies.

Ha2: There are no statistically significant interrelationships between the neuroticism personality factor and coping strategies.

H03: There are statistically significant interrelationships between the conscientiousness personality factor and coping strategies.

Ha3: There are no statistically significant interrelationships between the conscientiousness personality factor and coping strategies.

H04: There are statistically significant interrelationships between the openness to experience personality factor and coping strategies.

Ha4: There are no statistically significant interrelationships between the openness to experience personality factor and coping strategies.

H05: There are statistically significant interrelationships between the agreeableness personality factor and coping strategies.

Ha5: There are no statistically significant interrelationships between the agreeableness personality factor and coping strategies.

H06: There is a statistically significant interrelationship between coping strategies as a composite set of dependent variables and the Big Five personality factors as a composite set of latent independent variables.

Ha6: There is not a statistically significant interrelationship between coping strategies as a composite set of dependent variables and the Big Five personality factors as a composite set of latent independent variables.

4.10 CHAPTER SUMMARY

In this chapter, the research methodology that was used in the study was explained. This was followed by a detailed discussion on how the HRCQ was developed. The BTI, which was used to measure personality, was then explained, followed by the ethical considerations applied in this research. A detailed discussion on the specific statistical methods that were used to analyse the collected data was provided and the chapter concluded with the research hypotheses formulated for the study.

The next chapter presents the empirical findings and the interpretation of the results obtained from the data analysis.

CHAPTER 5

RESEARCH RESULTS

5.1 INTRODUCTION

Chapter 5 summarises the statistical results and discusses the empirical findings of this study. The information gathered from psychologists in private practice regarding the coping strategies their patients use, is reported. The statistical results relating to the biographical characteristics of the sample, the preparation and cleaning of the data, exploratory and confirmatory factor analysis, invariance testing and descriptive statistics are also discussed. This is followed by an overview of the correlation studies, multivariate statistics and additional research findings. The chapter concludes by drawing conclusions relating to the research hypotheses.

As stated in previous chapters, the general aim of the research was to develop a model for effective stress management in high stress security occupations. A valid and reliable questionnaire was thus developed that security organisations could use as a screening instrument to determine how people cope with or manage stress within high stress security occupations. The BTI was used to measure personality and to determine whether there is an interrelationship between coping strategies and the Big Five personality factors, including its facets.

5.2 DATA SCREENING AND PREPARATION

This section provides an explanation of how the research data was managed in terms of data quality and preparation for statistical analysis.

The researcher administered questionnaires at a large security organisation in seven consecutive sessions during training interventions. The researcher moved between the respondents while they were completing the questionnaires in order to answer any questions they might have had and to ensure that all the questions were completed (as far as possible). This was done to ensure data quality. Only 19 respondents, out of a total of 392, made use of the online platform to participate in the research.

A total of 392 respondents completed the coping questionnaire (HRCQ) and 355 respondents the personality questionnaire (BTI). After a visual inspection of the questionnaires, a total of 11 coping questionnaires and 11 personality questionnaires were excluded because they were incomplete. This left a sample size of $n = 381$ coping questionnaires and $n = 344$ personality questionnaires. Thirty-seven of the respondents who completed the coping questionnaire failed to complete the personality questionnaire. Ten of these respondents were unwilling to complete the personality questionnaire, while 27 could not complete it owing to time restraints or arriving late for the sessions.

The data from the questionnaires were statistically analysed to determine if any response sets (unresponsive cases) could be identified. No response sets that might influence statistical analysis could be identified. The distribution of the data in terms of the mean, standard deviation, skewness and kurtosis was furthermore examined for all 69 original questions of the HRCQ to determine if there were any extreme distributions (see annexure 8). No extreme distributions were observed and all of the items were therefore included for further statistical analysis. This was in line with Hair et al.'s (2014) recommendation that non-normality of items would render statistical results invalid.

The biographical information of the respondents is discussed next.

5.3 BIOGRAPHICAL CHARACTERISTICS OF THE SAMPLE

Biographical information was obtained from participants by using a self-developed one-page biographical questionnaire. Participants were asked to indicate their gender, race, age in terms of generations, occupation, years of experience in their occupation and length of service in the security industry, as summarised in Tables 5.1 to 5.6 below.

5.3.1 Composition of participants by gender

Table 5.1 indicates the results of the gender distribution of the sample.

Table 5.1

Gender distribution of the sample

Gender	N	%
Male	280	73.5
Female	101	26.5
Total	381	100.0

According to Table 5.1, the majority of participants in the research were males, with 280 male respondents (73.5%) and 101 (26.5%) female respondents. This is consistent with research suggesting that the private security industry is male dominated (Sefalafala, 2012; Sibanyoni, 2014; Van Steden & Nalla, 2010).

5.3.2 Composition of participants by race

Table 5.2 indicates the results of the race distribution of the sample.

Table 5.2

Race distribution of the sample

Race	N	%
Asian	0	0.0
Black	361	94.7
Coloured	1	0.3
Indian	1	0.3
White	18	4.7
Total	381	100.0

As indicated in Table 5.2, there was an uneven spread in terms of race among the participants. The majority of participants in the sample ($n = 361$) were black and comprised 94.7% of the total sample. There were 18 (4.7%) white participants and only a single coloured (0.3%) and Indian (0.3%) participant, respectively.

5.3.3 Composition of participants by age

Table 5.3 indicates the results of the age distribution of the sample.

Table 5.3

Age distribution of the sample

Age in terms of generations	N	%
Born before 1946 (Veterans)	0	0.0
Born between 1946 and 1964 (Baby Boomers)	14	3.7
Born between 1965 and 1981 (Generation X)	185	48.5
Born between 1982 and 2000 (Generation Y)	182	47.8
Total	381	100.0

The age distribution of the sample in terms of the different generations is indicated in Table 5.3. There was a satisfactory balance between Generation X (48.5%) and Generation Y (47.7%) in the sample of participants. There were no Veterans and only 3.7% Baby Boomers. This appears to be a fair representation of employees working operationally in the security industry.

5.3.4 Composition of participants by occupation

Table 5.4 indicates the results of the occupational distribution of the sample.

Table 5.4

Occupational distribution of the sample

Occupation	N	%
VIP protector	16	4.2
Armed response officer	19	5.0
Cash-in-transit guard	10	2.6
Security guard	336	88.2
Total	381	100.0

According to the data in Table 5.4, the majority of participants were security guards (88.2%). This is consistent with statistics indicating that the largest group in the security industry comprises security guards (Minnaar & Ngoveni, 2004; Sibanyoni, 2014). In total, 5% were armed response officers, 4.2% VIP protectors and only 2.6% cash-in-transit guards.

5.3.5 Composition of participants by years of experience in occupation

Table 5.5 indicates the results of the years of experience distribution of the sample.

Table 5.5

Years of experience distribution of the sample

Years of experience	N	%
Less than 2 years	60	15.7
Between 2 and 5 years	126	33.1
Between 5 and 10 years	99	26.0
Between 10 and 15 years	58	15.2
15 years or more	38	10.0
Total	381	100.0

Most of the participants (33.1%), as summarised in Table 5.5, had been working in their current occupation for between two and five years, with 26% working between five and ten years. Sixty participants (15.7%) had less than two years' experience and 15.2% had been doing this job for between ten and 15 years. Only 10% of the participants had been in their current job for more than 15 years.

5.3.6 Composition of participants by length of service in the security industry

Table 5.6 indicates the results of the length of service in the security industry distribution of the sample.

Table 5.6

Length of service in the security industry distribution of the sample

Length of service	N	%
Less than 2 years	48	12.6
Between 2 and 5 years	115	30.2
Between 5 and 10 years	109	28.6
Between 10 and 15 years	63	16.5
15 years or more	46	12.1
Total	381	100.0

Table 5.6 provides a similar description of the sample population as Table 5.5 with regard to length of service in the security industry, with only minor changes. Most of the participants (30.2%) had been working in their current occupation for between two and five years, with 28.6% working for between five and ten years. Forty-eight participants (12.6%) had less than two years' experience in the security industry and 16.5% for between ten and 15 years. Only 12.1% of the participants had been working in the industry for more than 15 years.

The next section provides a summary of the feedback received from psychologists in private practice.

5.4 FEEDBACK RECEIVED FROM PSYCHOLOGISTS IN PRIVATE PRACTICE

Psychologists in private practice were asked to indicate which healthy and unhealthy (less effective) coping strategies were mostly used by their patients (see template in annexure 1). Nine psychologists, who completed the forms anonymously to ensure confidentiality, responded. As indicated earlier, this information was used in combination with the theory in chapter 3 to determine the coping strategies measured by the HRCQ. A summary of the information that the psychologists provided follows.

Table 5.7 contains a summary of the unhealthy coping strategies as indicated by the psychologists. The coping strategies are listed, followed by an indication of how many psychologists identified the particular strategy. The highlighted cells in the frequency column indicate the most used strategies.

Table 5.7

Unhealthy coping strategies identified by psychologists

	Unhealthy coping strategy	Frequency
1	Substance abuse: This includes alcohol, prescribed drug misuse, illegal drugs and smoking. Alcohol use was identified by almost all the psychologists as an unhealthy coping mechanism.	8
2	Electronic media: This helps people to ignore their problems and includes spending a lot of time playing games and/or being on Facebook, Twitter and Instagram.	1
3	Reduced impulse control: This includes comfort eating, gambling, inappropriate sexual behaviour, aggressive behaviour (conflict), hyperactivity or becoming a shopaholic.	7
4	Denial: This means that a person protects himself or herself from any unpleasant reality by refusing to recognise or face it (Weiten, 2014).	5
5	Self-mutilation: This includes people cutting themselves.	2
6	Obsessive compulsive behaviour: This includes perfectionism and extreme control over situations and/or people.	2
7	Autopilot: This implies that a person is merely surviving.	1
8	Excessive working: Individuals spend most of their time working.	2
9	Obsessive focus on children and/or partner.	1
10	Becoming passive aggressive and then withholding emotional support from other people.	1
11	Avoidance: People avoid situations that create stress for themselves, staying within their comfort zone. This also includes social isolation and avoiding taking responsibility. Some patients sleep for lengthy periods of time to avoid their stress.	7
12	People become too dependent on support givers, to the point that the support giver can develop burnout.	1
13	Displacement: This includes blaming other people for one's own mistakes and things that go wrong or taking out one's frustrations on innocent parties (e.g. one's partner or children).	3
14	Rationalisation: This is a defence mechanism whereby a person finds logical and plausible, but false excuses, to justify unacceptable or irrational behaviour (Bergh & Geldenhuys, 2016).	2
15	Splitting: This is a defence mechanism where there are two attitudes towards external reality, functioning side by side without influencing each other. The one attitude takes reality into account, whereas the other denies reality (Colman, 2009).	1
16	Regression: This is a defence mechanism whereby a person avoids painful feelings and experiences by reverting to earlier, immature or less stressful patterns of behaviour (Bergh & Geldenhuys, 2016).	1

	Unhealthy coping strategy	Frequency
17	Inciting hate, especially on social media.	1
18	Projection: This is a defence mechanism whereby a person assigns his or her own, often threatening and undesirable thoughts, feelings, mistakes or motives to other people (Bergh & Geldenhuys, 2016).	1
19	Intellectualising: This is a defence mechanism whereby a person isolates threatening experiences or emotions by speaking rationally or intellectually about it (Bergh & Geldenhuys, 2016).	1

The explanations of the coping strategies were specified by the psychologists. Where no explanation was provided, an explanation was used from the literature.

It is evident from the information in Table 5.7 that patients seem to be more prone to avoid stress and use unhealthy strategies such as low impulse control, substance abuse and denial.

Table 5.8 is a summary of the healthy coping strategies, as indicated by the psychologists. The explanations of the coping strategies were all provided by the psychologists. The highlighted cells indicate the most used strategies.

Table 5.8

Healthy coping strategies identified by psychologists

	Healthy coping strategy	Frequency
1	Physical exercise: This includes running and going to the gymnasium.	6
2	Social support: This includes support groups in the form of family, friends and church groups. It may also include providing support to other people in the form of charity work.	7
3	Relaxation: This includes hobbies, reading, watching television, meditation and doing creative activities such as writing in journals, painting, singing and dancing.	6
4	Studying/self-development	1
5	Spirituality/religion: This includes investing in spiritual activities.	4
6	Therapy: This includes individual therapy and follow-up groups.	8
7	Positive self-talk: This includes changing the way a person thinks about things.	2
8	Good sleeping habits	1

The information on healthy coping strategies, as summarised in Table 5.8, corresponds with the healthy coping strategies suggested in the literature. Patients appear to mostly use therapy, social support, physical exercise and different forms of relaxation to help them cope with stress.

The results of developing the HRCQ are now discussed.

5.5 DEVELOPMENT OF THE HRCQ

Both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to determine the construct validity, reliability and structure of the HRCQ. The process that was followed and the results are now explained. No factor analysis was completed for the BTI because it is an existing valid and reliable psychometric instrument, as reported in chapter 4. The Cronbach alpha internal consistency reliability of the BTI that was completed for this research was reported on in chapter 4, section 4.5.1.5.

5.5.1 Exploratory factor analysis (EFA)

The initial step of the EFA was to apply Harman's one-factor test and the results indicated that only 14.83% variance was explained by a single factor. This was evidence enough to continue with further EFA.

The HRCQ had a KMO score of 0.847, which is above the recommended score of 0.6. Bartlett's test of sphericity was significant at $p = 0.000$, which is also in line with the recommended $p < 0.05$. The factor loadings on items were also consistent with the recommended 0.3 and above in order to be significant. All of this was an indication that factor analysis was appropriate.

A total of 17 factors were identified after completion of the factor rotation with VARIMAX rotation and Kaiser normalisation. All 14 of the original factors, as indicated in Table 5.9, were identified. The results of the EFA, however, suggested that substance use and displacement could be grouped into one factor. This was done for further analysis with CFA, and the factor was labelled "avoidance". In addition, a new

factor was suggested. This factor was labelled “social media addiction” and included for further analysis. The additional three factor groupings that were suggested only had a few questions with either low communalities, cross-loadings or low factor loadings. These were consequently removed from the final CFA by following the process of factor clean-up, as discussed in section 5.5.1.3.

Table 5.9

Summary of the original factors measured in the HRCQ

Original factors measured in the HRCQ			
Dealing with uncertainty	Support	Cohesion	Physical exercise
Relaxation	Sleep	Diet	Training
Humour	Positive appraisal	Religion	Substance use
Displacement	Denial		

Annexure 7 contains the definitions of the factors measured in the HRCQ. All the factors were defined by the researcher for the purpose of developing the HRCQ.

The next step was to determine which factors should be retained for further analysis. Eigenvalues and a scree test were used for this purpose.

5.5.1.1 *Eigenvalues*

A total of 17 factors, as summarised in Table 5.10, had an eigenvalue of more than the recommended value of 1.0 or more, and they were therefore retained for further analysis.

As indicated in Table 5.10, avoidance (14.833%) explained the most variance in the HRCQ. This was followed by physical exercise (10.595%), religion (5.145%), training (3.563%) and humour (3.061%). Thereafter, the total variance explained increased marginally per factor. The overall variance explained by the 17 factors was 62.494%.

Table 5.10

Initial eigenvalues after EFA

Factor	Initial eigenvalues		
	Total	% of variance	Cumulative %
1 Avoidance	10.235	14.833	14.833
2 Physical exercise	7.311	10.595	25.428
3 Religion	3.550	5.145	30.573
4 Training	2.458	3.563	34.136
5 Humour	2.112	3.061	37.197
6 Diet	2.003	2.904	40.100
7 Denial	1.936	2.805	42.906
8 Support	1.761	2.552	45.458
9 Cohesion	1.628	2.360	47.818
10 Sleep	1.563	2.266	50.084
11 Positive appraisal	1.455	2.108	52.192
12 Dealing with uncertainty	1.356	1.965	54.156
13 Relaxation	1.264	1.832	55.989
14 Social media addiction	1.225	1.775	57.763
15 New factor	1.128	1.635	59.399
16 New factor	1.097	1.589	60.988
17 New factor	1.039	1.506	62.494

5.5.1.2 Scree test

A scree test was used as a second measure to determine the factors that could be retained for further analysis. The results of the scree test are provided in Figure 5.1.

As indicated in Figure 5.1, the changeover between the vertical and horizontal line was not as clear and there was an area comprising several factors lying between the vertical and horizontal part of the scree plot. The scree test therefore did not indicate a clear elbow which could be used to identify the possible factors. Factors were therefore considered to be included for further analysis to the extent that the items in a factor appeared similar to one another. The decision was also based on theory and common sense about which items contributed to the specific factor (DeVellis, 2003). It was decided to continue with the 17 factors that were identified by making use of the eigenvalues.

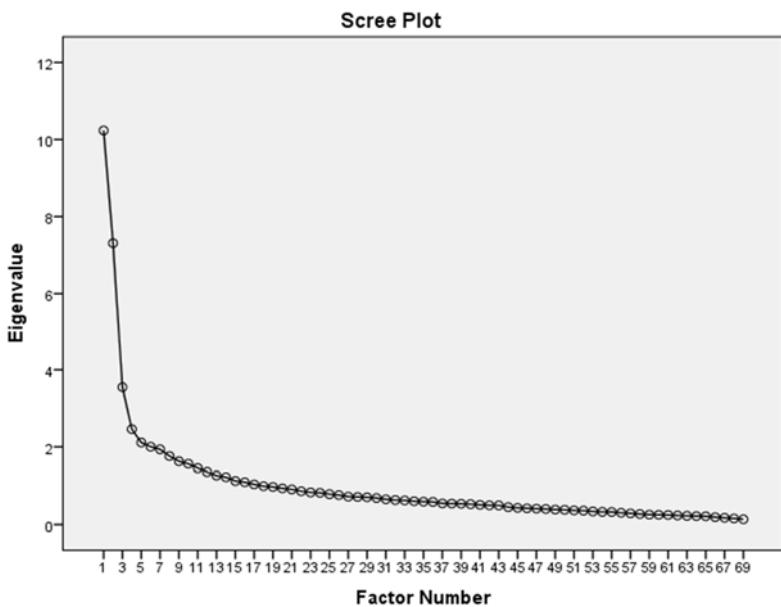


Figure 5.1. Scree test results for the HRCQ

The next step after deciding which factors to include for further analysis, was to clean up the factors for better results in the CFA. The results of the factor clean-up are now discussed.

5.5.1.3 Factor clean-up

The factor clean-up process to refine the factors identified during the EFA consisted of three different steps. The researcher reviewed each individual item before any item was completely removed during the factor clean-up process. This was done in all three steps to ensure construct validity.

a Step 1: Identify and remove low communalities

The first step in the factor clean-up was to identify communalities and remove items with a loading of less than 0.3, as these items did not fit well with the other items in its factor. The item with the lowest communality was first removed and the communalities for the remaining items were then determined again. The next factor with the lowest communality was then removed and communalities determined again. This process was repeated until all the items in a factor had a communality value of 0.3 and above.

Table 5.11 provides a summary, listed in sequence of removal, of items with communalities lower than 0.3 that were removed from the various factors.

Table 5.11

Summary of items with communalities removed from factors

Item	Statement as in HRCQ
34	I eat “junk food” every day, for example, hamburgers
27	I wake up very early in the morning, worrying about my problems
2	I feel comfortable dealing with situations where the outcome is uncertain
1	I know that my family will be taken care of should anything happen to me
40	I have done stress management training before

A total of five items with communalities of less than 0.3 were removed from the factors, as indicated in Table 5.11.

b Step 2: Removal of items with a high cross-loading

The second step was to remove items with a high cross-loading between the primary and secondary loadings on factors. The item with the highest cross-loading was removed first. The same process as for removing communalities was then followed, where an item was removed and the cross-loadings for the remainder of the items then determined again. The process was repeated until all items with high cross-loadings had been removed. The researcher decided to remove cross-loadings with a loading of 0.2 and higher.

Table 5.12 summarises the items that were removed from the factors due to high cross-loadings. These items are also listed in the sequence in which they were removed.

It is evident from Table 5.12 that a total of 13 items with a high cross-loading between primary and secondary loadings on factors were removed.

Table 5.12

Summary of items with cross-loadings removed from factors

Item	Statement as in HRCQ
10	I talk to a therapist (counsellor) about my work stress
26	I sleep at least seven hours uninterrupted
35	I drink about two litres of water a day
20	I have a hobby to take my mind off my problems
12	I am loyal to my colleagues
41	I can see the humour in a difficult situation
3	I am prepared to deal with difficult situations in my work
19	I make time in the day to relax
46	I tell myself that I can deal with any stressful situation
50	I tell myself that I am good enough to do my work
47	I see stress as an opportunity to learn and improve myself
48	I tell myself that I will be able to deal with a difficult situation
49	I tell myself that the work I do is helping other people

The following points provide a possible explanation for the high cross-loadings between items:

- I make time in the day to relax (relaxation) also loaded on physical exercise. This might be because respondents may perceive physical exercise as a form of relaxation.
- I have a hobby to take my mind off my problems (relaxation) also loaded on positive appraisal. It is possible that respondents appraised having a hobby as a form of self-encouragement to highlight the positive aspects of their own skills and experience.
- I am prepared to deal with difficult situations in my work (dealing with uncertainty) also loaded on training. It is possible that respondents perceived proper training to help them deal with uncertain situations, leading to positive expectations about their own capabilities to deal effectively with work-related problems.
- I can see the humour in a difficult situation (humour) also loaded on dealing with uncertainty. It is possible that respondents perceived the use of humour as an aid to cope with the uncertainty in their work.
- All of the items that measured positive appraisal (items 46 to 50) also loaded on religion and training. It is possible that respondents appraised using their religion

and being properly trained as a form of self-encouragement to highlight the positive aspects of their own skills and experience.

Different coping strategies may be correlated because if individuals use one coping strategy, they may also be inclined to use other strategies (McCrae & Costa Jr, 1986). There is an expectation that a multifactorial scale should have factors that are independent of one another. Different coping strategies, however, seem to be related both conceptually and empirically. The validity of a coping questionnaire may essentially be reduced by eliminating items that correlate across factors (Folkman & Moskowitz, 2004).

c *Step 3: Removal of items with low loadings*

The third and last step of the factor clean-up process was to remove any remaining items with a loading of less than 0.5. The same process of removal was followed as in steps 1 and step 2, where the item with the lowest loading was removed first, recalculated, and this process continued until all factors had a loading of 0.5 and higher.

Table 5.13 contains a list of items with a factor loading of less than 0.5 that were removed from the factors. These items are also listed in the sequence in which they were removed.

Table 5.13

Summary of items with a loading of less than 0.5 removed from factors

Item	Statement as in HRCQ
4	I can work in conditions where there are no guidelines
5	I deal with stress on my own
23	I listen to music to relax
55	I drink alcohol to help me relax (single item on factor)

As indicated in Table 5.13, four items with a factor loading of less than 0.5 were removed from the factors during the last stage of factor clean-up. Items that were close to 0.50 during rounding off were still included to be tested by means of CFA. Item 55 was removed from further analysis as it was the only item on the factor after communalities and cross-loadings had been removed.

A total of 22 questions were removed after the factor clean-up process. Two factors were thus removed because they had too many communalities, high cross-loadings and factor loadings of lower than 0.5. These factors were dealing with uncertainty and positive self-talk. The three additional factors suggested (factors 15 to 17) were also removed for the same reasons as above. The use of EFA was an attempt to minimise the number of variables in order to obtain a more simplified factor structure. The HRCQ initially had 69 items and 14 separate factors. This was consequently reduced to 47 items and 12 factors.

Annexure 9 provides the results of the remaining factors, with their respective factor loadings, after the factor clean-up process had been completed.

The results of the CFA and reliability of the constructs are now discussed.

5.5.2 Confirmatory factor analysis (CFA) and reliability

The next step in the process was CFA and determining the reliability of the different constructs of the HRCQ. This step followed after different factors had been identified during EFA and after these factors had been cleaned up. The objective of conducting a CFA was to test whether the measures of the constructs were consistent with the researcher's conceptual understanding of these constructs.

Three different models were developed by making use of IBM AMOS (version 25). An examination of the composite reliability, average variance extracted and goodness-of-fit indexes was done for each model. This was used to make a decision about the best-suited model for coping with stress in high stress security occupations. Only composite reliability, and not Cronbach's alpha, was taken into consideration regarding reliability in the re-estimation of models 2 and 3 as this is a more accurate

description of true reliability (Peterson & Kim, 2013). Cronbach's alpha, however, was indicated for each factor on all three models as a reference point for comparison. The strength of an item and the number of items per factor were considered before any item was removed from a model.

5.5.2.1 *Model 1*

The baseline model (model 1) for coping strategies is presented in annexure 10A. The model fit statistics, Cronbach's alpha, composite reliability and average variance extracted scores are indicated below. The results are summarised in Tables 5.14 and 5.15.

Table 5.14 summarises the goodness-of-fit indexes for the baseline model.

Table 5.14

Goodness-of-fit indexes for the baseline model

	CMIN/ DF	GFI	AGFI	TLI	CFI	RMSEA	SRMR	AIC	BIC
Baseline model	1.70	0.85	0.82	0.89	0.90	0.043	0.052	1962.0	2596.8

The baseline model had a good fit with most of the fit indexes, as reported in Table 5.14. Most of the goodness-of-fit indexes were in line with the recommended threshold of CMIN/DF < 3, AGFI > 0.8, CFI > 0.9, RMSEA < 0.05 and SRMR < 0.08. GFI was slightly less than the > 0.9 threshold, whereas TLI was just below the suggested threshold of > 0.9. AIC and BIC would be taken into account from model 2, as the scores for both should be lower in the subsequent models for a model to be selected. The goodness-of-fit indexes, however, were not used in isolation. Composite reliability and average variance extracted were also evaluated for each separate factor. These values are indicated in Table 5.15.

Table 5.15

Composite reliability and average variance extracted for the baseline model

	Factor	Alpha	CR	AVE
AA	Support	0.723	0.723	0.395
BB	Cohesion	0.654	0.658	0.392
CC	Physical exercise	0.829	0.831	0.553
DD	Relaxation	0.601	0.605	0.435
EE	Social media addiction	0.747	0.765	0.625
FF	Sleep	0.669	0.666	0.400
GG	Diet	0.785	0.804	0.585
HH	Training	0.779	0.791	0.495
II	Humour	0.734	0.735	0.411
JJ	Religion	0.782	0.794	0.494
KK	Avoidance	0.897	0.899	0.477
LL	Denial	0.803	0.809	0.516

It is evident from Table 5.15, that the average variance extracted for most of the factors fell below the recommended 0.50 or higher. The composite reliability for factors BB (cohesion), DD (relaxation) and FF (sleep) was the lowest for all the factors, but still fell within the acceptable range of 0.60 and higher. Items with the lowest loading on a factor, where AVE was low, were consequently removed in order to try and increase the average variance extracted, reliability scores and overall goodness-of-fit indexes. After the items had been removed, the model was re-estimated to determine a second model.

Table 5.16 provides a summary of the items that were removed from the baseline model, per factor, to improve the overall statistics.

Table 5.16

Items removed with low loadings from the baseline model

Item	Construct name	Statement as in HRCQ
9	Support	I ask advice from other people on how to deal with my problems
11	Cohesion	I trust my colleagues with my life
33	Diet	I eat breakfast every day
39	Training	I can use my past experience to deal with situations in my work
51	Religion	I am a spiritual person

Item	Construct name	Statement as in HRCQ
57	Avoidance	I sleep better after taking sleeping pills
58	Avoidance	I smoke to help me relax
65	Avoidance	I use more force to stop a suspect when I feel stressed

It is evident from Table 5.16 that a total of eight items with low loadings were removed from the various factors for the purpose of re-estimating model 2.

5.5.2.2 *Model 2*

Model 2 (annexure 10B) was the outcome after the items, as listed in Table 5.16, had been removed and the baseline model re-estimated. The statistics for model 2 are explained below.

Table 5.17 provides a summary of the goodness-of-fit indexes for model 2.

Table 5.17

Goodness-of-fit indexes for model 2

	CMIN/ DF	GFI	AGFI	TLI	CFI	RMSEA	SRMR	AIC	BIC
Model 3	1.66	0.88	0.85	0.91	0.92	0.042	0.048	1342.4	1914.1

Model 2 had an overall improvement in the goodness-of-fit indexes as indicated in Table 5.17. Basically, all of the goodness-of-fit indexes were in line with the recommended threshold. CMIN/DF improved from 1.70 to 1.66 (< 3), AGFI from 0.82 to 0.85 (> 0.8), TLI from 0.89 to 0.91 (> 0.9), CFI from 0.90 to 0.92 (> 0.9), RMSEA from 0.043 to 0.042 (< 0.05) and SRMR from 0.052 to 0.048 (< 0.08). GFI was the only statistic that was slightly below the > 0.9 threshold. It did, however, increase from 0.85 to 0.88. There was a significant decrease in the AIC value from 1962.0 in the baseline model to 1342.4 in model 2. There was a similar decrease in the BIC value between the baseline model and model 2, that is, from 2596.8 to 1914.1.

Composite reliability and average variance extracted were again evaluated for each separate factor. These values are provided in Table 5.18.

Table 5.18

Composite reliability and average variance extracted for model 2

Factor		Alpha	CR	AVE
AA	Support	0.677	0.673	0.409
BB	Cohesion	0.594	0.606	0.439
CC	Physical exercise	0.829	0.831	0.553
DD	Relaxation	0.601	0.605	0.435
EE	Social media addiction	0.747	0.771	0.635
FF	Sleep	0.669	0.669	0.402
GG	Diet	0.841	0.841	0.725
HH	Training	0.785	0.799	0.574
II	Humour	0.734	0.735	0.411
JJ	Religion	0.791	0.795	0.564
KK	Avoidance	0.895	0.895	0.552
LL	Denial	0.803	0.808	0.515

As indicated in Table 5.18, there was an overall increase in most of the AVE values, even though some of the values were still below the recommended threshold of 0.50. Factor AA (support) improved from 0.395 to 0.409, BB (cohesion) from 0.392 to 0.439, EE (social media addiction) from 0.625 to 0.635, FF (sleep) from 0.400 to 0.402, HH (training) from 0.495 to 0.574, JJ (religion) from 0.494 to 0.564 and KK (avoidance) from 0.477 to 0.552. There was, however, a slight decrease in the AVE values of GG (diet) from 0.858 to 0.725, and LL (denial) from 0.516 to 0.515. The AVE values for CC (physical exercise), DD (relaxation) and II (humour) remained unchanged.

Table 5.18 also shows that there was a change in the values of composite reliability. All of the composite reliability values, however, were above the acceptable range of 0.60 and higher. Factor EE (social media addiction) improved from 0.765 to 0.771, FF (sleep) from 0.666 to 0.669, GG (diet) from 0.804 to 0.841, HH (training) from 0.791 to 0.799, and JJ (religion) from 0.794 to 0.795. However, there was, a slight decrease in the composite reliability scores of AA (support) from 0.723 to 0.673, BB (cohesion) from 0.658 to 0.606, KK (avoidance) from 0.899 to 0.895, and LL (denial) from 0.809 to 0.808. The composite reliability scores for CC (physical exercise), DD (relaxation) and II (humour) remained unchanged.

Table 5.19 provides a summary of the items that were removed from model 2, per factor, to improve the overall statistics.

Table 5.19

Items removed with low loadings from model 2

Item	Construct name	Statement as in HRCQ
6	Support	I talk to a friend when I stress
29	Sleep	I sleep through when I go to bed
45	Humour	I can laugh about difficult situations

It is evident from Table 5.19 that a total of three items with low loadings were removed from the various factors for the purpose of re-estimating model 3.

5.5.2.3 Model 3

Model 3 (annexure 10C) was the outcome after the items listed in Table 5.19 had been removed and model 2 re-estimated. The statistics for model 3 are explained below.

The goodness-of-fit indexes for model 3 are presented in Table 5.20.

Table 5.20

Goodness-of-fit indexes for model 3

	CMIN/DF	GFI	AGFI	TLI	CFI	RMSEA	SRMR	AIC	BIC
Model 3	1.65	0.89	0.86	0.92	0.93	0.041	0.045	1146.2	1694.2

Model 3 had a slight improvement in the goodness-of-fit indexes as indicated in Table 5.20. Basically, all of the goodness-of-fit indexes were again in line with the recommended threshold. CMIN/DF improved from 1.66 to 1.65 (< 3), AGFI from 0.85 to 0.86 (> 0.8), TLI from 0.91 to 0.92 (> 0.9), CFI from 0.92 to 0.93 (> 0.9), RMSEA from 0.042 to 0.041 (< 0.05), and SRMR from 0.048 to 0.045 (< 0.08). GFI again was the only statistic that was slightly below the > 0.9 threshold, increasing from 0.88 to 0.89. There was less of a decrease in the AIC value from 1342.4 in model 2 to 1146.2 in model 3. Likewise, there was a smaller decrease in the BIC value between model 2 and model 3, that is, from 1914.1 to 1694.2.

Composite reliability and average variance extracted were again evaluated for each separate factor. These values are provided in Table 5.21.

Table 5.21

Composite reliability and average variance extracted for model 3

Factor		Alpha	CR	AVE
AA	Support	0.565	0.567	0.397
BB	Cohesion	0.594	0.607	0.441
CC	Physical exercise	0.829	0.832	0.553
DD	Relaxation	0.601	0.605	0.435
EE	Social media addiction	0.747	0.769	0.631
FF	Sleep	0.556	0.571	0.405
GG	Diet	0.841	0.841	0.726
HH	Training	0.785	0.799	0.573
II	Humour	0.687	0.688	0.424
JJ	Religion	0.791	0.795	0.564
KK	Avoidance	0.895	0.895	0.552
LL	Denial	0.803	0.809	0.515

As indicated in Table 5.21, there was an increase in some of the AVE values, as well as a decrease in others. Some of the values were still below the recommended threshold of 0.50. Factor BB (cohesion) increased from 0.439 to 0.441, FF (sleep) from 0.402 to 0.405, GG (diet) from 0.725 to 0.726, and II (humour) from 0.411 to 0.424. There was, however, a slight decrease in the AVE values of AA (support) from 0.409 to 0.397, EE (social media addiction) from 0.635 to 0.631 and HH (training) from 0.574 to 0.573. The AVE values for CC (physical exercise), DD (relaxation), JJ (religion), KK (avoidance) and LL (denial) remained unchanged.

Table 5.21 indicates that there was an increase as well as a decrease in the values of composite reliability. Two of the factors, namely AA (support) and FF (sleep), now had a composite reliability value lower than the acceptable range of 0.60 and higher. Factor BB (cohesion) improved from 0.606 to 0.607, CC (physical exercise) from 0.831 to 0.832, and LL (denial) from 0.808 to 0.809. There was, however, a slight decrease in the composite reliability scores of AA (support) from 0.673 to 0.567, EE (social media addiction) from 0.771 to 0.769, FF (sleep) from 0.669 to 0.571, and II (humour) from 0.735 to 0.688. The composite reliability scores for DD (relaxation), GG (diet), HH (training), JJ (religion) and KK (avoidance) remained unchanged.

5.5.2.4 Selection of the most suitable model

According to Cudeck and Browne (1983), a researcher cannot expect to create a perfect model, only a best estimate of a model. Model 2 was chosen as the most suitable model for coping with stress in high stress security occupations. All three models had an overall good fit with the goodness-of-fit criteria and the composite reliability of both models 1 and 2 was above the acceptable range of 0.60 and higher. There was a significant decrease in the AIC and BIC scores between model 1 and model 2, but not such a significant decrease in the scores between model 2 and model 3. Owing to the fact that model 2 fitted all the goodness-of-fit criteria, and retained the most valuable questions, it was chosen. Even though model 3 had the best overall goodness-of-fit indexes, it lost too many questions that compromised the reliability and content validity of the questionnaire.

Some of the factors in model 2, as shown in Table 5.17, had an AVE score of below the recommended threshold of 0.50 and higher. These scores ranged between 0.402 and 0.439. However, it was decided to retain these factors in the HRCQ because they had a strong theoretical foundation and the questions had been accepted by a panel of experts as measuring the specific constructs (Hair et al., 2014).

Factors BB (cohesion), DD (relaxation), EE (social media addiction) and GG (diet) only had two questions measuring each construct. Hair et al. (2014), however, suggest that when a construct is simple or when the meaning of the construct is easily understood, fewer items can be used to measure such a construct.

Invariance testing will now be discussed.

5.5.3 Invariance testing

Configural invariance, metric invariance and scalar invariance are now being discussed.

5.5.3.1 Configural invariance

Configural invariance was tested for gender, age, years in occupation and years in the security environment. In order to assess configural invariance, groups were tested together and freely, with no path restraints being placed on the groups, that is, male and female, different age groups, and so forth. The measurement model was constructed by making use of the respective groups for comparison.

Race (94.7% black respondents) and occupation (88.2% security guards) were not included as there was no equal distribution between the different races and occupational groups (see Tables 5.2 and 5.4).

Table 5.22 provides a summary of the goodness-of-fit indexes for the configural gender model.

Table 5.22

Goodness-of-fit indexes for the configural gender model

CMIN/DF	GFI	AGFI	TLI	CFI	RMSEA
1.63	0.80	0.75	0.84	0.86	0.041

The results for the goodness-of-fit indexes for the gender model are provided in Table 5.22. Two of the indexes were on target and the remaining four indexes slightly below the threshold. CMIN/DF = 1.63 was lower than the recommended < 3, and RMSEA = 0.041, also lower than the suggested < 0.05. GFI = 0.80, TLI = 0.84 and CFI = 0.86, were all slightly below the > 0.9 threshold. AGFI = 0.75 was also slightly lower than the > 0.8 recommended threshold.

The goodness-of-fit indexes for the configural age model are provided in Table 5.23.

Table 5.23

Goodness-of-fit indexes for the configural age model

CMIN/DF	GFI	AGFI	TLI	CFI	RMSEA
1.53	0.80	0.76	0.86	0.88	0.037

Table 5.23 is a summary of the goodness-of-fit indexes for the age model. Two of the indexes were again on target, while the remaining four were similarly slightly below the suggested threshold. CMIN/DF = 1.53 was lower than the recommended < 3, and RMSEA = 0.037, likewise lower than the suggested < 0.05. GFI = 0.80 was slightly below > 0.9. TLI = 0.86 and CFI = 0.88 were both marginally below the > 0.9 threshold. AGFI = 0.76 was also slightly lower than the > 0.8 recommended threshold.

Table 5.24 summarises the goodness-of-fit indexes for the configural years in occupation model.

Table 5.24

Goodness-of-fit indexes for the configural years in occupation model

CMIN/DF	GFI	AGFI	TLI	CFI	RMSEA
1.58	0.80	0.75	0.85	0.87	0.039

As indicated in Table 5.24, CMIN/DF and RMSEA were both on target and the remaining four indexes slightly below the suggested threshold. CMIN/DF = 1.58 was lower than the recommended < 3 and RMSEA = 0.039 also lower than the suggested < 0.05. As in the previous model, GFI = 0.80 was slightly below the > 0.9 threshold. TLI = 0.85 and CFI = 0.87 were both a little below the > 0.9 threshold, and AGFI = 0.75 also a bit lower than the > 0.8 recommended threshold.

Table 5.25 provides a summary of the goodness-of-fit indexes for the configural years in security model.

Table 5.25

Goodness-of-fit indexes for the configural years in security model

CMIN/DF	GFI	AGFI	TLI	CFI	RMSEA
1.59	0.80	0.75	0.85	0.87	0.039

Table 5.25, as in the previous models, indicates that CMIN/DF and RMSEA were on target and the remaining indexes slightly below the suggested threshold. CMIN/DF = 1.59 was lower than the recommended < 3 and RMSEA = 0.039 also lower than the suggested < 0.05. GFI = 0.80 was slightly below the > 0.9 threshold. TLI = 0.85 and

CFI = 0.87 were both a little below the > 0.9 threshold, and AGFI = 0.75 also a bit lower than the > 0.8 recommended threshold.

Even though the models for gender, age, years in occupation and years in the security environment did not have a perfect fit, they were still close to the recommended thresholds. According to Cudeck and Browne (1983), no perfect model can be created, and these variables were therefore invariant and supported configural invariance, meaning that the same items in the HRCQ measured constructs across multiple groups. Goodness-of-fit indexes were therefore used as a guideline and not followed strictly, as suggested by Greiff and Scherer (2018).

Metric invariance is now discussed.

5.5.3.2 *Metric invariance*

The next level, after configural invariance had been attained, was to test for metric invariance. The same groupings as for configural invariance were tested. Metric invariance was assessed by making use of the full dataset to create composites, and not a split data set. A factor constraint of 1 was placed on the factor variance, and not on the indicator paths. The level of significance against which the models were tested was $p > 0.05$.

Table 5.26 provides a summary of the metric invariance results for gender.

Table 5.26

Metric invariance for gender

Overall model	Chi-square	df	p-value	Invariant?
Unconstrained	2072.33	1270		
Fully constrained	2121.35	1309	0.131 (> 0.05)	Yes
Difference	49.2	39		

As indicated in Table 5.26, the difference in the chi-square value between the fully constrained and unconstrained model was 49.2. This was higher than the recommended difference of five points or more. The level of significance was $p =$

0.131, suggesting that the model was not significant. This was an indication of metric invariance.

Table 5.27 provides the metric invariance results for age.

Table 5.27

Metric invariance for age

Overall model	Chi-square	df	p-value	Invariant?
Unconstrained	1944.36	1270		
Fully constrained	1981.37	1309	0.561 (> 0.05)	Yes
Difference	37.01	39		

Table 5.27 also indicates that the model was not significant, indicating metric invariance. The difference in the chi-square value between the fully constrained and unconstrained model was 37.01 (more than five points difference), and the level of significance was $p = 0.561$. In order to assess metric invariance for the different age groups, respondents born between 1946 and 1981 were clustered in one group and respondents born between 1982 and 2000 in another group. This was done to create a relatively equal number of respondents between the groups. No respondents were born before 1946.

The metric invariance results for years in occupation are presented in Table 5.28.

Table 5.28

Metric invariance for years in occupation

Overall model	Chi-square	df	p-value	Invariant?
Unconstrained	2005.23	1270		
Fully constrained	2057.54	1309	0.075 (> 0.05)	Yes
Difference	52.31	39		

The difference in the chi-square value between the fully constrained and unconstrained model was 52.31 (more than five points difference) as indicated in Table 5.28. The level of significance at $p = 0.075$ also suggests that the model was not significant, which is an indication of metric invariance. Respondents with less than five years of experience were clustered in one group and respondents with five years

plus experience were clustered in another group in order to assess metric invariance for years of service in their occupation. The groups were again clustered to try and create an equal balance of respondents between the groups.

Table 5.29 summarises the metric invariance results for years in security and presents a similar picture as in the previous tables. This also indicates metric invariance of the model. The difference in the chi-square value between the fully constrained and unconstrained model was 50.27 (more than 5 points difference) and the model was not significant, with a significance value of $p = 0.107$. The same groupings of respondents were used to assess invariance for years of service in the security industry as for years of service in occupation.

Table 5.29

Metric invariance for years in security

Overall model	Chi-square	df	p-value	Invariant?
Unconstrained	2013.27	1270		
Fully constrained	2063.54	1309	0.107 (> 0.05)	Yes
Difference	50.27	39		

The last level of invariance that was assessed, namely scalar invariance, is now discussed.

5.5.3.3 Scalar invariance

The researcher also attempted to achieve scalar invariance after metric invariance had been achieved. Unfortunately this was not possible. Scalar invariance was tested on intercepts and structural covariances, and not on measurement weights. The constraints were kept the same as for metric invariance, but the variance constraint was set to be equal to 1 for one of the groups in each factor.

Noninvariance of intercepts might be an indication of possible measurement bias such as cultural norms or developmental differences. This may influence the way respondents answer items across administrations, systematically rating items either higher or lower at each administration (Bialosiewicz et al., 2013). Scholten et al.

(2017) also suggest that cross-cultural differences can lead to a different interpretation of items. According to Greiff and Scherer (2018), many factors can lead to scalar invariance not being achieved.

A possible explanation for not achieving scalar invariance in this research could be the uneven distribution of different race groups, with the majority of respondents being black (94.7%). South Africa is commonly referred to as the Rainbow Nation because of its diverse cultures. These cultures are made up of various identities, that is, ethnicity and social class (Ramsay, 2006). According to Taylor (2008), there are many difficulties in using assessment measures in a multicultural society such as South Africa. Different cultures may assign different meaning to items, and patterns of communication differ across cultures. Culture can also be linked to acquiescent bias on Likert scales. These diverse cultures could have impacted scalar invariance.

No further group differences were therefore completed because of the failure to achieve scalar invariance. Scalar invariance is required to compare group means (Scholten et al., 2017). Because scalar invariance assesses whether the starting value on a scale is the same for all respondents, a false picture emerges when group differences are tested (t-tests). Hence further t-tests were excluded from the research and could be a topic for future research (the influence of culture on coping).

The next section focuses on the descriptive statistics and correlation studies in the research.

5.6 DESCRIPTIVE STATISTICS AND CORRELATION STUDIES

This section explains the findings of the descriptive statistics of the research. The mean scores, skewness and kurtosis for the constructs of the HRCQ are reported. This is followed by a discussion of the results of the effect size in mean differences and the Pearson linear correlations between coping strategies and the Big Five personality factors, including their facets.

5.6.1 Mean, skewness and kurtosis

The mean scores, skewness and kurtosis of the different HRCQ constructs were examined to ensure the data were within the expected range. A Likert-type scale was used to capture the participants' responses pertaining to their coping strategies. The scale ranged from 1 (strongly disagree) to 5 (strongly agree). The mean scores, skewness and kurtosis for the constructs seemed to fall within a normal range. Table 5.30 provides a summary of the mean scores, skewness and kurtosis of the final 12 constructs of the HRCQ (additional information is available in annexure 11). The mean scores, skewness and kurtosis for the BTI are reported in annexure 16. All of the results fell within the expected range.

Table 5.30

Mean, skewness and kurtosis of the HRCQ constructs

HRCQ construct	Mean	Skewness	Kurtosis
Support (AA)	3.31	-0.353	-0.365
Cohesion (BB)	3.00	-0.111	-0.326
Physical exercise (CC)	3.63	-0.662	0.178
Relaxation (DD)	3.54	-0.647	0.098
Social media addiction (EE)	2.78	0.299	-0.784
Sleep (FF)	3.25	-0.400	-0.161
Diet (GG)	3.16	-0.084	-0.816
Training (HH)	3.74	-0.798	0.495
Humour (II)	3.00	0.080	-0.423
Religion (JJ)	3.80	-0.964	0.718
Avoidance (KK)	1.95	0.996	0.414
Denial (LL)	2.46	0.491	-0.277

Table 5.30 indicates a mean score ranging from 1.95 to 3.80. The mean scores for support, cohesion, social media addiction, sleep, diet and humour were relatively within the average range, based on the 1 to 5 Likert scale. The mean scores for physical exercise (3.63), relaxation (3.54), training (3.74) and religion (3.80) leant towards the higher end of the scale. This means that respondents tended to agree more with the statements on the use of these coping strategies. By contrast, the mean scores for avoidance (1.95) and denial (2.46) leant towards the lower end of the scale, suggesting that respondents tended not to avoid stress or deny that they had stress.

Religion was the coping strategy that was endorsed by the highest number of respondents and avoidance the lowest number. It is thus possible that respondents preferred not to avoid stress and might have used their religion to help them cope better with stress in a high stress security environment.

Table 5.30 further shows that some coping constructs were positively skewed, and others negatively skewed. The skewness values ranged between -0.964 (religion) and 0.996 (avoidance). This indicated a relatively symmetrical distribution and fell within the suggested range of 1.0. Religion was slightly negatively skewed, indicating that respondents scored higher on religion – that is, they were more inclined to use their religion as a coping strategy. Avoidance was to some extent positively skewed, suggesting that respondents might not avoid their stress. Kurtosis, however, provides an indication of how flat or peaked a distribution is. The values for kurtosis ranged between -0.816 and 0.718, falling within the range of not exceeding 2.0. Annexure 12 provides a visual representation (histograms) of the skewness and kurtosis of the 12 constructs of the HRCQ, and shows that both religion and avoidance had a somewhat flatter peak.

5.6.2 Effect size

Effect size was calculated to provide an indication of the impact each coping construct had on the overall results of the HRCQ. The results of the one-sample test are summarised in Table 5.31.

As indicated in Table 5.31, there was no difference in the mean scores of the constructs BB (cohesion), GG (diet) and II (humour). This could imply that the respondents were neutral on the items for these constructs. These constructs therefore did not have any significant impact on the overall results of the HRCQ. The constructs AA (support), EE (social media addiction) and FF (sleep) had a small effect size, according to Cohen's d. The mean scores for these constructs therefore only deviated slightly from the construct mean, and the t-values were also lower. These factors consequently had a small impact on the overall results of the HRCQ. The effect size of all these constructs was significant at $p < 0.001$.

Table 5.31

Results of the one-sample test on the constructs of the HRCQ

One-sample test						
	Test value = 3					
	t	Sig. (2-tailed)	Mean	Mean difference	Std deviation	Effect size
AA	6.284	0.000	3.31	0.31	0.968	0.32**
BB	0.080	0.936	3.00	0.00	0.957	0.00
CC	12.966	0.000	3.63	0.63	0.948	0.66**
DD	11.075	0.000	3.54	0.54	0.951	0.57**
EE	-3.782	0.000	2.78	-0.22	1.124	-0.19**
FF	5.231	0.000	3.25	0.25	0.917	0.27**
GG	2.866	0.004	3.16	0.16	1.099	0.15
HH	15.912	0.000	3.74	0.74	0.908	0.82**
II	-0.057	0.954	3.00	0.00	0.892	0.00
JJ	16.584	0.000	3.80	0.80	0.945	0.85**
KK	-22.793	0.000	1.95	-1.05	0.901	-1.17**
LL	-10.831	0.000	2.46	-0.54	0.976	-0.55**

Note. ** Effect size is significant at the $p < 0.001$ level (2-tailed).

Constructs CC (physical exercise), DD (relaxation) and LL (denial) all had a medium effect size. The mean scores for these constructs differed more from the construct mean, and the t-values were also higher. This indicates that these constructs contributed more on the HRCQ because of their medium impact on the overall results. The effect size of all these constructs was significant at $p < 0.001$. Respondents tended to agree more with the use of physical exercise and relaxation as coping strategies. Denial had a negative loading, thus indicating that respondents disagreed with the statements, not denying they had stress.

The constructs with the highest impact on the overall results of the HRCQ were HH (training), JJ (religion) and KK (avoidance). The mean scores for these constructs differed considerably more from the construct mean, and the t-values were also the highest, indicating a large effect size. The effect size of all these constructs was significant at $p < 0.001$. Respondents agreed that they used their training and religion to cope with stress in a high stress security environment. Avoidance had a negative

loading and differed -1.17 from the mean score, indicating that respondents strongly disagreed that they avoided dealing with stress (using alcohol and medication or transferring their emotions to a substitute object).

5.6.3 Pearson's linear correlation

Pearson's linear correlations were done between the 12 coping strategies of the HRCQ and the Big Five personality factors of the BTI, including the 24 facets of the BTI. Annexure 13 provides a comprehensive list of all the correlation coefficients between the HRCQ and BTI (with its facets). This section only provides a description of the correlations that had a small to medium effect and higher ($r \geq 0.25$). All of the correlations discussed were significant at the $p < 0.001$ level.

5.6.3.1 Extraversion

There were no noteworthy correlations between the overall extraversion factor and any of the coping strategies. However, there was a medium effect positive correlation ($r = 0.305$) between the ascendance facet of extraversion and cohesion as a coping strategy. Interestingly, there was a small to medium effect positive correlation ($r = 0.263$) between ascendance and having a healthy diet. There was also a small to medium effect positive correlation ($r = 0.268$) between the excitement-seeking facet of extraversion and the avoidance coping strategy.

This appeared to provide some support for hypothesis **H01**: There are statistically significant interrelationships between the extraversion personality factor and coping strategies.

5.6.3.2 Neuroticism

A positive medium effect correlation ($r = 0.313$) was identified between the overall neuroticism factor and the avoidance coping strategy. A medium effect positive correlation ($r = 0.318$) was also observed between the affective instability facet of neuroticism and avoidance. A small to medium effect positive correlation ($r = 0.278$) was evident between the depression facet of neuroticism and avoidance.

This seemed to provide some support for hypothesis **H02**: There are statistically significant interrelationships between the neuroticism personality factor and coping strategies.

5.6.3.3 *Conscientiousness*

The overall conscientiousness factor had a positive medium effect correlation with the training coping strategy ($r = 0.304$), a negative medium effect correlation with avoidance ($r = -0.322$) and a small to medium effect positive correlation with religion ($r = 0.272$).

A positive small to medium effect correlation was detected between the effort facet of conscientiousness and the religion coping strategy ($r = 0.256$). A negative small to medium effect correlation was also noticed between the avoidance coping strategy and the following facets of conscientiousness: effort ($r = -0.254$), order ($r = -0.269$), and dutifulness ($r = -0.259$). A negative medium effect correlation was likewise evident on the facet prudence ($r = -0.299$). A positive small to medium effect correlation was identified between the training coping strategy and the following facets of conscientiousness: order ($r = 0.251$), dutifulness ($r = 0.275$), prudence ($r = 0.286$) and self-discipline ($r = 0.264$). Lastly, a positive small to medium effect correlation was observed between the dutifulness facet and the physical exercise coping strategy ($r = 0.281$).

This seemed to provide support for hypothesis **H03**: There are statistically significant interrelationships between the conscientiousness personality factor and coping strategies.

5.6.3.4 *Openness to experience*

The overall openness to experience factor had a negative small to medium effect correlation with the avoidance coping strategy ($r = -0.262$). A small to medium effect negative correlation ($r = -0.275$) was also evident between the imagination facet of openness to experience and avoidance.

This seemed to provide some support for hypothesis **H04**: There are statistically significant interrelationships between the openness to experience personality factor and coping strategies.

5.6.3.5 *Agreeableness*

There were no noteworthy correlations between any of the coping strategies and the overall agreeableness factor. However, there was a negative medium effect correlation between the straightforwardness facet of agreeableness and the avoidance coping strategy ($r = -0.296$). A small to medium positive effect correlation was also observed between the prosocial tendencies facet and the physical exercise ($r = 0.286$) and training ($r = 0.281$) coping strategies.

This seemed to provide some support for hypothesis **H05**: There are statistically significant interrelationships between the agreeableness personality factor and coping strategies.

The next section deals with the multivariate statistics, specifically the results of the canonical correlation analysis.

5.7 MULTIVARIATE STATISTICS

This section discusses the results of the canonical correlation analysis that was used to determine the interrelationship between coping strategies as dependent variables and the Big Five personality factors as independent variables.

5.7.1 Canonical correlation analysis (CCA)

CCA was used to assess the overall relationship between all the dimensions of the Big Five personality factors (agreeableness, extraversion, conscientiousness, neuroticism and openness to experience) and the 12 coping strategies of the HRCQ, as identified during the CFA (social support, group cohesion, physical exercise, relaxation, social media addiction, healthy sleeping habits, healthy diet, training,

humour, religion, avoidance and denial). Table 5.32 indicates the canonical correlations, Wilks's lambda statistics, F-ratio, level of significance and the percentage of variance explained by the canonical functions (squared canonical correlation). Annexure 14 provides additional details.

Table 5.32

Canonical correlation analysis between the coping strategies and the Big Five personality factors

Canonical function	Canonical correlation	Wilks's statistic	F	Significance	% variance explained
1	0.559	0.503	4.047	0.000	31.2% (0.312)
2	0.364	0.731	2.440	0.000	13.2% (0.132)
3	0.300	0.842	1.938	0.002	9.0% (0.090)
4	0.246	0.926	1.445	0.104	6.0% (0.060)
5	0.122	0.985	0.623	0.758	1.5% (0.015)

Note. The % variance explained column is the squared canonical correlation (in brackets). The sample size was (n = 344)

As indicated in Table 5.32, the CCA generated five canonical functions, of which three were significant. Canonical functions 1 and 2 were significant at the $p < 0.001$ level, and canonical function 3 at the $p < 0.005$ level. The full canonical model was significant across the three functions with Wilks's lambda (λ) = 0.503, $F = 4.047$ and $p < 0.001$. Because Wilks's lambda represents the variance unexplained, the r^2 metric of the effect size for canonical function 1 was 0.497 (derived at 1 minus lambda, thus $1 - 0.503 = 0.497$). This means that canonical function 1 had a large practical effect and explained a substantial proportion of approximately 49.7% of the variance shared between the two sets of variables. The canonical correlation of function 1 was $r = 0.559$ and it contributed 31.2% of the explained variance relative to the functions.

As mentioned, canonical functions 2 and 3 were also significant. Function 2's Wilks's lambda (λ) = 0.731, $F = 2.2440$ and $p < 0.001$, and function 3's Wilks's lambda (λ) = 0.842, $F = 1.938$ and $p < 0.005$. The canonical correlation of function 2 was $r = 0.364$ and it explained 13.2% of variance relative to the functions, while the canonical correlation for function 3 was $r = 0.300$, only explaining 9.0% of variance relative to

the functions. Functions 4 and 5 were not significant and therefore failed to explain a statistically significant amount of shared variance between the variable sets.

Only canonical function 1 was used for further interpretation between the sets of variables, because it explained 31.2% of the variance relative to the functions. Function 2 only explained 13.2%, function 3 9.0% and functions 4 and 5 6.0% and 1.5%, respectively. Hence function 1 was the only function that explained a reasonable amount of variance relative to the functions and therefore merited further interpretation.

Table 5.33 indicates the canonical loadings (correlation coefficients) between set 1 and set 2 variables, thus providing the canonical loadings for both the coping strategies and the Big Five personality factors. According to Hair et al. (2014), a factor loading of 0.30 and above can be used to interpret factors for large sample sizes. Since a large number of respondents ($n = 344$) completed both the HRCQ and the BTI, all canonical loadings of 0.30 and above were interpreted as being significant (on canonical function 1). For the purpose of this study, only the canonical loadings (correlations) were used in the interpretation of the link between coping strategies and the Big Five personality factors. Pearson's correlation coefficient r was used to determine the effect size of the correlations between the variable sets.

It is evident from Table 5.33 that there was an overlap between six of the 12 copings strategies with four of the five personality factors. The coping strategies CC (physical exercise), DD (relaxation), FF (sleep), HH (training), JJ (religion) and KK (avoidance) were correlated significantly with function 1. Avoidance correlated negatively with the coping strategies, whereas the rest had a positive correlation. The personality factors, neuroticism (BTI_N), conscientiousness (BTI_C), openness to experience (BTI_O) and agreeableness (BTI_A) also correlated significantly with function 1. Neuroticism had a negative correlation, whereas the other personality factors had a positive correlation.

Table 5.33

Canonical loadings (correlation coefficients)

Set 1 canonical loadings (coping strategies)					
Variable	Canonical function 1	Canonical function 2	Canonical function 3	Canonical function 4	Canonical function 5
AA	0.069	0.242	-0.298	-0.451	-0.094
BB	0.256	0.643	-0.017	0.059	-0.261
CC	0.407	0.188	-0.195	-0.393	0.177
DD	0.328	0.071	0.158	-0.526	0.226
EE	-0.128	0.470	-0.083	-0.398	0.275
FF	0.432	0.148	0.054	-0.336	0.301
GG	0.188	0.286	-0.692	-0.144	-0.073
HH	0.543	0.155	-0.201	-0.417	-0.183
II	0.125	0.601	0.457	-0.268	-0.050
JJ	0.428	0.089	-0.329	-0.470	0.108
KK	-0.776	0.333	-0.016	-0.263	0.106
LL	-0.226	0.590	-0.362	0.187	0.537
Set 2 canonical loadings (Big Five personality factors)					
BTI_E	0.241	0.764	0.035	-0.578	-0.151
BTI_N	-0.603	0.040	0.023	-0.614	0.507
BTI_C	0.800	-0.105	-0.202	-0.552	0.053
BTI_O	0.699	0.099	0.495	-0.426	0.273
BTI_A	0.684	0.347	-0.179	-0.226	0.574

An investigation of function 1's coefficients for coping strategies indicated that the primary contributors were avoidance (-0.776) and training (0.543), both with a large effect size. The secondary contributors, all with a medium effect size, were physical exercise (0.407), relaxation (0.328), sleep (0.432) and religion (0.428). Avoidance was the only coping strategy that was negatively related to coping, with all the other coping strategies being positively related.

An investigation of function 1's coefficients for personality factors revealed that all of the significant correlations had a large practical effect. Hence four of the Big Five personality factors, with the exception of extraversion, were primary contributors to the personality variable. Neuroticism (-0.603), conscientiousness (0.800), openness to experience (0.699) and agreeableness (0.684) all contributed fundamentally to the overall personality variable. Neuroticism was the only personality factor that was

negatively related to the personality variable, with the other three personality factors being positively related.

The results in Table 5.33, as discussed above, were consistent with the theoretically anticipated relationship between personality and coping, as discussed in detail in chapter 3 (section 3.9.2). To summarise, the results clearly indicated an interrelationship between coping strategies and the Big Five factors of personality. These findings therefore partially supported research hypothesis **H06**: There is a statistically significant interrelationship between coping strategies as a composite set of dependent variables and the Big Five personality factors as a composite set of independent variables.

The next section focuses on additional research findings of the study.

5.8 ADDITIONAL RESEARCH FINDINGS

Research has found different results relating to the source of social support, as discussed in chapter 3 (section 3.6.4). It has also reported that police officers are more prone to use excessive force in apprehending suspects when they are stressed (section 2.6). A number of items were included in the HRCQ to determine the source of social support for security personnel and also whether security personnel are also more prone to use excessive force when stressed. These findings are presented in Tables 5.34 to 5.37, and a discussion follows in the section dealing with the integration of the empirical findings (research aim 4).

5.8.1 Social support

The findings of the research relating to the preferred source of social support for security personnel working in a high stress security environment are presented in Tables 5.34 to 5.36.

Table 5.34

Social support (friends)

I talk to a friend when I stress	N	%
Strongly disagree	36	9.5
Disagree	59	15.5
Neither agree nor disagree	66	17.3
Agree	146	38.3
Strongly agree	74	19.4
Total	381	100.0

As indicated in Table 5.34, the majority of respondents (57.7%) made use of friends to support them during times of stress. Only 25% of respondents indicated that they did not use their friends to support them during times of stress, whereas 17.3% were undecided.

Table 5.35

Social support (family)

I talk to a family member when I stress	N	%
Strongly disagree	37	9.7
Disagree	67	17.6
Neither agree nor disagree	57	15.0
Agree	135	35.4
Strongly agree	85	22.3
Total	381	100.0

The information in Table 5.35 likewise indicates that the majority of respondents (57.7%) made use of family members to support them during times of stress. A total of 27.3% of respondents indicated that they did not use their family to support them during times of stress, whereas 15% were undecided.

Table 5.36
Social support (colleagues)

I talk to a colleague when I stress	N	%
Strongly disagree	40	10.5
Disagree	100	26.3
Neither agree nor disagree	79	20.7
Agree	115	30.2
Strongly agree	47	12.3
Total	381	100.0

Table 5.36 shows that 42.5% of respondents would ask colleagues for support during times of stress, while an almost equal number (36.8%) indicated that they would not ask colleagues to support them. Of the respondents, 20.7% were undecided.

5.8.2 Displacement

The findings of the research regarding the use of force to stop suspects by security personnel working in a high stress security environment are presented in Table 5.37.

Table 5.37

Displacement (use of force to stop a suspect)

I use more force to stop a suspect when I feel stressed	N	%
Strongly disagree	101	26.5
Disagree	125	32.8
Neither agree nor disagree	64	16.8
Agree	64	16.8
Strongly agree	27	7.1
Total	381	100.0

As indicated in Table 5.37, 59.3% of participants stated that they did not use more force to stop a suspect when they felt stressed, while 23.9% inferred that they definitely used more force. A total of 16.8% of respondents were undecided.

The integration of the empirical research is discussed in the next section.

5.9 INTEGRATION OF THE EMPIRICAL RESEARCH

The empirical findings of this research provided the researcher with vital and insightful information on the development of a coping questionnaire, along with the coping strategies that security personnel working in high stress security occupations adopt in response to stress. This section discusses and integrates all the results in terms of the biographical characteristics of the participants and the empirical aims of the research.

5.9.1 Biographical characteristics of the research participants

The study was conducted among 381 security personnel actively employed in a high stress security environment, of whom 280 were male (73.5%) and 101 (26.5%) female. According to the literature review, the private security industry is regarded as a male-dominated industry (Sefalafala, 2012; Sibanyoni, 2014; Van Steden & Nalla, 2010). The age distribution of the sample indicated a good balance between Generation X (48.5%), born between 1965 and 1981, and Generation Y (47.8%), born between 1982 and 2000. This seems to be reasonable in terms of security personnel performing active operational duties. The majority of the respondents had been working in their current position for two to ten years (59.1%). Similarly, the majority of respondents had been working in the security industry for two to ten years (58.8%). There was an unequal distribution in terms of occupation, with 336 (88.2%) of the respondents being security guards. Minnaar and Ngoveni (2004) and Sibanyoni (2014), however, reported that the largest occupational group in the security industry are security guards. There was likewise not an equal distribution in terms of race, with 361 (94.7%) of the respondents being black. This seems to be a fair distribution in terms of race groups in South Africa.

5.9.2 Research aim 1

Research aim 1 was to develop a valid and reliable coping questionnaire that could be applied in high stress security environments.

The HRCQ was developed by using the questionnaire development process as suggested by Barry et al. (2011) and Giesen et al. (2012).

According to Barry et al. (2011), before a new questionnaire is developed, the researcher should determine whether existing questionnaires are available for what needs to be measured. No relevant coping questionnaire could be found in the South African context, specifically for use in a security environment.

A detailed literature review on stress and coping was conducted as the first step in developing the HRCQ (outline the concept being measured). The researcher determined that there appears to be a scarcity of research on stress and coping in a security environment. The decision was therefore made to include research on police and military stress, as the work in all of these occupations is closely related in South Africa (Minnaar, 2005; Schneider, 2013; Sibanyoni, 2014). Psychologists in private practice were furthermore asked to indicate which healthy and unhealthy coping strategies are used most by their patients. A combination of the literature and the feedback from the psychologists was ultimately used to determine the constructs of the HRCQ. Fourteen constructs were initially identified as coping strategies.

The second and third steps involved developing the structure of the HRCQ and generating questionnaire items. The initial 14 constructs that were identified were all defined, with the intention of providing a common understanding of each construct. A deductive approach was adopted where specific items were written by the researcher, in the form of statements, to measure each construct. Seventy items were generated and a five-point Likert-type scale was used to determine the extent of agreement with the statements, ranging from strongly disagree to strongly agree. A pencil-and-paper version of the HRCQ and an electronic version on Survey Monkey were developed.

The fourth and last step was to pre-test the HRCQ, and this involved four different actions, namely an assessment of the content validity, an evaluation of the content and motivational qualities, the final evaluation of the questionnaire and statistical analysis after it had been administered to a sample group.

The first action in pretesting the HRCQ was to assess the content validity through a review of the questionnaire by a number of experts. Eight experts, with extensive experience in the use of psychometrics, reviewed the items in the final questionnaire. They were all satisfied that sufficient coping strategies had been included in the questionnaire. Minor suggestions were made in the form of either deleting, adding or changing a word in some of the statements. Two statements were moved to a different construct and the construct support was divided into two separate constructs, namely support and cohesion. Individual reviewers felt that some statements were closely related and suggested either combining or deleting the statements. After further consideration, the researcher decided to delete one statement only, leaving a total of 69 statements.

The second action in pretesting the HRCQ was to administer the revised questionnaire to a sample group of respondents (pilot study). This was done to determine whether respondents understood each item as planned and whether they could answer the questions appropriately. There were 21 respondents in the sample group, 16 of which were security guards and the other five managers. The pilot study revealed that all the statements and instructions were clear, and no changes were therefore required.

The questionnaire was then administered to a group of active duty security personnel working within a high stress security environment. A convenience sample of 381 respondents completed the HRCQ. These questionnaires were then used in the fourth and final stage of the statistical analysis.

Questionnaires were inspected to exclude any incomplete questionnaires from statistical analysis. The remaining questionnaires were examined for missing values, response sets and extreme distributions. Both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to determine the construct validity, reliability and structure of the HRCQ. Harman's one-factor test was used to determine whether a single factor accounted for the majority of covariance in the HRCQ, and the results indicated that only 14.83% variance was explained by a single factor. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and the Bartlett's test of sphericity both indicated that the data was suitable for factor analysis. Factor rotation with VARIMAX rotation identified a total of 17 factors, which were confirmed by the

scree test and eigenvalues. All 14 of the original factors had been identified. The results of the EFA, however, suggested that substance use and displacement be grouped into one factor, and a new factor was also suggested. These factors explained 62.5% of the total variance. A factor clean-up process followed in order to refine these factors. This process involved identifying communalities and removing items with a loading of less than 0.3, discarding items with a high cross-loading, and lastly, removing remaining items with a loading of 0.5 and less. Only 47 items and 12 factors remained after the factor clean-up process. The remaining 12 factors were labelled as follows: social support (AA), group cohesion (BB), physical exercise (CC), relaxation (DD), social media addiction (EE), healthy sleeping habits (FF), healthy diet (GG), training (HH), humour (II), religion (JJ), avoidance (KK) and denial (LL). These 12 factors were accepted and subjected to CFA.

CFA was used to determine the reliability of constructs and goodness-of-fit indexes to see how well a model estimated the similarity between theory and reality. Three different models were estimated by making use of IBM AMOS (version 25). Model 2 was chosen because all the goodness-of-fit criteria were in line with the recommended thresholds and it retained the most valuable questions. The goodness-of-fit indexes for model 2 were CMIN/DF = 1.66, AGFI = 0.85, TLI = 0.91, CFI = 0.92, RMSEA = 0.042, SRMR = 0.048, GFI = 0.88, AIC = 1342.4 and BIC = 1914.1. The composite reliability of all the constructs of model 2 was above the acceptable range of 0.60. Even though some of the AVE scores were below the recommended threshold of 0.50 (ranging between 0.402 and 0.439), it was decided to keep these factors because they were based on a strong theoretical foundation and the questions had been accepted by a panel of experts. The final questionnaire retained a total of 39 statements and all 12 constructs.

Finally, invariance was assessed to determine whether the items and constructs in the HRCQ meant the same thing to members of different groups. Configural invariance was attained for all of the groups with acceptable goodness-of-fit indexes, meaning that the same items measured a construct across multiple groups. Metric invariance was likewise achieved with all the group models not being significant ($p > 0.05$). This means that constructs had the same meaning to respondents. The researcher also attempted to achieve scalar invariance, which unfortunately could not be

accomplished. The invariance results, however, suggested that the HRCQ could be applied to all groups within a high stress security environment.

5.9.3 Research aim 2

Research aim 2 was to correlate the HRCQ with the BTI to determine whether there was an interrelationship between coping strategies and the Big Five personality factors, including its facets.

Govender (2008) found that extraversion, conscientiousness, openness to experience and agreeableness all had a positive correlation with healthy coping strategies in the South African Police Service, while neuroticism correlated with unhealthy coping strategies. Another study by Louw and Viviers (2010), also in the South African Police Service, however, did not find any such correlations. Neuroticism was the only factor that presented a low positive relationship with police stress. Two personality traits that are consistently linked to health and health behaviours are conscientiousness and neuroticism (Weston & Jackson, 2016; Weston et al., 2015). This was also evident in this research.

Pearson's linear correlations revealed that there were no noteworthy correlations between any of the coping strategies and the overall extraversion factor. There was, however, a medium effect positive correlation ($r = 0.305$) between the ascendance facet of extraversion and cohesion as a coping strategy. This could imply that the higher a respondent scores on ascendance, the more attention this person seeks from others and the more likely he or she is to create a bond with other members of the group. This finding is similar to that of Endler and Parker (1990). There was also a small to medium effect positive correlation ($r = 0.268$) between the excitement-seeking facet of extraversion and the avoidance coping strategy. Avoidance as a coping strategy includes the use of alcohol and medication and the transference of emotions to a substitute object. Research has indicated that individuals who score higher on excitement seeking are more likely to participate in risky behaviours, such as the use of alcohol or drugs (Van Zyl, 2012). Interestingly, a small to medium effect positive correlation ($r = 0.263$) was observed between ascendance and following a healthy

diet. This could be explained by Weston et al.'s (2015) research finding, namely that high extraversion can be associated with better health.

Research has suggested that people exposed to extreme difficulty over a period of time demonstrate increases in neuroticism (Sudom et al., 2014). A positive medium effect correlation ($r = 0.313$) was identified between the overall neuroticism factor and the avoidance coping strategy. The implication here is that if a respondent scores high on neuroticism, then he or she tends to avoid dealing with stress or uses alcohol and/or medication to cope with high stress. According to Carver and Connor-Smith (2010) and Govender (2008), neurotic people have a low perceived ability to cope. A medium effect positive correlation ($r = 0.318$) was also observed between the affective instability facet of neuroticism and avoidance. This could imply that if respondents score higher on affective instability, they might take out their anger and frustration on other people or objects, such as breaking something or shouting at a loved one. Neurotic people are predisposed to engage in maladaptive coping behaviours (Magnano et al., 2017; Richter et al., 2013) and may therefore perceive existing problems as more severe than they actually are (Weston & Jackson, 2016). Finally, a small to medium effect positive correlation ($r = 0.278$) was evident between the depression facet of neuroticism and avoidance. Respondents who scored higher on depression would probably use alcohol or medication to deal with their stressful situation. This might also lead to suicidal thoughts and/or behaviour. Research by Pienaar et al. (2007) suggests that neuroticism is positively related to suicidal thoughts because neuroticism is generally linked to depression.

The overall conscientiousness factor indicated a positive medium effect correlation with the training coping strategy ($r = 0.304$), a negative medium effect correlation with avoidance ($r = -0.322$) and a small to medium effect positive correlation with religion ($r = 0.272$). This could imply that when a respondent scores higher on conscientiousness, he or she may rely on training to deal with stressful situations, or use his or her religion to make sense of his or her circumstances. This respondent would therefore not avoid dealing with stressful situations, but actively deal with them. A positive small to medium effect correlation was also observed between the effort facet of conscientiousness and the religion coping strategy ($r = 0.256$). Respondents scoring higher on effort and religion might be more inclined to set higher personal

goals for themselves and make more of an effort to deal with stressful situations. Research suggests that conscientious people usually make use of active coping strategies (Bogg & Roberts, 2013; Govender, 2008; Magnano et al., 2017; Richter et al., 2013).

A negative small to medium effect correlation was observed between the avoidance coping strategy and the following facets of conscientiousness: effort ($r = -0.254$), order ($r = -0.269$), and dutifulness ($r = -0.259$). A negative medium effect correlation was also evident in the prudence facet ($r = -0.299$). A respondent scoring higher on any of these facets of conscientiousness would be less likely to use alcohol or medication to deal with stress. This respondent would also not shift the blame for his or her problems to other people, but would actively deal with the stressful situation. Research has found that conscientious people are less prone to engage in health-impairing behaviour such as drinking, smoking and drug abuse (Bogg & Roberts, 2013; Taylor, 2015; Weiten, 2014).

A positive small to medium effect correlation was identified between the training coping strategy and the following facets of conscientiousness: order ($r = 0.251$), dutifulness ($r = 0.275$), prudence ($r = 0.286$) and self-discipline ($r = 0.264$). A respondent who scored higher on order and prudence could believe in his or her own ability to deal with stress in a methodical and carefully considered manner, making sense of the stressful situation. A respondent who scored higher on dutifulness and self-discipline, could believe that he or she has the ability and required training to persist with a task, despite high levels of stress. Research suggests that people high in conscientiousness have an increased appraisal of their own coping abilities (Bogg & Roberts, 2013; Gartland et al., 2012). Lastly, a positive small to medium effect correlation was evident between the facet dutifulness and the physical exercise coping strategy ($r = 0.281$). A respondent scoring higher on dutifulness could therefore persist with doing exercises to manage stress more effectively, thus improving his or her overall mood. Weston and Jackson (2016) provide support for the fact that conscientious people engage in healthy behaviours, such as exercising.

According to Sudom et al. (2014), people exposed to extreme difficulty over time, show decreases in certain aspects of openness to experience. The overall openness to

experience factor in this research indicated a negative small to medium effect correlation with the avoidance coping strategy ($r = -0.262$). A small to medium effect negative correlation ($r = -0.275$) was also evident between the imagination facet of openness to experience and avoidance. It would therefore seem that if a respondent scored higher on the openness to experience factor or the imagination facet, he or she would not avoid dealing with stress, but rather try different approaches to deal with it. Research by Weston et al. (2015) supported this finding.

Pearson's linear correlations revealed no noteworthy correlations between any of the coping strategies and the overall agreeableness factor. A negative medium effect correlation, however, was observed between the straightforwardness facet of agreeableness and the avoidance coping strategy ($r = -0.296$). A respondent scoring higher on straightforwardness might therefore acknowledge that he or she is stressing and in need of assistance, instead of simply avoiding it or resorting to substance use. Govender (2008) found that people who are more agreeable tend to use social support, while Weston et al. (2015) reported that high agreeableness can be associated with better health. This could support the finding that respondents scoring higher on straightforwardness would seek assistance when needed. There was also a small to medium effect positive correlation between the facet prosocial tendencies and the coping strategy physical exercise ($r = 0.286$) and training ($r = 0.281$). It is possible that respondents scoring higher on prosocial tendencies might place more value on the social nature of physical exercise and training. According to Gumani et al. (2013), one of the benefits for police officers participating in sport and exercise is spending time with others. Hengartner et al. (2017) suggest that higher agreeableness contributes to social activity, providing access to interpersonal resources and social support.

5.9.4 Research aim 3

Research aim 3 was to develop a stress management model based on CFA and CCA to assist organisations and individuals to manage stress more effectively.

Various stress models are available in occupational and organisational psychology literature. It is, however, recognised that police/security work includes unique sources

of stress and a variety of coping strategies to deal with these unique stressful circumstances (Anshel, 2000; Louw & Viviers, 2010). Only a single model for coping with police stress could be found in the literature, as explained in chapter 2 (section 2.4.1). A limitation of this model is that it does not include the consequences of stress for the organisation or the individual. It also does not explicitly include non-operational stressors. This research therefore endeavoured to develop a model for coping with stress in a high stress security environment.

Firstly, a model was estimated, as discussed in research aim 1, by using CFA. Goodness-of-fit indexes were applied to see how well the model estimated the similarity between theory and reality. This model of the coping strategies was therefore a reliable starting point for developing a stress management model for the security environment.

The next step was to correlate the coping strategies with the Big Five personality factors by conducting CCA. This analysis generated five canonical functions, the first three of which were significant. Only canonical function 1 was used for developing this model, because it explained 31.2% of the variance relating to the functions ($p < 0.001$). The full canonical model was significant across the three functions with Wilks's Lambda (λ) = 0.503, $F = 4.047$ and $p < 0.001$. Canonical function 1 therefore had a large practical effect and explained a substantial proportion of approximately 49.7% of the variance shared between the coping strategies and personality factors.

The results of the CCA suggested that personality, in particular neuroticism, conscientiousness, openness to experience and agreeableness, all contributed fundamentally to the use of either avoidance, training, physical exercise, relaxation, sleep or religion as a coping strategy.

Both neuroticism and avoidance had a negative correlation, thus implying that if respondents scored high on neuroticism, they would tend to make use of unhealthy coping strategies, such as taking out their anger and frustration on other people or objects, and/or using alcohol or medication to deal with their stressful circumstances. This is in line with research suggesting that neurotic people have a low perceived

ability to cope (Carver & Connor-Smith, 2010; Govender, 2008) and are predisposed to use maladaptive coping behaviours (Magnano et al., 2017; Richter et al., 2013).

Conscientiousness normally relates to perseverance, responsibility and being organised (Taylor, 2004). Conscientious people can thus be described as thorough, careful, hardworking and self-controlled (Duckworth et al., 2007). Respondents who scored high on conscientiousness could therefore maintain their physical health through regular exercise, having healthy sleeping habits and making time for themselves to relax. They would not avoid dealing with stressful situations, but also actively deal with them. Individuals could enhance their skills by attending regular training sessions and also use their religion to make sense of their circumstances. These results are consistent with research suggesting that conscientious people have an increased appraisal of their own coping abilities (Bogg & Roberts, 2013; Gartland et al., 2012) and habitually make use of active coping strategies (Magnano et al., 2017; Richter et al., 2013; Weston & Jackson, 2016). They are therefore less prone to engage in health-impairing behaviour (Taylor, 2015; Weiten, 2014).

Openness to experience involves a person's willingness to experience new or different things (Carver & Connor-Smith, 2010; McCrae & Costa Jr, 2010; Taylor & De Bruin, 2016). A respondent scoring high on openness to experience would not avoid dealing with stress, but rather try different approaches to deal with it. These results correspond with the research findings of Weston et al. (2015), who posited that people open to experience are inclined to use creative ways of dealing with stress. An individual might, for example, try different forms of exercise, relaxation techniques and even attend different kinds of training to help him or her to better deal with work and/or personal stress.

Agreeableness is primarily a dimension of interpersonal behaviour (Costa Jr et al., 1991). Respondents who scored high on agreeableness might find solace in their religion through interacting with other people in their congregation. They might enjoy the company of exercising with other people and find the personal interaction of training stimulating. These results concur with research suggesting that people who are more agreeable tend to use social support as a coping strategy (Govender, 2008;

Hengartner et al., 2017). Gumani et al. (2013) acknowledged the social value of police officers participating in sport and exercise.

The results of the CFA were combined with the results of the CCA to suggest a model for managing stress within a high stress security environment. This model is graphically depicted in Figure 6.1 and discussed in chapter 6, section 6.2.2.3.

5.9.5 Research aim 4

Research aim 4 was to contribute to the knowledge of coping with stress within a high stress security environment.

This research should make a significant contribution because it provides a valid and reliable coping questionnaire, based on a solid theoretical foundation, as discussed in research aim 1. Both healthy and unhealthy coping strategies used by security personnel were identified. The theory and statistical analysis were further used to determine a model that security organisations might be able to use to assist security personnel to manage stress more effectively (research aim 3).

Social support as a healthy coping strategy was discussed in chapter 3 (section 3.6.4). There were two differing opinions on the most valuable source of social support. Greenberg (2011), Hobfoll et al. (1991) and Moos and Swindle Jr (1990) concur that friends and family are the most valuable source of social support, whereas Poisat et al. (2014) contend that colleagues are the most valuable source. The results of this study found that 57.7% of respondents preferred to use family and friends as a source of social support, and only 42.5% of respondents indicated that they used the support of their colleagues. The reason why security personnel may prefer not to use colleagues as a source of social support could be the issue of trust. Item 11 in the original HRCQ requested respondents to indicate their agreement with the following statement: "I trust my colleagues with my life". The majority of respondents (64%) indicated that they did not trust their colleagues with their life, while a further 16.3% of respondents were undecided. The results of this study therefore suggest that a lack of trust might be a concern in the private security industry in South Africa.

Another topic that was discussed in chapter 2, under consequences of stress (section 2.6), was the use of more force when one feels stressed. Gershon et al. (2009) and Manzoni and Eisner (2006) found that police are more aggressive and inclined to use unnecessary force in apprehending suspects when they are stressed. Item 65 in the original HRCQ requested respondents to indicate their agreement with the statement: "I use more force to stop a suspect when I feel stressed". The purpose of this statement was to determine whether this behaviour is also prevalent among security personnel. The results indicated that 59.3% of participants stated that they did not use more force to stop a suspect when they felt stressed, while 23.9% stated that they definitely used more force. A total of 16.8% of respondents were undecided. It is evident that nearly one quarter of respondents made use of more force to stop suspects when they were stressed. Even though only 23.9% indicated that they definitely used more force, this is still a factor that could impact negatively on relations with the public or even lead to legal action taken against security personnel or their organisation.

5.10 CONCLUSIONS REGARDING THE RESEARCH HYPOTHESES

Table 5.38 summarises the research hypotheses formulated for this study.

Table 5.38

Summary of the research hypotheses

Research hypotheses	Description	Hypotheses supported
H01	There are statistically significant interrelationships between the extraversion personality factor and coping strategies.	Partially supported
Ha1	There are no statistically significant interrelationships between the extraversion personality factor and coping strategies.	Rejected
H02	There are statistically significant interrelationships between the neuroticism personality factor and coping strategies.	Partially supported
Ha2	There are no statistically significant interrelationships between the neuroticism personality factor and coping strategies.	Rejected
H03	There are statistically significant interrelationships between the conscientiousness personality factor and coping strategies.	Supported
Ha3	There are no statistically significant interrelationships between the conscientiousness personality factor and coping strategies.	Rejected
H04	There are statistically significant interrelationships between the openness to experience personality factor and coping strategies.	Partially supported
Ha4	There are no statistically significant interrelationships between the openness to experience personality factor and coping strategies.	Rejected
H05	There are statistically significant interrelationships between the agreeableness personality factor and coping strategies.	Partially supported
Ha5	There are no statistically significant interrelationships between the agreeableness personality factor and coping strategies.	Rejected
H06	There is a statistically significant interrelationship between coping strategies as a composite set of dependent variables and the Big Five personality factors as a composite set of latent independent variables.	Partially supported
Ha6	There is no statistically significant interrelationship between coping strategies as a composite set of dependent variables and the Big Five personality factors as a composite set of latent independent variables.	Rejected

Note. H₀ is the null hypothesis and H_a the alternative hypothesis.

5.11 CHAPTER SUMMARY

The statistical results of the study were outlined and discussed in this chapter. The preparation and cleaning of data were explained, followed by an overview of the biographical characteristics of the sample population and the information that was gathered from psychologists in private practice. The process of developing the HRCQ was explained, which included both exploratory and confirmatory factor analysis, along with invariance testing. This was followed by a discussion of descriptive statistics, correlation studies, multivariate statistics and additional research findings. All the results were interpreted to enable the researcher to integrate the findings of the literature review with the empirical research findings. These results provided supportive evidence for the formulated research aims and hypotheses.

The following empirical research aims were achieved in this chapter:

- Research aim 1:** To develop a valid and reliable coping questionnaire that can be applied in high stress security environments
- Research aim 2:** To correlate the HRCQ with the BTI to determine whether there is an interrelationship between coping strategies and the Big Five personality factors, including its facets
- Research aim 3:** To develop a stress management model based on confirmatory factor analysis and canonical correlation analysis to assist organisations and individuals to manage stress more effectively
- Research aim 4:** To contribute to the knowledge of coping with stress within high stress security environments

The next chapter focuses on the conclusions, limitations, recommendations for possible further research and recommendations for industrial and organisational psychology practices, based on the findings of this research study.

CHAPTER 6

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter provides a summary of the conclusions, limitations and recommendations of the research. It also summarises the conclusions relating to the literature review and empirical study. This is followed by a discussion of the limitations of the research in terms of both the literature review and empirical study. Recommendations are formulated for the security industry, industrial and organisational psychologists and possible future research.

6.2 CONCLUSIONS

This section discusses the conclusions in terms of the literature review, empirical study and contributions to the field of industrial and organisational psychology, as formulated in chapter 1.

6.2.1 Conclusions regarding the literature review

This section focuses on the conclusions relating to the literature review.

6.2.1.1 Research aim 1: To conceptualise the concept of stress by means of a comprehensive literature review

The first research aim, namely to conceptualise the concept of stress, was achieved in chapter 2. The following conclusions regarding stress were drawn:

There are many definitions of the concept of stress (Beheshtifar & Nazarian, 2013; Le Fevre & Kolt, 2010; Sisley et al., 2010; Weiten, 2014). For the purpose of this research, stress was defined as “any circumstances that threaten, or are perceived to threaten, a person’s wellbeing and thereby exceed the person’s ability to cope”. “The threat may be to immediate physical safety, self-esteem, reputation, peace of mind or anything that a person values” (Weiten, 2014, p. 554). The definition was deemed

appropriate for the study because occupations in a high stress security environment are typically described as dangerous on account of high levels of crime, leading to security employees constantly fearing for their lives (Diphoorn, 2015; Gumani, 2012; Pienaar & Rothmann, 2006; Schneider, 2013). It is furthermore generally more difficult for people to cope in these high stress environments (Louw, 2014; Pienaar & Rothmann, 2003, 2006; Sibanyoni, 2014). Two themes emerged from the various definitions of stress, as provided in chapter 2, namely that (1) a demand is placed on a person, and (2) this demand leads to some form of reaction on the part of the person.

According to Kavanagh (2005), continued exposure to stress or even a single exposure to an extreme stressor can have severe negative consequences. The work situation can be a source of many stressors that negatively affect a person's wellbeing (Beheshtifar & Nazarian, 2013; Duxbury et al., 2015; Sibanyoni, 2014; Tuckey et al., 2012; Vanheule et al., 2008). Most people can adapt to mildly stressful events. However, it may be difficult or even impossible to adapt to highly stressful events, and already stressed people may be unable to adapt to even moderate stressors (Taylor, 2015). Personnel working in high risk professions are exposed to a range of severe stressors during their career (Binsch et al., 2017). It was concluded that security personnel working in a high stress environment are constantly exposed to stress as part of their working lives. This stress can be normal occupational stress such as staff shortages, inadequate or poor quality equipment or shift work. It can also be stress relating to an operational environment such as duty-related violence, intimidation or injury. This may have a negative impact on security personnel's wellbeing, and continued exposure to stress might lead to them no longer being able to cope effectively.

6.2.1.2 Research aim 2: To conceptualise the concept of coping by means of a comprehensive literature review

The second research aim, namely to conceptualise the concept of coping, was achieved in chapter 3. The following conclusions on coping were drawn:

There is a lot of debate surrounding the definition of coping (Dewe et al., 2012). The researcher therefore decided to define coping as "any active cognitive, emotional or

behavioural effort that is selectively applied in various combinations to master, reduce or tolerate the demands created by stress at the time". It was concluded that security personnel have to use a combination of either mastering, reducing or tolerating the stressful demands placed upon them on a daily basis. The main theme in the definitions of coping that were provided in chapter 3 are the efforts made by people to manage or master the demands placed upon them. Security personnel therefore make use of a variety of both healthy and unhealthy coping strategies. Hence coping has multiple functions (Folkman, 1982; Folkman & Moskowitz, 2000), including, but not limited to, the regulation of distress and the management of problems causing the distress (Folkman & Moskowitz, 2000).

Coping was further conceptualised using the theory of appraisal, as suggested by Lazarus (1993). In simple terms, appraisal is a process that mediates the demands of the environment, on the one hand, with the personal beliefs of the individual, on the other (Lazarus, 1993). Coping thus depends on the person's appraisal of whether anything can be done to change the situation (Folkman et al., 1987; Lazarus, 1993). From the evaluation of the appraisal theory, it was concluded that coping can be regarded as a dynamic process that changes over time (Carver & Connor-Smith, 2010; Stone & Neale, 1984). It was further concluded that no coping strategy can guarantee a successful outcome (Dewe et al., 2012; Folkman & Moskowitz, 2004; Stone & Neale, 1984; Weiten, 2014). The final conclusion drawn was that people can be educated about coping skills (Carr et al., 2011; Folkman & Moskowitz, 2004; George & Le Fevre, 2010; Sisley et al., 2010; Tennen et al., 2000).

6.2.1.3 Research aim 3: To conceptualise the concept of personality and the Big Five personality factors by means of a comprehensive literature review

The third research aim, namely to conceptualise the concept of personality and the Big Five personality factors, was achieved in chapter 3. The following conclusions about personality were drawn:

Allport (1937, p. 25) stated many years ago that "personality is one of the most abstract words in our language". He later suggested that "everyone seems to know what personality is, but that no one can describe it accurately" (Allport, 1961, p. 22).

Decades later there seems to be no universally accepted definition of personality (Bergh & Geldenhuys, 2016). For the purpose of this research, the researcher decided to formulate personality as “the relatively stable and unique characteristics of an individual that will determine how he or she adapts in different situations”. Because security personnel work towards the prevention of crime, they work in an ever-changing environment. They have to adapt to their environments on a daily basis as the actions of criminals cannot be predicted. The following three themes were apparent from the different definitions of personality provided in chapter 3: (1) it reflects on the uniqueness of a person, (2) it refers to characteristics or traits that are fairly stable over time, and (3) it determines a person’s thoughts, feelings and behaviour in different situations. It was concluded that personality can be used to interpret and understand a person’s behaviour (Hogan & Smither, 2008). It can therefore provide an estimation of the possible coping strategies being used by security personnel, as discussed in chapter 5 (section 5.9.3).

The influence of personality on coping is only partly understood (Richter et al., 2013). However, it can be concluded from past research that personality predicts important health outcomes (Iacobino et al., 2014), and personality traits are some of the strongest predictors of a person’s wellbeing (Pierce et al., 2016). It can further be concluded that personality can influence coping in the following two ways; (1) people have stable coping dispositions for dealing with stressful events, and (2) a person may be inclined to cope in a certain way when confronted with difficulty because of his or her personality characteristics (Magnano et al., 2017). It was finally concluded that coping may play an important role in the prevention of and recovery from mental disorders (Hengartner et al., 2017).

6.2.1.4 Research aim 4: To investigate the frameworks or models available to cope with stress within a high stress security environment

The fourth research aim, namely to investigate the frameworks or models available to cope with stress within a high stress security environment, was similarly achieved in chapter 2. The following conclusions on available models were drawn:

The wealth of different models of workplace stress indicate just how many viewpoints there are on occupational stress (Mark & Smith, 2008). The following four main themes were identified in the discussion of the models in chapter 2: (1) stress is a complex and dynamic process that changes over time; (2) there are both environmental and individual sources that can lead to stress; (3) there is a process of appraisal that influences how people cope with stress; and (4) stress leads to some type of a reaction, which has consequences for both the individual and the organisation. However, it was concluded that police work involves unique sources of stress and a variety of coping strategies to deal with their unique stressful circumstances (Anshel, 2000; Louw & Viviers, 2010). It was also concluded in section 2.5.1 that the work of security personnel in South Africa is closely intertwined with the work of police officers and military personnel (Minnaar, 2005; Schneider, 2013; Sibanyoni, 2014). Only a single model, namely the conceptual model for coping with police stress, as suggested by Anshel (2000), was identified in the literature search. It was concluded that the conceptual model for coping with police stress is the closest model to be applied more directly in a high stress security environment. This model was consequently used as the basis for developing the model for coping with stress in a high stress security environment.

The conclusions relating to the empirical study are now discussed.

6.2.2 Conclusions regarding the empirical study

This section focuses on the conclusions drawn relating to the empirical study.

6.2.2.1 Research aim 1: To develop a valid and reliable coping questionnaire that can be applied in a high stress security environment

The first research aim, namely to develop a valid and reliable coping questionnaire that can be applied in high stress security environments, was achieved in chapter 5, section 5.9.2.

The HRCQ is a 39-item self-report questionnaire that was developed to measure coping with stress within high stress security occupations. The questionnaire determines which coping strategies security personnel utilise in response to the daily stress they experience. The development of the questionnaire was based on a sample of 381 active duty security personnel working within a high stress security environment in South Africa.

The HRCQ has a solid psychometric foundation. Firstly, it was developed deductively after conducting a thorough literature review that served as the foundation for developing the coping constructs (chapter 3, sections 3.5 and 3.6). Secondly, content validity was determined by means of a panel of expert reviewers and a cognitive interview/pilot study (chapter 4, sections 4.4.4.1 and 4.4.4.2). The HRCQ was further subjected to EFA, which provided empirical support for the constructs (chapter 5, section 5.5.1). This was followed by CFA, including average variance extracted, composite reliability and goodness-of-fit criteria to test how well the model fitted the theory (chapter 5, section 5.5.2). Lastly, the questionnaire was subjected to invariance testing (chapter 5, section 5.5.3).

It can be concluded from the preceding discussion that there is empirical support for the HRCQ and it can be regarded as a valid and reliable questionnaire to be applied in high stress security environments. The HRCQ can also be applied to different groups because it is invariant.

6.2.2.2 Research aim 2: To correlate the High Risk Coping Questionnaire with the Basic Traits Inventory to determine whether there is an interrelationship between coping strategies and the Big Five personality factors, including its facets

The second research aim, namely to correlate the High Risk Coping Questionnaire (HRCQ) with the Basic Traits Inventory (BTI) to determine whether there is an interrelationship between coping strategies and the Big Five personality factors, including its facets, was achieved in chapter 5, section 5.9.3. The empirical results provided supportive evidence for research hypotheses H01 to H05.

The following conclusions were drawn about Pearson's linear correlations between coping strategies and the Big Five personality factors, including its facets:

- Various small to medium effect, and medium effect significant correlations were identified and discussed in section 5.9.3.
- A higher score on the extraversion facets could lead to the use of both healthy and unhealthy coping strategies.
- Higher neuroticism could lead to unhealthy coping strategies and the person ultimately not coping effectively.
- Higher conscientiousness will lead to more effective ways of coping with stress.
- People with a higher openness to experience will endeavour to manage stress by trying different approaches to deal with it.
- People with a higher agreeableness may tend to seek social interaction as a means of coping with stress.

Final conclusion: Personality is related to coping and can therefore influence a person's coping ability. This implies that a security employee's personality can influence the effectiveness of his or her coping ability within a high stress security environment.

6.2.2.3 Research aim 3: To develop a stress management model based on confirmatory factor analysis and canonical correlation analysis to assist organisations and individuals to manage stress more effectively

The third research aim, namely to develop a stress management model based on confirmatory factor analysis and canonical correlation analysis to assist organisations and individuals to manage stress more effectively, was achieved in chapter 5. The empirical results provided supportive evidence for research hypothesis H06.

Based on the results discussed in chapter 5 (sections 5.9.2 and 5.9.4) and the conclusions drawn in section 6.2.2, a model for coping with stress within a high stress security environment is provided in Figure 6.1 and briefly discussed in the section below. The model presented also includes the theory related to stressors, positive outcomes and negative consequences of coping. These constructs were not empirically tested, but derived from theory, as discussed in chapter 3, section 3.10 (a proposed conceptual model for dealing with stress in a high stress security environment).

The model firstly outlines theoretically derived stressors that can be appraised as harmless (no stress), harmful, threatening or challenging. If a stressor is appraised as either harmful, threatening or challenging, a security employee will either utilise healthy or unhealthy coping strategies, or a combination of both, to cope with his or her stress. The following nine empirically validated healthy coping strategies were determined: (1) training, (2) physical exercise, (3) social support, (4) group cohesion, (5) humour, (6) healthy sleeping habits, (7) healthy diet, (8) religion and (9) relaxation. Three empirically validated unhealthy coping strategies were also determined: (1) avoidance (the use of alcohol and medication and the transference of emotions to a substitute object), (2) denial and (3) social media addiction.

The results revealed that security employees endorsed training, religion, physical exercise and relaxation the highest as their preferred coping strategies. They similarly endorsed denial and avoidance (negative loading) high, meaning that they will not deny having stress or avoid dealing with their stress.

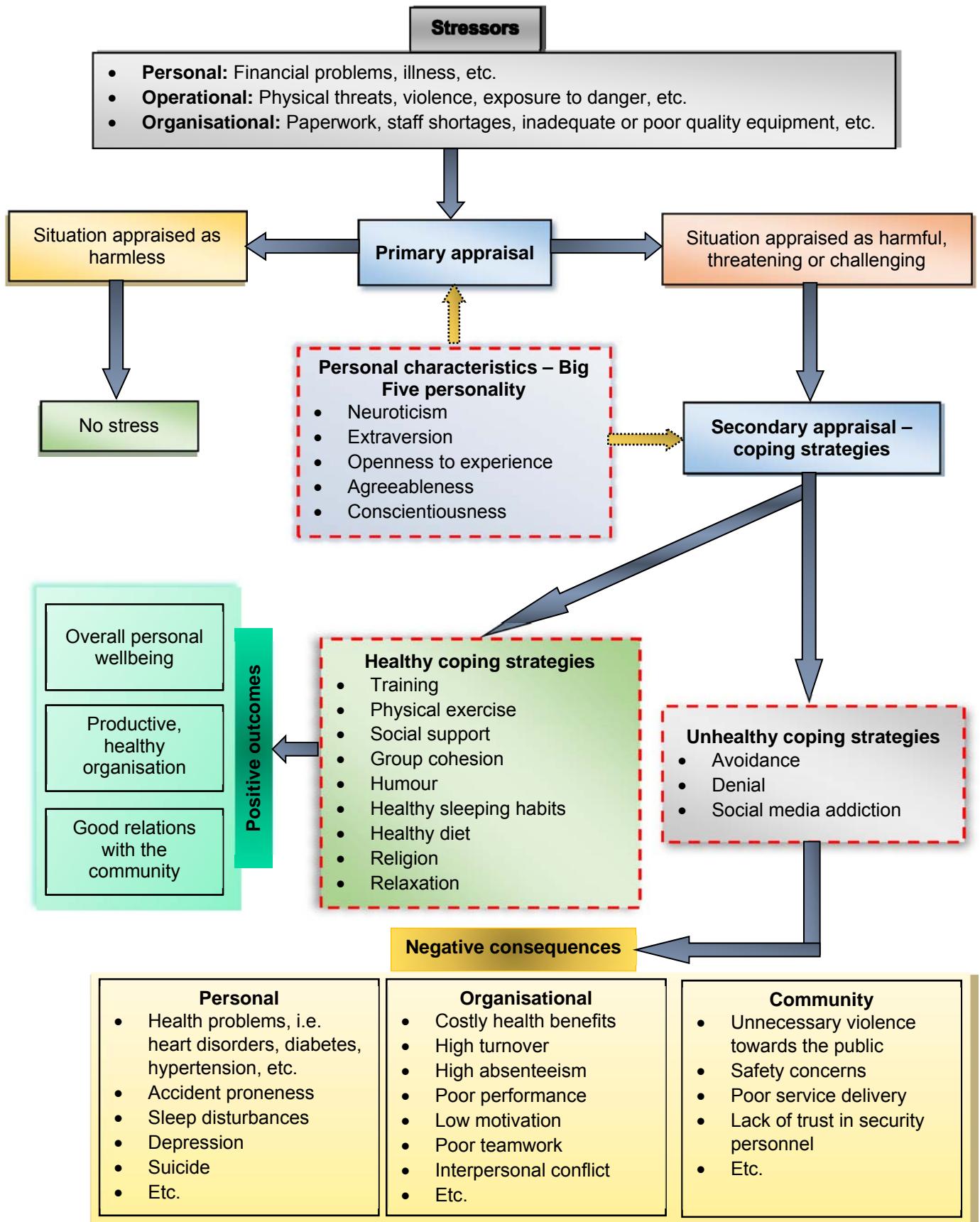


Figure 6.1. A model for coping with stress in a high stress security environment

Notes on figure 6.1:

- | | |
|--|--|
| | Constructs measured |
| | Moderating effect on appraisal and coping strategies |
| | Constructs not measured |

Figure 6.2 indicates the interrelationships between the Big Five personality factors and coping strategies as determined by the canonical correlation analysis. The results of this analysis suggested that personality, in particular neuroticism, openness to experience, agreeableness and conscientiousness all contributed fundamentally to the use of either avoidance as an unhealthy coping strategy, or training, physical exercise, healthy sleeping habits, religion and relaxation as healthy coping strategies.

The model concludes (based on the literature review), that healthy coping will lead to overall personal wellbeing, a productive healthy organisation and good relations with the greater community. However, if the security employee uses unhealthy coping strategies, the consequences will be mostly negative.

Based on the discussion, it can be concluded that security employees uses a combination of healthy and unhealthy coping strategies. It can further be concluded that personality will have a moderating effect of the coping strategy being used to deal with stress in a high stress security environment.

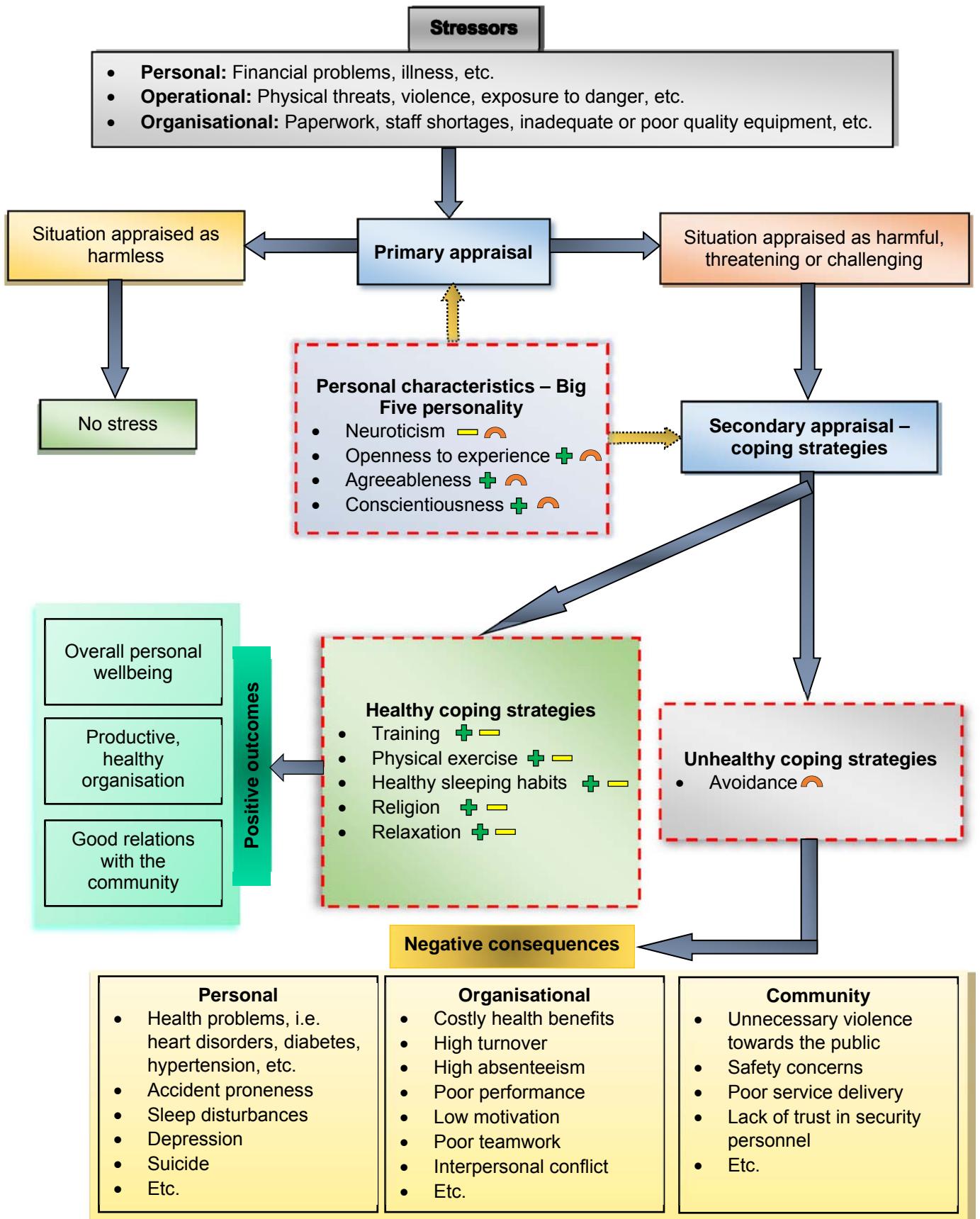


Figure 6.2. An integrated theoretical and empirical model for coping with stress in a high stress security environment indicating the relationships between personality and coping

Notes on figure 6.2:

	Constructs measured
	Moderating effect on appraisal and coping strategies
	Indicates a positive correlation
	Indicates a negative correlation with healthy coping strategies
	Indicates a negative correlation with unhealthy coping strategies
	Constructs not measured

- Only medium effect and large effect significant relationships (correlations) between personality and coping strategies from the canonical correlation analysis are indicated.
- The personality characteristic, neuroticism, correlated negatively with the unhealthy coping strategy avoidance. Neuroticism also correlated negatively with the healthy coping strategies training, physical exercise, healthy sleeping habits, religion and relaxation.
- The personality characteristics, openness to experience, agreeableness and conscientiousness all correlated negatively with the unhealthy coping strategy avoidance.
- The personality characteristics openness to experience, agreeableness and conscientiousness correlated positively with training, physical exercise, healthy sleeping habits, religion and relaxation.

6.2.2.4 *Research aim 4: To contribute to the knowledge of coping with stress within a high stress security environment*

The fourth research aim, namely to contribute to the knowledge of coping with stress within a high stress security environment, was achieved in chapter 5, sections 5.9.2 to 5.9.5.

It was concluded that the empirical results provided support for a valid and reliable coping questionnaire, as discussed in section 6.2.2.1, and a model for coping with stress that can be applied within high stress security environments, as discussed in section 6.2.2.3.

Secondly, it can be concluded that security personnel prefer to make use of family and friends as a source of social support, and not their colleagues.

A third conclusion was that security personnel may have a tendency to use more force to apprehend suspects when they are stressed.

The final conclusion was that personality may influence security personnel's choice of coping strategies.

6.2.2.5 Conclusions regarding the hypotheses

The conclusions relating to the central hypothesis (chapter 1) and other hypotheses formulated in chapter 4 are now discussed.

a Central hypothesis

In chapter 1, the central hypothesis of the research stated that a valid and reliable coping questionnaire for people working within high stress security occupations can be developed. A stress management model can subsequently be proposed.

The empirical study provided evidence to support the central hypothesis.

b Hypothesis 1

This hypothesis was discussed in section 5.9.3 and summarised in section 6.2.2.2. The discussion provided some support for the hypothesis, and it was therefore partially accepted (Hypothesis **H01**: There are statistically significant interrelationships between the extraversion personality factor and coping strategies).

c Hypothesis 2

This hypothesis was discussed in section 5.9.3 and summarised in section 6.2.2.2. The discussion provided some support for the hypothesis, and it was therefore partially

accepted (Hypothesis **H02**: There are statistically significant interrelationships between the neuroticism personality factor and coping strategies).

d Hypothesis 3

This hypothesis was discussed in section 5.9.3 and summarised in section 6.2.2.2. The conscientiousness personality factor had the most overall positive and negative correlations with coping strategies, and the hypothesis was therefore accepted (Hypothesis **H03**: There are statistically significant interrelationships between the conscientiousness personality factor and coping strategies).

e Hypothesis 4

This hypothesis was discussed in section 5.9.3 and summarised in section 6.2.2.2. The discussion provided some support for the hypothesis, and it was therefore partially accepted (Hypothesis **H04**: There are statistically significant interrelationships between the openness to experience personality factor and coping strategies).

f Hypothesis 5

This hypothesis was discussed in section 5.9.3 and summarised in section 6.2.2.2. The discussion provided some support for the hypothesis, and it was therefore partially accepted (Hypothesis **H05**: There are statistically significant interrelationships between the agreeableness personality factor and coping strategies).

g Hypothesis 6

This hypothesis was discussed in section 5.9.4 and integrated in section 6.2.2.3. The discussion provided some support for the hypothesis and was therefore partially accepted (Hypothesis **H06**: There is a statistically significant interrelationship between coping strategies as a composite set of dependent variables and the Big Five personality factors as a composite set of latent independent variables).

The limitations of the research are now discussed.

6.3 LIMITATIONS

The limitations of the literature review and the empirical study are highlighted in this section.

6.3.1 Limitations of the literature review

The following limitations were encountered in conducting the literature review:

- Theorists have different views on the meaning of the concepts of stress, coping and personality, leaving the understanding of these concepts open to interpretation.
- The sources of stress and coping were mostly of an international origin and hardly any South African research could be found on the security industry. The majority of research that was found dealt mostly with the security guard profession and not challenges such as coping with work stress. This research was thus conducted by including literature on police and military stress and coping.
- There was also a scarcity of literature on cash-in-transit, armed response and VIP protection. This made it difficult for the researcher to gain a comprehensive understanding of the stress experienced in these occupations.
- Even though there were many models of stress and coping, only a single model of coping with stress in an operational type of environment could be found. This was an international model and not based on the South African security industry, but a conceptual model for coping with police stress in the USA. The model could thus not be directly applied to the research group.
- There was a lack of literature on personality and coping with stress in a security environment. Research on personality traits and coping strategies among police and military members, as well as generic information on personality and coping, were therefore included in the literature review.

6.3.2 Limitations of the empirical study

The following limitations were encountered in the empirical study:

- The majority of respondents were security guards (88.2%) and black South Africans (94.7%), with only a single Indian (0.3%), a single coloured (0.3%) and 18 (4.7%) white respondents. It would have been preferable to have included a more equal distribution in terms of race and different occupational groups.
- An adequate sample comprising active duty security personnel ($n = 381$) was included in the research for statistical analysis. Since the security industry in South Africa is the third largest employer in the country (Schneider, 2011), a larger sample would have been preferable in order to generalise the results in the industry.
- Both questionnaires, the HRCQ and BTI, are self-report questionnaires. According to Mouton (1996), respondents may provide answers that make them appear well adjusted, unprejudiced, rational and open minded. A self-report questionnaire is thus only as accurate as the level of honesty with which the respondent completes the questionnaire (Gravetter & Forzano, 2012; Sabbagh, 2016). A problem with personality questionnaires is that respondents may answer in a socially desirable way, which is according to their own preferences or the way they think other people would like them to answer (Bergh & Geldenhuys, 2016). Respondents may also be unwilling or unable to reveal characteristics or feelings about themselves (Sabbagh, 2016).
- The average variance extracted (AVE) scores for all of the constructs were not above the recommended threshold of ≥ 0.50 . Even though these scores were fairly close (between 0.402 and 0.439), it would have provided for a statistically stronger argument of the HRCQ if all these scores had been equal or higher than the recommended threshold.
- No scalar invariance of the HRCQ could be achieved, implying that culture may have influenced the answers provided at an item level. Further research could include the effect of culture in coping responses.

The next section focuses on recommendations for the security industry and the field of industrial and organisational psychology, as well as suggestions for possible future research.

6.4 RECOMMENDATIONS

Based on the research findings, conclusions and limitations of this study, the following recommendations were formulated for the security industry, industrial and organisational psychologists, as well as possible future research.

6.4.1 Recommendations for the security industry

Singh (2005) stated as early as 2005 that the private security sector has significant staff turnover. Based on the results of this research, the following recommendations were formulated for the security industry, which could impact on staff turnover:

- The results indicated that there may be a lack of trust among security personnel. It is recommended that the possible reasons for distrust among members be explored, as distrust may impact negatively on performance, interpersonal relations and even the physical safety of personnel. According to Taylor (2015), trust can help people to recover from bad experiences. Distrust could therefore lead to higher levels of staff turnover.
- It is also recommended that personality assessment be included as part of the selection process, as personality can influence coping and the overall wellbeing of security personnel. Research indicates that personality traits are some of the strongest predictors of wellbeing and can affect job performance, work attendance and decision making (Pierce et al., 2016).
- Stress management training should be provided on a continuous basis, as this will create a healthier workforce. A coping questionnaire, like the HRCQ, could help to determine coping strategies. The information could then be used for self-development and give security personnel an indication of whether it is necessary for them to change their coping efforts in order to be healthier.
- The results of this research provided solid evidence that training, defined as “having positive expectations about one’s own capabilities to effectively deal with work related problems”, is used as a healthy coping strategy. It is therefore suggested that security organisations ensure that security personnel are well

trained in dealing with various types of situations in their work, including dealing with threatening situations.

6.4.2 Recommendations for industrial and organisational psychologists

The following recommendations were formulated for industrial and organisational psychologists, especially those working in a security environment:

- Personality assessment should form part of the selection process of security personnel.
- It is also recommended that a coping questionnaire be used to identify which coping strategies security personnel use. This can assist in identifying targeted interventions.

6.4.3 Recommendations for future research

The following recommendations were formulated for future research:

- One of the limitations of this study was that no scalar invariance could be achieved. A possible explanation for this could be cultural differences. Because South Africa is a country with various cultural groups, it is suggested that the effect of culture on the choice of coping strategy be explored.
- A second limitation of this study was that there was an unequal number of respondents across the different occupational groupings. This made it impossible to determine whether the different occupational groups used different coping strategies. It is thus recommended that an equal number of respondents in different occupational groups in the security industry (i.e. cash-in-transit guards, armed response officers and VIP protectors) be included, in order to draw comparisons between these groups. This could ultimately allow for more focused stress management interventions.
- A third limitation was that not all the constructs on the HRCQ have an average variance extracted (AVE) score that falls above the recommended threshold of ≥ 0.50 . It is thus suggested that items be revised or alternative items be included in

these specific constructs to ensure that all constructs fall within the recommended AVE range.

- The results indicated that there may be a lack of trust among security personnel working in security organisations in South Africa. It is suggested that the possible reasons for distrust among members in the security environment be explored, as distrust may impact on group cohesion, social support, safety of team members and overall job performance.
- The results also indicated that personality could be a strong predictor for the use of either healthy or unhealthy coping strategies. It is suggested that an ideal personality profile for personnel working in a high stress security environment be developed.
- Only personality and coping were empirically tested in the recommended model for coping with stress in a high stress security environment. A suggestion would be to conduct further research on the specific stressors in a security environment, as well as organisational and personal stressors. The consequences of coping, or not coping, could also be researched. This information could then be scientifically tested and included in the recommended model to provide an overall empirically validated model for coping with stress within a high stress security environment.

The contributions of this research are now discussed.

6.5 EVALUATION OF THE RESEARCH

The general aim of the research was to develop a model for effective stress management in high stress security occupations. A valid and reliable questionnaire was consequently developed that security organisations could use as a screening instrument to determine how people cope with or manage stress in high stress security occupations. The findings provided support for a psychometrically sound questionnaire and a model for managing stress.

The general aim was achieved and this research makes a contribution at three different levels to the field of industrial and organisational psychology, namely at a theoretical, empirical and practical level.

6.5.1 Contribution at a theoretical level

At a theoretical level, the following contributions were made:

- The constructs of stress, coping and personality were conceptualised and defined from an industrial and organisational psychology perspective. No definitions of coping and personality relating to a high stress security environment could be found in literature. The researcher ultimately formulated a definition of coping and personality that could be applied in this environment. These definitions can provide a common understanding of the concepts personality and coping, especially for industrial and organisational psychologists working in a security environment.
- The findings of this study provided insight into the interrelatedness between the Big Five personality factors and various coping strategies. No research on personality and coping could be found within the security environment in South Africa. This can help to improve assessment practices for industrial and organisational psychologists.
- The literature review and empirical results highlighted nine healthy and three unhealthy coping strategies used by security personnel to deal with their stress. No research on coping strategies could be found within the security environment in South Africa. This can improve training interventions, i.e. stress management, and accordingly the overall wellbeing of security personnel.
- Additional research findings indicated that security personnel prefer to use family and friends as a source of social support, rather than their colleagues. The findings also suggested that security personnel might revert to using more force to stop a suspect when they feel stressed. These findings could be used to educate security personnel on the value of using friends and family to assist them in dealing with their stress. Security organisations can also create an awareness that stress can lead to more violence, leading to negative consequences for both security personnel and their employer.

6.5.2 Contribution at an empirical and practical level

At an empirical and practical level, the following contributions were made:

- An empirically tested model for coping with stress in a high stress security environment was provided, indicating the relationship between personality and coping. This is potentially ground-breaking research because no existing study on the relationship between personality and coping could be found in the security industry in South Africa. The model could serve as a framework for industrial and organisational psychologists to understand (1) the coping strategies used by security personnel, and (2) the role of personality as a moderator in the appraisal of stress and selection of coping strategies.
- The model also adds to existing knowledge in the sense that in the selection of security personnel, personality assessment could be used to identify candidates with personality traits that would lead to healthier coping strategies, thereby selecting personnel who could adjust better in a security environment.
- Another contribution was the development of a valid and reliable questionnaire to determine which coping strategies security personnel use to deal with their high levels of stress. Similarly, no such questionnaire could be found in the security industry in South Africa. Hence industrial and organisational psychologists could use this questionnaire with confidence to gather reliable and valid information about the coping strategies that security personnel use. By identifying their coping strategies, interventions could be developed to address specific issues such as stress management training and therapy or rehabilitation for alcohol and drug misuse.
- The coping questionnaire could also be used after a traumatic incident to determine whether employees are still making use of effective coping strategies to deal with the incident.
- The results also provided support for invariance across different groups. This implies that industrial and organisational psychologists could apply the HRCQ to both genders as well as security personnel of different age groups and with different periods of service.

6.6 CHAPTER SUMMARY

This chapter provided a summary of the conclusions, limitations and recommendations of the research. The conclusions pertaining to the literature review, empirical study and contributions for industrial and organisational psychologists were highlighted. This was followed by a discussion of the limitations of the research in terms of both the literature review and the empirical study. Recommendations were made for the security industry, industrial and organisational psychologists and for possible future research.

The following empirical research aims were achieved in this chapter:

Research aim 3: To develop a stress management model based on confirmatory factor analysis and canonical correlation analysis to assist organisations and individuals to manage stress more effectively

Research aim 5: To make recommendations for the field of industrial and organisational psychology on further research within the sphere of coping with stress

This chapter concludes the research study.

REFERENCES

- Adams, G. A., & Buck, J. (2010). Social stressors and strain among police officers: It's not just the bad guys. *Criminal Justice and Behavior, 37*(9), 1030–1040. doi: 10.1177/0093854810374282
- Alkenani, A., & Yu, K. (2013). A comparative study for robust canonical correlation methods. *Journal of Statistical Computation and Simulation, 83*(4), 692–720. doi: 10.1080/00949655.2011.632775
- Allport, G. W. (1937). *Personality: A psychological interpretation*. New York, NY: Holt, Rinehart & Winston.
- Allport, G. W. (1961). *Pattern and growth in personality*. New York, NY: Holt, Rinehart & Winston.
- Allport, G. W., & Odbert, H. S. (1936). Trait names. *Psychological Monographs: A Psycho-lexical Study, 47*(211).
- Amirkhan, J. H. (1990). A factor analytically derived measure of coping: The Coping Strategy Indicator. *Journal of Personality and Social Psychology, 59*(5), 1066–1074.
- Andruškienė, J., Kuzmienė, A., Martinkėnas, A., Jurgutis, A., Ejlertsson, G., & Andersson, I. (2016). Psychosocial work experiences related to health: A study of Lithuanian hospital employees. *WORK: A Journal of Prevention, Assessment and Rehabilitation, 53*, 669–677. doi: 10.3233/WOR-152171
- Anshel, M. H. (2000). A conceptual model and implications for coping with stressful events in police work. *Criminal Justice and Behavior, 27*(3), 375–400.
- Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion. *Health Promotion International, 11*(1), 11–18.

Arbuckle, J. L. (2011). *IBM SPSS Amos 20 user's guide*. Armonk, NY: Amos Development Corporation, IBM.

Association of Test Publishers. (2017). Final judgement of the court case between the Association of Test Publishers and the President of South Africa. Retrieved June 07, 2017, from <http://atp.org.za/wp-content/uploads/2017/05/ATP-Press-Release-on-Final-Judgement-ATP-vs-The-President-and-Others.-4-May-2017.pdf>

Awang, Z. (2012). *A handbook on SEM* (2nd ed.). Chapter 3: Validating the measurement model; CFA (pp. 54–73. Retrieved August 3, 2018, from file:///C:/Users/User/Downloads/7Chapter3AnalyzingtheMeasurementModel.pdf

Babbie, E. (2014). *The basics of social research* (6th ed.). Belmont, CA: Wadsworth, Cengage Learning.

Bagshawe, P. (2016). Latest crime stats unpacked. *Security Focus Africa*, 34(9), 24, 26.

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources Model: State of the art. *Journal of Managerial Psychology*, 22(3), 309–328. <http://dx.doi.org/10.1108/02683940710733115>

Balcar, K., Trnka R., & Kuška, M. (2011). How many ways to deal with stress? Stress coping factors in the SVF 78. *Activitas Nervosa Superior*, 53(1–2), 27–34.

Barry, A. E., Chaney, E. H., Stellefson, M. L., & Chaney, J. D. (2011). So you want to develop a survey: Practical recommendations for scale development. *American Journal of Health Studies*, 26(2), 97–105.

Bartone, P. T., Kelly, D. R., & Matthews, M. D. (2013). Psychological hardiness predicts adaptability in military leaders: A prospective study. *International Journal of Selection and Assessment*, 21(2), 200–210.

Beheshtifar, M., & Nazarian, R. (2013). Role of occupational stress in organizations. *Interdisciplinary Journal of Contemporary Research in Business*, 4(9), 648–657.

Bergh, Z., & Geldenhuys, D. (Eds.). (2016). *Psychology in the work context* (5th ed.) Cape Town, South Africa: Oxford University Press.

Berndtsson, J. (2012). Security professionals for hire: Exploring the many faces of private security expertise. *Millennium: Journal of International Studies*, 40(2), 303–320. doi: 10.1177/0305829811425635

Berndtsson, J. (2013). Exploring PSC–military relations: Swedish officers and the private security sector in peace operations. *Cooperation and Conflict*, 48(4), 484–501. doi: 10.1177/0010836713482554

Bialosiewicz, S., Murphy, K., & Berry, T. (2013). *An introduction to measurement invariance testing: Resource packet for participants*. Claremont Graduate University. Retrieved September 6, 2018, from <http://comm.eval.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=63758fed-a490-3f2-8862-2de0217a08b8>

Billings, A. G., & Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. *Journal of Behavioral Medicine*, 4(2), 139–157.

Binsch, O., Van Wietmarschen, H., & Buick, F. (2017). Relationships between cortisol, optimism, and perseverance measured in two military settings. *Military Psychology*, 29(2), 99–116. <http://dx.doi.org/10.1037/mil0000146>

Bogg, T., & Roberts, B. W. (2013). The case for conscientiousness: Evidence and implications for a personality trait marker of health and longevity. *Annals of Behavioral Medicine*, 45, 278–288. doi: 10.1007/s12160-012-9454-6

Bohrer, D. (2002). *America's Special Forces*. China: MBI.

Buhler, C. (1971). Basic theoretical concepts of humanistic psychology. *American Psychologist*, 26, 378–386. <https://doi.org/10.1037/h0032049>.

Cannon, B. (1994). Walter Bradford Cannon: Reflections on the man and his contributions. *International Journal of Stress Management*, 1(2), 145–158.

Caplan, R. D., & Jones, K. W. (1975). Effects of work load, role ambiguity, and Type-A personality on anxiety, depression, and heart rate. *Journal of Applied Psychology*, 60(6), 713–719.

CareerCast.com (2016). *The most stressful jobs of 2016*. Retrieved February 10, 2016, from <http://www.careercast.com/jobs-rated/most-stressful-jobs-2016>

Carr, J., Kelley, B., Keaton, R., & Albrecht, C. (2011). Getting to grips with stress in the workplace. *Human Resource Management International Digest*, 19(4), 32–38. doi: 10.1108/09670731111140748

Carver, C. S. (2013). *COPE Inventory, measurement instrument database for the Social Science*. Retrieved June 29, 2016, from http://www.midss.org/sites/default/files/_cope.pdf

Carver, C. S., & Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology*, 61, 679–704. doi: 10.1146/annurev.psych.093008.100352

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: a theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267–283.

Cattell, H. E. P., & Mead, A. D. (2008). The Sixteen Personality Factor Questionnaire (16PF). In G. J. Boyle, G. Matthews, & D. H. Saklofske (Eds.). *The SAGE handbook of personality theory and assessment: Personality measurement and testing* (vol. 2, pp. 135–159). Retrieved March, 22, 2017 from <http://www.central.rcs.k12.tn.us/Teachers/cowartg/documents/16PFCattell.pdf>

Cattell, R. B. (1945). The description of personality: Principles and findings in a factor analysis. *American Journal of Psychology*, 58(1), 69–90.

Cattell, R. B. (1950). *Personality: A systematic theoretical and factual study*. New York, NY: McGraw-Hill.

Charlesworth, E. A., & Nathan, R. G. (1985). *Stress management: A comprehensive guide to wellness*. New York, NY: Ballantine Books.

Chawane, G. (2015, 13 November). Security officer shot dead in line of duty. *Centurion Rekord*, p. 2.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 9(2), 233–255.

Childs, M. (2010). *Learners' experience of presence in virtual worlds*. Unpublished doctoral thesis, University of Warwick, Coventry, UK.

Coetzee, M., & Schreuder, D. (2013). *Personnel psychology: An applied perspective*. Cape Town, South Africa: Oxford University Press.

Colman, A. M. (2009). *Oxford dictionary of psychology* (3rd ed.). New York, NY: Oxford University Press.

Cooper, D. R., & Schindler, P. S. (2014). *Business research methods* (12th ed.). New York, NY: McGraw Hill.

Costa, P. T. Jr, McCrae, R. R., & Dye, D. A. (1991). Facet scales for agreeableness and conscientiousness: A revision of the NEO Personality Inventory. *Personality and Individual Differences*, 12(9), 887–898.

Cronbach, L. J. (1947). Test "reliability": Its meaning and determination. *Psychometrika*, 12(1), 1–16.

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52(4), 281–302.

Cudeck, R., & Browne, M. W. (1983). Cross-validation of covariance structures. *Multivariate Behavioral Research*, 18(2), 147–167. doi: 10.1207/s15327906mbr1802_2

Cummings, T. G., & Worley, C. G. (2015). *Organizational development and change* (10th ed.). Stamford, CT: South-Western Cengage Learning.

Davy, J. (2014). Good sleep, good health, good performance. It's obvious, or is it? The importance of education programmes in general fatigue management. *Ergonomics SA*, 26(1), 64–73.

De Beer, M., & Van Heerden, A. (2014). Exploring the role of motivational and coping resources in a Special Forces selection process. *SA Journal of Industrial Psychology*, 40(1), 13 pages. <http://dx.doi.org/10.4102/sajip.v40i1.1165>

Delahaij, R., Gaillard, A. W. K., & Soeters, J. M. L. M. (2006). Stress training and the new military environment. *Human Dimensions in Military Operations; Military Leaders' Strategies for Addressing Stress and Psychological Support*, 17A-1–17A-10.

Department of Safety and Security. (2003). Code of conduct prescribed under the Private Security Industry Regulation Act. *Government Gazette* (Act 56 of 2001). Retrieved March 14, 2017, from http://www.psira.co.za/psira/dmdocuments/Code%20of%20Conduct/2014_Code_of_Conduct.pdf

Department of Trade and Industry. (2016). Draft regulations for the training of security service provider. *Government Gazette* (No. 40091). Retrieved May 15, 2017, from <http://www.psira.co.za/psira/images/Circulars/Published%20Training%20Draft%20Regulations.24%20June%202016.pdf>

DeVellis, R. F. (2003). *Scale development: Theory and applications* (2nd ed.). Thousand Oaks, CA: Sage.

Dewe, P. J., O'Driscoll, M. P., & Cooper, C.L. (2012). Theories of psychological stress at work. In R. J. Gatchel, & I. Z. Schultz (Eds.). *Handbook of occupational health and wellness* (pp. 23–38). Retrieved April 13, 2017, from file:///C:/Users/User/Downloads/9781461448389-c1.pdf

Diphoorn, T. (2015). "It's all about the body": The bodily capital of armed response officers in South Africa. *Medical Anthropology*, 34(4), 336–352. doi: 10.1080/01459740.2015.1027342

Dolan, C. A., & Adler, A. B. (2008). Military hardiness as a buffer of psychological health on return from deployment. *Journal of Special Operations Medicine*, 8(4), 110–115.

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087–1101. doi: 10.1037/0022-3514.92.6.1087

Du Preez, J., Sundin, J., Wessely, S., & Fear, N. T. (2012). Unit cohesion and mental health in the UK armed forces. *Occupational Medicine*, 62, 47–53. doi: 10.1093/occmed/kqr151

Du Toit, P. J., Krüger, P. E., Govender, C., Lawson, J., Kleynhans, M., Grobbelaar, C., Terblanche, H. C., Wood, P. S., Grant, C. C., & Hay, L. (2012, March). Initial assessment of wellbeing in South African armed services. *African Journal for Physical, Health Education, Recreation and Dance*, 144–158.

Du Toit, W. (2015). *Judasbok: Verraad ter wille van oorlewing (Judas Goat: Betrayal for the sake of survival)*. Roodepoort, Suid-Afrika: Groep 7.

Duxbury, L., Higgins, C., & Halinski, M. (2015). Identifying the antecedents of work-role overload in police organizations. *Criminal Justice and Behavior*, 42(4), 361–381. doi: 10.1177/0093854814551017

Ebstrup, J. F., Eplov, L. F., Pisinger, C., & Jørgensen, T. (2011). Association between the Five Factor personality traits and perceived stress: Is the effect mediated by general self-efficacy? *Anxiety, Stress, and Coping*, 24(4), 407–419. doi: 10.1080/10615806.2010.540012

Elkins, D. N. (2009). Why humanistic psychology lost its power and influence in American psychology: Implications for advancing humanistic psychology. *Journal of Humanistic Psychology*, 49(3), 267–291. <https://doi.org/10.1177/0022167808323575>.

Endler, N. S., & Parker, J. D. A. (1990). Multidimensional assessment of coping: A critical evaluation. *Journal of Personality and Social Psychology*, 58(5), 844–854.

Eysenck, H. J. (1970). *The structure of human personality* (3rd, ed.). London: Methuen.

Eysenck, H. J. (1991). Dimensions of personality: 16, 5 or 3? Criteria for a taxonomic paradigm. *Personality and Individual Differences*, 12(8), 773–790.

Eysenck, H. J. (1992). Four ways five factors are not basic. *Personality and Individual Differences*, 13(6), 667–673.

Eysenck, H. J., & Eysenck, M. W. (1985). *Personality and individual differences*. New York, NY: Plenum Press.

Fick, L. J. (2016). *Personality at Work: Technical manual* (4th ed.). Johannesburg, South Africa: Integrity International.

- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: Sage.
- Fodor, D. P., Antoni, C. H., & Wiedemann, A. U. (2014). Healthy eating at different risk levels for job stress: Testing a moderated mediation. *Journal of Occupational Health Psychology*, 19(2), 259–267. doi: 10.1037/a0036267
- Folkman, S. (1982). An approach to the measurement of coping. *Journal of Occupational Behaviour*, 3, 95–107.
- Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behaviour*, 21, 219–239.
- Folkman, S., & Lazarus, R. S. (1988). *Ways of Coping Questionnaire: Test booklet and scoring key* (Research ed.). Redwood City, CA: Consulting Psychologists Press, 1–6. Retrieved June 29, 2016, from file:///C:/Users/User/Downloads/Attachment%2024%20Ways%20of%20Coping%20Questionnaire.pdf
- Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist*, 55(6), 647–654. doi: 10.1037//0003-066X.55.6.647
- Folkman, S., & Moskowitz, J. T (2004). Coping: Pitfalls and promise. *Annual Reviews Psychology*, 55, 745–774. doi: 10.1146/annurev.psych.55.090902.141456
- Folkman, S., Lazarus, R. S., Pimley, S., & Novacek, J. (1987). Age differences in stress and coping processes. *Psychology and Aging*, 2(2), 171–184.
- Francis, L. J., Craig, C. J., & Robbins, M. (2008). The relationship between the Keirsey Temperament Sorter and the short-form revised Eysenck Personality Questionnaire. *Journal of Individual Differences*, 29(2), 116–120. doi: 10.1027/1614-0001.29.2.116
- Gabrenya, W. K. Jr. (2003). *Theories and models in psychology*. Retrieved April 26, 2017 from <http://my.fit.edu/~gabrenya/IntroMethods/eBook/theories.pdf>

Gartland, N., O'Connor, D. B., & Lawton, R. (2012). The effects of conscientiousness on the appraisals of daily stressors. *Stress and Health*, 28, 80–86. doi: 10.1002/smj.1404

George, C., & Le Fevre, M. (2010). Stress management practice: Is it effective? *New Zealand Journal of Employment Relations*, 35(2), 97–118.

Gershon, R. R. M., Barocas, B., Canton, A. N., Li, X., & Vlahov, D. (2009). Mental, physical, and behavioral outcomes associated with perceived work stress in police officers. *Criminal Justice and Behavior*, 36(3), 275–289. doi: 10.1177/0093854808330015

Giesen, D., Meertens, V., Vis-Visschers, R., & Beukenhorst, D. (2012). *Questionnaire development*. The Hague, Netherlands: Statistics Netherlands.

Gloria, C. T., & Steinhardt, M. A. (2016). Relationships among positive emotions, coping, resilience and mental health. *Stress and Health*, 32, 145–156. doi: 10.1002 /smi.2589

Goldberg, L. R. (1990). An alternative “description of personality”: The big-five factor structure. *Journal of Personality and Social Psychology*, 59(6), 1216–1229.

Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist*, 48(1), 26–34.

Govender, S. A. (2008). *The relationship between personality and coping amongst members of the South African Police Service*. Unpublished master's dissertation, University of Johannesburg, Johannesburg, South Africa.

Gravetter, F. J., & Forzano, L. B. (2012). *Research methods for the behavioural sciences* (5th ed.). Boston, MA: Cengage Learning.

Greenberg, J. (2011). *Behavior in organizations* (10th ed.). London: Pearson Education.

Greenberg, J., & Baron, R. A. (1993). *Behavior in organizations* (4th ed.). Boston, MA: Allyn & Bacon.

Greiff, S., & Scherer, R. (2018). Editorial: Still comparing apples with oranges? Some thoughts on the principles and practices of measurement invariance testing. *European Journal of Psychological Assessment*, 34(3), 141–144. <https://doi.org/10.1027/1015-5759/a000487>

Grivas, J. (2006). *Oxford psychology study dictionary* (2nd ed.). South Melbourne, Australia: Oxford University Press.

Gruber, K. A., Kilcullen, R. N., & Iso-Ahola, S. E. (2009). Effects of psychosocial resources on elite soldiers' completion of a demanding military selection program. *Military Psychology*, 21, 427–444. doi: 10.1080/08995600903206354

Gumani, A. M. (2012). *A grounded theory of critical incidents impact management among SAPS officers in the Vhembe district, Limpopo province*. Unpublished doctoral thesis, University of South Africa, Pretoria, South Africa.

Gumani, A. M., Fourie, M. E., & Terre Blanche, M. J. (2013). Inner strategies of coping with operational work amongst SAPS officers. *SA Journal of Industrial Psychology* 39(2), 10 pages. <http://dx.doi.org/10.4102/sajip.v39i2.1151>

Hair, J. F. Jr, Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Essex, UK: Pearson.

Hair, J. F. Jr, Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed., new international ed.). Essex, UK: Pearson.

Hawkins, S. A., Vie, L. L., Wolf, P. S. A., Lester, P. B., Whittaker, K. S., Hawkins, J. N., & Perez, A. L. (2018). Measuring job performance in the army: Insights from evidence on civilian stress and health. *Occupational Stress and Wellbeing in Military Contexts*, 16, 49–68. doi: 10.1108/S1479-355520180000016004

Hendricks, C., & Musavengana, T. (2010). The security sector in Southern Africa. *Monograph 174*, Institute for Security Studies. Retrieved June 20, 2016, from <https://www.issafrica.org/uploads/Mono174.pdf>

Hengartner, M. P., Van der Linden, D., Bohleber, L., & Von Wyl, A. (2017). Big Five personality traits and the general factor of personality as moderators of stress and coping reactions following an emergency alarm on a Swiss university campus. *Stress and Health*, 33, 35–44. doi: 10.1002/smj.2671

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, 1(1), 104–121.

Hintze, J. L. (1997). *NCSS statistical software manual*. Kayville, UT: Number Crusher Statistical Systems. Retrieved September 19, 2018, from https://ncss-wpengine.netdna-ssl.com/wp-content/themes/ncss/pdf/Procedures/NCSS/Canonical_Correlation.pdf

Hobfoll, S. E., Spielberger, C. D., Bteznitz, S., Figley, C., Folkman, S., Lepper-Green, B., Meichenbaum, D., Milgram, N. A., Sandier, I., Sarason, I., & Van der Kolk, B. (1991). War-related stress: Addressing the stress of war and other traumatic events. *American Psychologist*, 46(8), 848–855.

Hogan, R. (2005). In defence of personality measurement: New wine for old whiners. *Human Performance*, 18(4), 331–341.

Hogan, R., & Smither, R. (2008). *Personality, theories and applications* (2nd ed.). Tulsa, OK: Hogan Press.

Holmes, T. H., & Rahe, R. H. (1967). The social re-adjustment scale. *Journal of Psychosomatic Research*, 11, 213–218.

Höltge, J., Mc Gee, S. L., Maercker, A., & Thoma, M. V. (2018). A salutogenic perspective on adverse experiences. The curvilinear relationship of adversity and well-being. *European Journal of Health Psychology*, 25(2), 53–69. <https://doi.org/10.1027/2512-8442/a000011>

Howell, D. C. (2004). *Fundamental statistics for the behavioural sciences* (5th ed.). Belmont, CA: Thomson Books.

Iacobino, J. M., Bogdan, R., & Oltmanns, T. F. (2016). Personality predicts health declines through stressful life events during late mid-life. *Journal of Personality*, 84(4), 536–546. doi: 10.1111/jopy.12179

Iacobino, J. M., Powers, A. D., & Oltmanns, T. F. (2014). Impulsivity mediates the association between borderline personality pathology and body mass index. *Personality and Individual Differences*, 56, 100–104. <http://dx.doi.org/10.1016/j.paid.2013.08.028>

Iwasaki, Y., Mannell, R. C., Smale, B. J. A., & Butcher, J. (2005). Contributions of leisure participation in predicting stress coping and health among police and emergency response services workers. *Journal of Health Psychology*, 10(1), 79–99. doi: 10.1177/1359105305048557

Jakobsen, M., & Jensen, R. (2015). Common method bias in public management studies. *International Public Management Journal*, 18(1), 3–30. doi: 10.1080/10967494.2014.997906

Jamieson, J. P., Mendes, W. B., & Nock, M. K. (2012). Improving acute stress responses: The power of reappraisal. *Current Directions in Psychological Science*, XX(X), 1–6. doi: 10.1177/0963721412461500

Jamieson, J. P., Nock, M. K., & Mendes, W. B. (2011). Mind over matter: Reappraising arousal improves cardiovascular and cognitive responses to stress. *Journal of Experimental Psychology: General*. American Psychological Association, 1–6. Retrieved February 10, 2016, from https://www.researchgate.net/publication/51669640_Mind_Over_Matter_Reappraising_Arousal_Improves_Cardiovascular_and_Cognitive_Responses_to_Stress

Johns, R. (2010). Likert items and scales. *University of Strathclyde Survey Question Bank: Methods fact sheet 1*, 1–11. Retrieved April 9, 2015, from <http://surveynet.ac.uk/sqb/datacollection/likertfactsheet.pdf>

Johnsen, B. J., Bartone, P., Sandvik, A. M., Gjeldnes, R., Morken, A. M., Hystad, S. W., & Stornæs, A. V. (2013). Psychological hardiness predicts success in a Norwegian armed forces border patrol selection course. *International Journal of Selection and Assessment*, 21(4), 368–375.

Kaiser, H. (1974). An index of factor simplicity. *Psychometrika* 39(1), 31–36.

Kavanagh, J. (2005). Stress and performance: A review of the literature and its applicability to the military. *Rand Corporation Technical Report*, xi–66. Retrieved February 27, 2015, from http://www.rand.org/content/dam/rand/pubs/technical_reports/2005/RAND_TR192.pdf

Keller, A., Litzelman, K., Wisk, L. E., Maddox, T., Cheng, E. R., Creswell, P. D., & Witt, W. P. (2012). Does the perception that stress affects health matter? The association with health and mortality. *Health Psychology*, 31(5), 677–684. doi: 10.1037/a0026743

Kempa, M., & Singh, A. (2008). Private security, political economy and the policing of race: Probing global hypotheses through the case of South Africa. *Theoretical Criminology*, 12(3), 333–354. doi: 10.1177/1362480608093310

Kieseppä, I. A. (2003). AIC and large samples. *Philosophy of Science*, 70(5), 1265–1276.

Kole, O. J. (2015). *Partnership policing between the South African Police Service and the private security industry in reducing crime in South Africa*. Unpublished doctoral thesis, University of South Africa, Pretoria, South Africa.

Krishnaveni, R., & Deepa, R. (2013). Controlling common method variance while measuring the impact of emotional intelligence on wellbeing. *VIKALPA*, 38(1), 41–47.

Kruger, H. (2013). *The 5 most stressful jobs in South Africa*. Retrieved February 10, 2016, from <http://www.jobmail.co.za/blog/the-5-most-stressful-jobs-in-south-africa/>

Kugel, U. (2014). *Physical courage among military personnel and veterans*. Unpublished doctoral thesis, Palo Alto University, California, United States of America.

Kuijer, R. G., Boyce, J. A., & Marshall, E. M. (2015). Associating a prototypical forbidden food item with guilt or celebration: Relationships with indicators of (un)healthy eating and the moderating role of stress and depressive symptoms. *Psychology and Health*, 30(2), 203–217. <http://dx.doi.org/10.1080/08870446.2014.960414>

Lakey, B., Vander Molen, R. J., Fles, E., & Andrews, J. (2016). Ordinary social interaction and the main effect between perceived support and affect. *Journal of Personality*, 84(5), 671–684. doi: 10.1111/jopy.12190

Lazarus, R. S. (1990). Theory-based stress measurement. *Psychological Inquiry*, 1(1), 3–13. doi: 10.1207/s15327965pli0101_1

Lazarus, R. S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Reviews Psychology*, 44, 1–21. Retrieved April 6, 2016, from <http://www.annualreviews.org/doi/pdf/10.1146/annurev.ps.44.020193.000245>

Lazarus, R. S. (2000). Toward better research on stress and coping. *American Psychologist*, 55(6), 665–673. doi: 10.1037//0003-066X.55.6.665

Leach, J. (2004). Why people “freeze” in an emergency: Temporal and cognitive constraints on survival responses. *Aviation, Space, and Environmental Medicine*, 75(6), 9 pages.

LeBlanc, V. R., Regehr, C., Jolley, R. B., & Barath, I. (2008). The relationship between coping styles, performance, and responses to stressful scenarios in police recruits. *International Journal of Stress Management*, 15(1), 76–93. doi: 10.1037/1072-5245.15.1.76

Le Fevre, M., & Kolt, G. S. (2010). Occupational stress: Are we all talking about the same thing? *New Zealand Journal of Employment Relations*, 35(2), 16–27.

Löfstrand, C. H., Loftus, B., & Loader, I. (2016). Doing “dirty work”: Stigma and esteem in the private security industry. *European Journal of Criminology*, 13(3), 297–314. doi: 10.1177/1477370815615624

Louw, G. J. (2014). Burnout, vigour, Big Five personality traits and social support in a sample of police officers. *SA Journal of Industrial Psychology*, 40(1), 13 pages. <http://dx.doi.org/10.4102/sajip.v40i1.1119>

Louw, G. J., & Viviers, A. (2010). An evaluation of a psychosocial stress and coping model in the police work context. *SA Journal of Industrial Psychology*, 36(1), 11 pages. doi: 10.4102/sajipv36i1.442

Lubbe, L. (2010). *A competency model for security officers: A qualitative design*. Unpublished master’s dissertation, University of South Africa, Pretoria, South Africa.

Lubbe, L., & Barnard, A. (2013). Security guarding: A competency model. *South African Journal of Labour Relations*, 37(1), 79–96.

Maddi, S. M., Matthews, M. D., Kelly, D. R., Villarreal, B., & White, M. (2012). The role of hardness and grit in predicting performance and retention of USMA cadets. *Military Psychology*, 24, 19–28. doi: 10.1080/08995605.2012.639672

Magnano, P., Paolillo, A., Platania, S., & Santisi, G. (2017). Courage as a potential mediator between personality and coping. *Personality and Individual Differences*, 111, 13–18. <http://dx.doi.org/10.1016/j.paid.2017.01.047>

Manzoni, P., & Eisner, M. (2006). Violence between the police and the public: Influences of work-related stress, job satisfaction, burnout, and situational factors. *Criminal Justice and Behavior*, 33(5), 613–645. doi: 10.1177/0093854806288039

Marais, J. (2010). *Tydbom: 'n Polisieman se ware verhaal (Time bomb: A policeman's true story)*. Kaapstad, Suid-Afrika: Tafelberg.

Maran, D. A., Varetto, A., Zedda, M., & Ieraci, V. (2015). Occupational stress, anxiety and coping strategies in police officers. *Occupational Medicine*, 65, 466–473. doi: 10.1093/occmed/kqv060

Maree, B., Van den Berg, D., & Pretorius, R. (2002). The direct victim's experience of an in-transit robbery. *Acta Criminologica: Southern African Journal of Criminology*, 15(2), 93–101.

Mark, G. M., & Smith, A. P. (2008). *Stress models: A review and suggested new direction*. Retrieved July 11, 2016, from http://psych.cf.ac.uk/home2smith/Mark_and_Smith_Typeset.pdf

Mbangeni, L., & Flanagan, L. (2015, 30 January). Bloodshed at mall: Seven injured as gang of robbers hit centre. *Pretoria News*, p. 1.

Mbuvi, C. (2015). *The development and growth of the Kenyan private security sector: Its role and impact on safety and security*. Unpublished master's dissertation, University of South Africa, Pretoria, South Africa.

McAdams, D. P. (1995). What do we know when we know a person? *Journal of Personality*, 63(3), 365–396.

McCrae, R. R., & Costa, P. T. Jr. (1986). Personality, coping, and coping effectiveness in an adult sample. *Journal of Personality*, 54(2), 385–405.

McCrae, R. R., & Costa, P. T. Jr. (1997). Personality trait structure as a human universal. *American Psychologist*, 52(5), 509–516.

McCrae, R. R., & Costa, P. T. Jr. (2010). *NEO Inventories professional manual*. Lutz, FL: PAR Inc.

McGregor, S. L. T., & Murnane, J. A. (2010). Paradigm, methodology and method: Intellectual integrity in consumer scholarship. *International Journal of Consumer Studies*, 34(4), 419–427. doi: 10.1111/j.1470-6431.2010.00883.x

Meško, M., Erenda, I., Videmšek, M., Karpljuk, D., Štihec, J., & Roblek, V. (2013). Relationship between stress coping strategies and absenteeism among middle-level managers. *Management*, 18, 45–57.

Minnaar, A. (2005). Private-public partnerships: Private security, crime prevention and policing in South Africa. *Acta Criminologica: Southern African Journal of Criminology*, 18(1), 85–114.

Minnaar, A., & Ngoveni, P. (2004). The relationship between the South African Police Service and the private security Industry: Any role for outsourcing in the prevention of crime? *Acta Criminologica: Southern African Journal of Criminology*, 17(1), 42–65.

Mitchell, J. T., & Everly, G. S. (2001). *The basic critical incident stress management course: Basic group crisis intervention* (3rd ed.). Ellicott City, MD: International Critical Incident Stress Foundation.

Montgomery, D. C., & Runger, G. C. (2014). *Applied statistics and probability for engineers* (6th ed.). Hoboken, NJ: Wiley. Retrieved January 10, 2018, from <http://www.turboteamhu.com/wp-content/uploads/2016/06/Applied-Statistics-and-Probability-for-Engineers.pdf>

Moos, R. H. (1995). Development and applications of new measures of life stressors, social resources, and coping responses. *European Journal of Psychological Assessment*, 11(1), 1–13.

Moos, R. H., & Swindle, R. W. Jr. (1990). Person-environment transactions and the stressor-appraisal-coping process. *Psychological Inquiry*, 1(1), 30–32. doi: 10.1207/s15327965pli0101_8

Moroney, W. F., & Cameron, J. (2016, April). The questionnaire as conversation: Time for a paradigm shift, or at least a paradigm nudge? *Ergonomics in Design*, 10–15.

Mouton, J. (1996). *Understanding social research*. Pretoria, South Africa: Van Schaik.

Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches* (7th ed.). Essex, UK: Pearson

Nimon, K., Henson, R. K., & Gates, M. S. (2010). Revisiting interpretation of canonical correlation analysis: A tutorial and demonstration of canonical commonality analysis. *Multivariate Behavioral Research*, 45(4), 702–724. doi: 10.1080/00273171.2010.498293

Olson, K. (2010). An examination of questionnaire evaluation by expert reviewers. *Field Methods*, 22(4), 295–318. doi: 10.1177/1525822X10379795

Ongori, H., & Agolla, J. E. (2008). Occupational stress in organizations and its effects on organizational performance. *Journal of Management Research*, 8(3), 123–135.

O'Rourke, T., & O'Rourke, D. (2001). The ordering and wording of questionnaire items: Part 1. *American Journal of Health Studies*, 17(3), 156–159.

Osa-Afiana, D. D. (2015). Development and standardisation of Military Stress Inventory (MSI). *Ife PsychologIA*, 23(1), 52–59.

Pallant, J. (2011). *SPSS Survival manual: A step by step guide to data analysis using SPSS* (4th ed.). Crow's Nest, Australia: Allen & Unwin.

Panhwar, A. H., Ansari, S., & Shah, A. A. (2017). *Post-positivism: An effective paradigm for social and educational research*. Retrieved February 01, 2020 from https://www.researchgate.net/publication/317605754_Post-positivism_An_Effective_Paradigm_for_Social_and_Educational_Research

Pawelski, J. O. (2016). Defining the “positive” in positive psychology: Part I. A descriptive analysis. *Journal of Positive Psychology*, 11(4), 339–356. doi: 10.1080/17439760.2015.1137627

Peterson, R. A., & Kim, Y. (2013). Research report: On the relationship between coefficient alpha and composite reliability. *Journal of Applied Psychology*, 98(1), 194–198. doi: 10.1037/a0030767

Pienaar, Y. (2007). *The identification of stressors and individual stress management techniques to cope in a changing organisational environment*. Unpublished master's dissertation, University of Pretoria, Pretoria, South Africa.

Pienaar, J., & Rothmann, S. (2003). Coping strategies in the South African Police Service. *SA Journal of Industrial Psychology*, 29(4), 81–90.

Pienaar, J., & Rothmann, S. (2006). Occupational stress in the South African Police Service. *SA Journal of Industrial Psychology*, 32(3), 72–78.

Pienaar, J., Rothmann, S., & Van De Vijver, F. J. R. (2007). Occupational stress, personality traits, coping strategies, and suicide ideation in the South African Police Service. *Criminal Justice and Behavior*, 34(2), 246–258. doi: 10.1177/0093854806288708

Pierce, J. L., Gardner, D. G., & Crowley, C. (2016). Organization-based self-esteem and wellbeing: Empirical examination of a spill over effect. *European Journal of Work and Organizational Psychology*, 25(2), 181–199. doi: 10.1080/1359432X.2015.1028377

Pillay, K., & Claase-Schutte, C. (2004). Private security officers as victims of trauma and stress: The South African experience and initiatives to manage it. *Acta Criminologica: Southern African Journal of Criminology*, 17(1), 121–128.

Poisat, P., Mey, M., & Theron, A. (2014). Social support key to cash-in-transit guards' psychological wellbeing. *Problems and Perspectives in Management*, 12(4), 312–319.

Ramsay, H. (2006). *The adolescent's perspective of culture and ethnicity within the South African outcomes based education system*. Unpublished doctoral thesis, University of South Africa, Pretoria, South Africa.

Republic of South Africa. (1977). *Criminal Procedure Act 51 of 1977*. Government Gazette (No. 5532). Retrieved March 14, 2017, from <http://www.gov.za/sites/www.gov.za/files/Act%2051%20of%201977s.pdf>

Retief, H. (2011). *Byleveld: Dossier of a serial sleuth*. Cape Town, South Africa: Umuzi.

Rexrode, K. R., Petersen, S., & O'Toole, S. (2008). The Ways of Coping Scale: A reliability generalization study. *Educational and Psychological Measurement*, 68(2), 262–280. doi: 10.1177/0013164407310128

Richardson, C. M. E. (2017). Emotion regulation in the context of daily stress: Impact on daily affect. *Personality and Individual Differences*, 112, 150–156. <http://dx.doi.org/10.1016/j.paid.2017.02.058>

Richter, J., Lauritz, L. E., Du Preez, E., Cassimjee, N., & Ghazinour, M. (2013). Relationships between personality and coping with stress: An investigation in Swedish police trainees. *Psychology*, 4(2), 88–95. <http://dx.doi.org/10.4236/psych.2013.42012>

Robbins, S. P. (2003). *Organizational behavior* (10th ed.). Upper Saddle River, NJ: Pearson Education.

Robbins, S. P., & Judge, T. A. (2015). *Organizational behavior* (16th ed.). London: Pearson Education.

Roberts, B. W., & Hogan, R. (Eds). (2001). *Personality psychology in the workplace*. Washington DC: American Psychological Association.

Rothmann, S., & Jorgensen, L. I. (2007). A model of work-related wellbeing for police members in the North West Province. *Acta Criminologica: Southern African Journal of Criminology*, 20(4), 73–84.

Rothmann, S., Jorgensen, L. I., & Hill, C. (2011). Coping and work engagement in selected South African organisations. *SA Journal of Industrial Psychology*, 37(1), 11 pages. doi: 10.4102/sajip.v37i1.962

Sabbagh, M. F. D. (2016). *A model of employee motivation and job satisfaction for staff retention practices within a South African foreign exchange banking organisation*. Unpublished doctoral thesis, University of South Africa, Pretoria, South Africa.

SA Bodyguard Training Academy. (2015). *VIP/close protection training manual*. Retrieved January 28, 2015, from <http://www.slideshare.net/UnitB166ER/sa-bodyguard-training-academy-vipclose-protection-training-manual>

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students* (5th ed.). Essex, UK: Pearson Education.

Schlebusch, L. (1998). *Proverbial stress busters*. Cape Town, South Africa: Human & Rousseau.

Schmitt, T. A. (2011). Current methodological considerations in exploratory and confirmatory factor analysis. *Journal of Psychoeducational Assessment*, 29(4), 304–321. doi: 10.1177/0734282911406653

Schneider, G. (2005). *An examination of the required operational skills and training standards for a close protection operative in South Africa*. Unpublished master's dissertation, University of South Africa, Pretoria, South Africa.

Schneider, G. (2009, April). High risk close protection. *Security Focus*, 47.

Schneider, G. (2011). *The design and development of a best practice use-of-force training model for the private security industry*. Unpublished doctoral thesis, University of South Africa, Pretoria, South Africa.

Schneider, G. (2012, April/May). Close personal protection in action: An analysis of the evacuation of Prime Minister Julia Gillard on Australia Day 2012. *Australian Security Magazine*, 46-50.

Schneider, G. (2013). The private security industry: A comparison of recent Australian and South African priorities. *Acta Criminologica: Southern African Journal of Criminology*, 26(2), 103–123.

Schneider, G., & Minnaar, A. (2015). A use-of-force preventative training model for law enforcement and security practitioners. *Acta Criminologica: Southern African Journal of Criminology*, 28(1), 128–159.

Scholten, S., Velten, J., Bieda, A., Zhang, X. C., & Margraf, J. (2017). Testing measurement invariance of the Depression, Anxiety, and Stress Scales (DASS-21) across four countries. *Psychological Assessment*, 29(11), 1376–1390. <http://dx.doi.org/10.1037/pas0000440>

Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modelling* (3rd ed.). New York, NY: Routledge, Taylor & Francis.

Security Industry Alliance. (October 5, 2016). *Annual bravery awards of the Security Industry Alliance. Master of Ceremony detailed programme*

Sefalafala, T. (2012). *Precarious work: A case study of security guards in Johannesburg*. Unpublished master's dissertation, University of the Witwatersrand, Johannesburg, South Africa.

Seligman, M. E. P. (April, 2011). Building resilience: What business can learn from a pioneering army program for fostering post-traumatic growth. *Harvard Business Review*, 100–106.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5–14. doi: 10.1037/0003-066X.55.1.5

Selwood, L. (2014). Insomnia. *South African Pharmaceutical Journal*, 81(9), 24–26.

Selye, H. (1973). The evolution of the stress concept. *American Scientist*, 61(6), 692–699.

Sherry, A., & Henson, R. K. (2005). Conducting and interpreting canonical correlation analysis in personality research: A user-friendly primer. *Journal of Personality Assessment*, 84(1), 37–48.

Sibanyoni, N. S. (2014). *Protecting the protector: Exploring work-related challenges experienced by contract security guards employed by a security company in Johannesburg*. Unpublished master's dissertation, University of the Witwatersrand, Johannesburg, South Africa.

Sifile, L. (2018a, 18 May). New scare tactics in heists: Military-style precision. *The Star*, p. 1.

Sifile, L. (2018b, 21 May). Crooked lawyers are robbery accessories: Magistrates, prosecutors, cops involved in cash-in-transit heists. *The Star*, p. 2.

Şimşek, G. G., & Aydoğdu, S. (2016). Parallel analysis approach for determining dimensionality in canonical correlation analysis. *Journal of Statistical Computation and Simulation*, 86(17), 3419–3431. doi: 10.1080/00949655.2016.1161044

Singh, A. M. (2005). Private security and crime control. *Theoretical Criminology*, 9(2), 153–174. doi: 10.1177/1362480605051638

Siniscalco, M. T., & Auriat, N. (2005). *Quantitative research methods in educational planning. Module 8: Questionnaire design*. UNESCO International Institute for Educational Planning. Retrieved January 11, 2017, from <http://unesdoc.unesco.org/images/0021/002145/214555E.pdf>

Sisley, R., Henning, M. A., Hawken, S. J., & Moir, F. (2010). A conceptual model of workplace stress: The issue of accumulation and recovery and the health professional. *New Zealand Journal of Employment Relations*, 35(2), 3–15.

Skomorovsky, A., & LeBlanc, M. M. (2017). Intimate partner violence in the Canadian Armed Forces: Psychological distress and the role of individual factors among military spouses. *Military Medicine*, 182, 1568–1575. doi: 10.7205/MILMED-D-15-00566

Skomorovsky, A., & Stevens, S. (2013). Testing a resilience model among Canadian Forces recruits. *Military Medicine*, 178(8), 829–837. doi: 10.7205/MILMED-D-12-00389

Slattery, E. L., Voelker, C. C. J., Nussenbaum, B., Rich, J. T., Paniello, R. C., & Neely, J. G. (2011). A practical guide to surveys and questionnaires. *Otolaryngology: Head and Neck Surgery*, 144(6), 831–837. doi: 10.1177/0194599811399724

Smith, L., & Louis, E. (2010). Cash-in-transit armed robbery in Australia. *Australian Institute of Criminology; Trends and Issues in Crime and Criminal Justice*, 397, 1–6.

Sousa, V. E. C., Matson, J., & Lopez, K. D. (2016). Questionnaire adapting: Little changes mean a lot. *Western Journal of Nursing Research*, 1–11. doi: 10.1177/0193945916678212

South African Depression and Anxiety Group. (2011). Sleep your way to better mental health. *African Journal of Psychiatry*, 14(3), 250–254.

Steyn, R., & Patta, D. (2000). *One step behind Mandela: The story of Rory Steyn, Nelson Mandela's chief bodyguard*. Johannesburg, South Africa: Guide Books.

Stone, A. A., & Neale, J. M. (1984). New Measure of Daily Coping: Development and preliminary results. *Journal of Personality and Social Psychology*, 46(4), 892–906.

Strümpfer, D. J. W. (2003). Resilience and burnout: A stitch that could save nine. *South African Journal of Psychology*, 33(2) 69–79.

Strümpfer, D. J. W., Eiselen, R. J., Meiring, D., & Phalatse, J. S. (2010). Validating measures of psychological wellbeing by contrasting samples employed in hazardous and less hazardous work. *Journal of Psychology in Africa*, 20(1), 23–32. <http://dx.doi.org/10.1080/14330237.2010.10820339>

Sudom, K. A., Lee, J. E. C., & Zamorski, M. A. (2014). A longitudinal pilot study of resilience in Canadian military personnel. *Stress and Health*, 30, 377–385. doi: 10.1002/smj.2614

Tarka, P. (2018). An overview of structural equation modelling: Its beginnings, historical development, usefulness and controversies in the social sciences. *Quality and Quantity*, 52, 313–354. <https://doi.org/10.1007/s11135-017-0469-8>

Taylor, N. (2004). *The construction of a South African five-factor personality questionnaire*. Unpublished master's dissertation, Rand Afrikaans University, Johannesburg, South Africa.

Taylor, N. (2008). *Construct, item and response bias across cultures in personality*. Unpublished doctoral thesis, Rand Afrikaans University, Johannesburg, South Africa.

Taylor, N., & De Bruin, G. P. (2016). *Basic Traits Inventory technical manual*. Johannesburg, South Africa: JvR Psychometrics.

Taylor, S. E. (2015). *Health psychology* (9th ed.) New York, NY: McGraw-Hill.

Tennen, H., Affleck, G., Armeli, S., & Carney, M. A. (2000). A daily process approach to coping: Linking theory, research, and practice. *American Psychologist*, 55(6), 626–636. doi: 10.1037/0003-066X.55.6.626

Thomassen, A. G., Hystad, S. W., Johnsen, B. H., Johnsen, G. E., Laberg, J. C., & Eid, J. (2015). The combined influence of hardiness and cohesion on mental health in a military peacekeeping mission: A prospective study. *Scandinavian Journal of Psychology*, 56, 560–566. doi: 10.1111/sjop.12235

Tobin, D. L. (2001). *User manual for the Coping Strategies Inventory*. Retrieved July 13, 2016, from http://www.ohiopsychology.com/files/images/holroyd_lab/Manual%20Coping%20Strategies%20Inventory.pdf

Toepoel, V., Das, M., & Van Soest, A. (2009). Design of web questionnaires: The effects of the number of items per screen. *Field Methods*, 21(2), 200–213. doi: 10.1177/1525822X08330261

Tourangeau, R., Couper, M. P., & Conrad, F. (2004). Spacing, position, and order: Interpretive heuristics for visual features of survey questions. *Public Opinion Quarterly*, 68(3), 368–393. doi: 10.1093/poq/nfh035

Trafford, V., & Leshem, S. (2008). *Stepping stones to achieving your doctorate*. Croydon, UK: McGraw Hill.

Tuckey, M. R., Winwood, P. C., & Dollard, M. F. (2012). Psychosocial culture and pathways to psychological injury within policing. *Police Practice and Research*, 13(3), 224–240. doi: 10.1080/15614263.2011.574072

Van Der Linde-De Klerk, M. (2010). *The development and validation of a change agent identification framework*. Unpublished doctoral thesis, University of South Africa, Pretoria, South Africa.

Vanheule, S., Declercq, F., Meganck, R., & Desmet, M. (2008). Burnout, critical incidents and social support in security guards. *Stress and Health*, 24, 137–141. doi: 10.1002/smj.1177

Van Steden, R., & Nalla, M. K. (2010). Citizen satisfaction with private security guards in the Netherlands: Perceptions of an ambiguous occupation. *European Journal of Criminology*, 7(3), 214–234. doi: 10.1177/1477370809359264

Van Steden, R., Van der Wal, Z., & Lasthuizen, K. (2015). Overlapping values, mutual prejudices: Empirical research into the ethos of police officers and private security guards. *Administration and Society*, 47(3), 220–243. doi: 10.1177/0095399713509530

Van Vuuren, L. J. (2010). Industrial psychology: Goodness of fit? Fit for goodness? *SA Journal of Industrial Psychology*, 36(2), 16 pages. doi: 10.4102/sajip.v36i2.939

Van Zyl, C. J. J. (2012). *Personality as a predictor of risk-taking behaviour*. Unpublished master's dissertation, University of Johannesburg, Johannesburg, South Africa.

Villada, C., Hidalgo, V., Almela, M., & Salvador, A. (2016). Individual differences in the psychobiological response to psychosocial stress (Trier Social Stress Test): The relevance of trait anxiety and coping styles. *Stress and Health*, 32, 90–99. doi: 10.1002/smj.2582

Vollrath, M. (2001). Personality and stress. *Scandinavian Journal of Psychology*, 42, 335–347.

Von Soest, T., Wagner, J., Hansen, T., & Gerstorf, D. (2017, February). Self-esteem across the second half of life: The role of socioeconomic status, physical health, social relationships, and personality factors. *Journal of Personality and Social Psychology*, 1–14. <http://dx.doi.org/10.1037/pspp0000123>

Vorster, H. H., Badham, J. B., & Venter, C. S. (2013). An introduction to the revised food-based dietary guidelines for South Africa. *South African Journal of Clinical Nutrition*, 26(3)(Supplement), 1–164.

Waters, J. A., & Ussery, W. (2007). Police stress: history, contributing factors, symptoms, and interventions. *Policing: An International Journal of Police Strategies and Management*, 30(2), 169–188. <http://dx.doi.org/10.1108/13639510710753199>

Weber, H., & Laux, L. (1990). Bringing the person back into stress and coping measurement. *Psychological Inquiry*, 1(1), 37–40. doi: 10.1207/s15327965pli0101_11

Weiss, J. (March, 1990). Unconscious mental functioning. *Scientific American*, 103–109.

Weiten, W. (2014). *Psychology: Themes and variations*. China: Cengage Learning.

Wellenzohn, S., Proyer, R. T., & Ruch, W. (2016). Humor-based online positive psychology interventions: A randomized placebo-controlled long-term trial. *Journal of Positive Psychology*, 11(6), 584–594. doi: 10.1080/17439760.2015.1137624

Weston, S. J., & Jackson, J. J. (2016). How do people respond to health news? The role of personality traits. *Psychology and Health*, 31(6), 637–654. doi: 10.1080/08870446.2015.1119274

Weston, S. J., Hill, P. L., & Jackson, J. J. (2015). Personality traits predict the onset of disease. *Social Psychological and Personality Science*, 6(3) 309–317. doi: 10.1177/1948550614553248

Wetstein, S. (2013). *Cash-in-transit: An analysis of the victimization of armoured guards*. Unpublished master's thesis, University of Guelph, Ontario, Canada.

White, A. (2011). The new political economy of private security. *Theoretical Criminology*, 16(1), 85–101. doi: 10.1177/1362480611410903

ANNEXURE 1: DOCUMENT FOR PSYCHOLOGISTS TO DETERMINE COPING STRATEGIES

Dear Colleague

I am currently busy with my PhD in Industrial and Organisational Psychology at the University of South Africa. As part of my doctorate I am developing *a questionnaire to measure how people cope with stress in high stress security occupations.* Ethical approval (2016_CEMS/IOP_070) has been granted by the University's Ethics Review Committee to undertake the study.

I would appreciate a few minutes of your time to provide your input regarding your experience on how people cope. I want to use the information that you provide, with the theory on coping, to develop the questionnaire. In order to ensure confidentiality of the information that you provide, your name will not be published in the thesis.

Kindly provide me with the coping strategies that are mostly used by your patients, by completing the template below. Please provide a short description of what you mean with each example.

Constructive coping strategies	
Description	Constructive coping refers to relatively <i>healthful efforts</i> that people use to deal with stressful events – for example, social support.
Your examples	

Destructive coping strategies (including defence mechanisms)	
Description	Destructive coping refers to <i>unhealthy efforts</i> that people use to deal with stressful events – for example, substance abuse. Defence mechanisms are largely unconscious reactions that protect a person from unpleasant emotions such as anxiety. Their main purpose is to “ward off” unwelcome emotions or to reduce their intensity by distorting reality so that it does not appear so threatening, temporarily fending off feelings of anxiety – for example, denial.
Your examples	

Thank you very much for your time and inputs. I truly appreciate it.

Gerhard Schoeman

072 462 3942

gs@pgspsychologist.co.za

ANNEXURE 2: QUESTIONNAIRE FOR EXPERT REVIEW

Dear colleague

My name is Gerhard Schoeman and I am currently busy with my PhD in Industrial and Organisational psychology at the University of South Africa. As part of my Doctorate I am developing a questionnaire to measure how people cope with stress in high stress security occupations. Ethical approval (2016_CEMS/IOP_070) has been granted by the University's Ethics Review Committee to undertake the study. Permission has also been granted by the Security Industry Alliance to carry out the study within the security environment and to publish the results (letter can be provided on request).

I would hereby like to request your inputs in reviewing the items in the questionnaire in order to make sure that all items are relevant to the coping constructs being measured and that all items are clear and understandable (part 1). If you wish to comment on any item or feel that an *item should be deleted* or the *wording should be changed*, please write your suggestion in the space that is provided. You are also requested to indicate in part 2 whether you feel that each construct has sufficiently been covered by the items provided. You can mark your answer by using a ✓ or by highlighting the relevant response.

1. Background to provide context

The specific target groups for the study are security personnel working in high risk and high stress environments, including VIP Protectors, Armed Response Officers and Cash-in-transit Guards.

- The aim of VIP Protection is to proactively and reactively protect VIPs (Very Important People) against direct personal risks such as murder, kidnapping or assault and also against indirect personal risks such as threats and intimidation (SA Bodyguard Training Academy, 2015).
- Cash-in-transit can best be described as the transport, delivery and receipt of valuables such as cash, securities, jewels, gold and other financial instruments using escort services in armoured or "soft skin" (non-armoured) vehicles (Smith & Louis, 2010).
- The need for armed response was "born" out of the necessity to deal with South Africa's high levels of crime, specifically violent crime such as house robberies (Kempa & Singh, 2008; Schneider, 2013). Armed response officers are private security officers who patrol communities in vehicles and respond to alarms and panic buttons installed on a clients' premises (Diphoorn, 2015).

For the purpose of the study the following definitions are being used to define stress and coping:

- **Stress** - "Any circumstances that threaten, or are perceived to threaten, a person's well-being and thereby exceeds the person's ability to cope". "The threat may be to immediate physical safety, self-esteem, reputation, peace of mind or anything that a person values" (Weiten, 2014, p. 554).

- **Coping** - “Coping actions involve cognitive, emotional, behavioural and physiological processes that are selectively applied in various combinations to alleviate a person’s acute or chronic overload with demands that he/she is unable to master at the time” (Balcar, Trnka & Kuška, 2011, p. 27).

2. Questionnaire development

Items in the questionnaire were developed after doing a comprehensive literature study and by receiving inputs from psychologists in private practice on the coping strategies that are being used most by their patients. The coping strategies have been divided into healthy coping strategies and unhealthy coping strategies based on the literature review and inputs from psychologists.

- Unhealthy coping strategies refers to strategies that are less than optimal as it hardly ever provides effective solutions to problems (Weiten, 2014).
- Healthy coping strategies refers to the healthy efforts made to deal with stressful events, without guaranteeing success (Weiten, 2014).

Respondents will answer the questionnaire by making use of a 5-point Likert type scale, where 1 = strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree and 5 = strongly disagree.

3. General

Kindly complete your review and e-mail it back to me on or before Friday 31 March 2017.

Please feel free to contact me should you have any questions. My cell-phone number is 072-462-3942 and my email address is gs@pgspsychologist.co.za

Should you wish to confirm anything regarding the study, you are welcome to make contact with my promotor, Professor Nico Martins (Martin@unisa.ac.za).

4. Part 1: Clarity and relevance of items

Healthy coping strategies

Coping strategy	Dealing with uncertainty
Definition	Being able to deal with uncertainty in a high stress security environment.

Specific items to measure dealing with uncertainty	Item is clear	Item is relevant
I know that my family will be taken care of should anything happen to me.	Yes	No
I feel comfortable dealing with situations where the outcome is uncertain.	Yes	No
I am prepared to deal with difficult situations in my work.	Yes	No
I can work in conditions where there are no guidelines.	Yes	No
Suggestions:		

Coping strategy	Relaxation
Definition	Taking a break from a stressful event in order to interrupt the stress cycle.

Specific items to measure relaxation	Item is clear	Item is relevant
I make time in the day for myself to relax.	Yes	No
I have a hobby to take my mind off my problems.	Yes	No
I do something enjoyable to lessen my stress, for example watching television.	Yes	No
I read to relax.	Yes	No
I listen to music to relax.	Yes	No
Suggestions:		

Coping strategy	<u>Support</u> (including therapy/counselling, social support & group cohesion)
Definition	Having a network that can be trusted to offer advice and support when stress levels become too much, as well as the association between members of a group and their commitment to each other.

Specific items to measure support	Item is clear	Item is relevant
I deal with stress on my own.	Yes	No
I talk to a friend when I stress.	Yes	No
I talk to a family member when I stress.	Yes	No
I talk to a colleague when I stress.	Yes	No
I ask advice from other people on how to deal with my problems.	Yes	No
I talk to a therapist (counsellor) about my work stress.	Yes	No
I trust my colleagues with my life.	Yes	No
I am loyal to my colleagues.	Yes	No
I believe my colleagues are loyal to me.	Yes	No
I know my colleagues will help me when I need them.	Yes	No

Suggestions:

Coping strategy	Physical exercise
Definition	Doing physical exercises to reduce the potentially damaging effects of stress and also to help with improvements in mood.

Specific items to measure physical exercise	Item is clear	Item is relevant
I do physical exercises to help me relax.	Yes	No
I do physical exercises to help control my frustration.	Yes	No
I do physical exercises to help control my anger.	Yes	No
I enjoy doing physical exercises.	Yes	No

Suggestions:

Coping strategy	Sleep
Definition	Having sound sleep patterns to allow a person's body to recharge and function effectively.

Specific items to measure sleep	Item is clear	Item is relevant
I sleep 7 hours uninterrupted.	Yes	No
I wake up very early in the morning, worrying about my problems.	Yes	No
I fall asleep easily when I go to bed.	Yes	No
I wake up a lot after going to sleep.	Yes	No
I feel rested when I wake up.	Yes	No

Suggestions:

Coping strategy	Diet
Definition	Having healthy eating habits to allow a person's body and mind to function effectively during times of high stress.

Specific items to measure diet	Item is clear	Item is relevant
I eat fresh fruit every day.	Yes	No
I eat fresh vegetables every day.	Yes	No
I eat breakfast every day.	Yes	No
I drink more than one can of cold drink a day, for example coca cola.	Yes	No
I eat a lot of fast food, for example hamburgers.	Yes	No
I drink 2 litres of water a day.	Yes	No

Suggestions:

Coping strategy	Training (including learned resourcefulness)
Definition	Having positive expectations about one's own capabilities to effectively deal with work related problems.

Specific items to measure training	Item is clear	Item is relevant
I feel that I am well trained to do my work.	Yes	No
I am trained to deal with difficult situations.	Yes	No
I am trained to deal with dangerous situations.	Yes	No
I can use my past experience to deal with situations in my work.	Yes	No
I have done stress management training before.	Yes	No

Suggestions:

Coping strategy	Humour
Definition	Turning stressful situations into a funny story and having the ability to laugh at oneself.

Specific items to measure humour	Item is clear	Item is relevant
I can see the humour in a difficult situation.	Yes	No
I make jokes about situations in my work.	Yes	No
I can laugh at mistakes I make.	Yes	No
I create opportunities to laugh.	Yes	No
I can laugh about difficult situations.	Yes	No

Suggestions:

Coping strategy	Positive appraisal
Definition	Using self-encouragement by highlighting the positive aspects of one's own skills and experience.

Specific items to measure positive appraisal	Item is clear	Item is relevant
I tell myself that I can deal with any stressful situation.	Yes	No
I see stress as an opportunity to learn and improve myself.	Yes	No
I tell myself that I will be able to deal with a difficult situation.	Yes	No
I tell myself that the work I do is helping other people.	Yes	No
I tell myself that I am good enough to do my work.	Yes	No

Suggestions:

Coping strategy	Religion
Definition	Finding the purpose and meaning in situations that can challenge the most fundamental beliefs.

Specific items to measure religion	Item is clear	Item is relevant
I am a religious person.	Yes	No
I pray for guidance when I stress.	Yes	No
I use my religion to help me make sense of things that happen in my work.	Yes	No
I use my faith to help me through difficult times.	Yes	No

Suggestions:

Unhealthy coping strategies

Coping strategy	Substance use
Definition	Using substances as a temporary coping method for managing stress to help lower anxiety and improve self-esteem.

Specific items to measure substance use	Item is clear	Item is relevant
I drink alcohol to help me relax.	Yes	No
I drink alcohol to give me courage to deal with my problems.	Yes	No
I sleep better after taking sleeping pills.	Yes	No
I smoke to help me relax.	Yes	No
I use medication to relax.	Yes	No

Suggestions:

Coping strategy	Denial
Definition	Consciously making an effort not to acknowledge thoughts, feelings, desires or aspects of reality that would be painful or unacceptable in order to protect oneself from an unpleasant reality.

Specific items to measure denial	Item is clear	Item is relevant
I believe that there is no such thing as stress.	Yes	No
I feel that there is no stress in my life.	Yes	No
I believe that only weak people stress.	Yes	No
I know that stress does not affect me.	Yes	No

Suggestions:

Coping strategy	Displacement
Definition	"Transferring" of emotions from their original source to a substitute object in order to avoid responsibility for problems.

Specific items to measure displacement	Item is clear	Item is relevant
I kick something when I get angry.	Yes	No
I break things when I get angry.	Yes	No
I throw things when I get angry.	Yes	No
I shout at people close to me when I am frustrated.	Yes	No
When I make mistakes, it is usually someone else's fault.	Yes	No
I use more force to stop a suspect when I feel stressed.	Yes	No
I spend a lot of time on internet.	Yes	No
I spend a lot of time on social media, for example Facebook.	Yes	No

Suggestions:

5. Part 2: Comprehensiveness

Do you think that the coping strategies have been sufficiently covered?	Yes	No
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If no, please provide suggestions:

6. Part 3: Biographical information

The biographical information will only be used to report on the diversity of the panel of experts.

Please mark your choice with a ✓ in the space provided.

Kindly provide the following information:

Your field of study

Your years of experience

Your highest qualification

Bachelor's degree	
Honour's degree	
Master's degree	
Doctoral degree	

Your gender

Male	
Female	

Your race

Asian	
Black	
Coloured	
Indian	
White	

Thank you very much for your time and inputs, I highly appreciate it.

Regards,

Gerhard Schoeman
072 462 3942
gs@pgspsychologist.co.za

ANNEXURE 3: INFORMED CONSENT

Dear research participant

My name is Gerhard Schoeman and I am currently busy with my PhD in Industrial and Organisational Psychology at the University of South Africa. As part of my doctorate I am developing a questionnaire to measure how people cope with stress in high stress security occupations.

Your participation in my study would be highly appreciated. You have been selected to participate because I would specifically like to include in my study, people working in VIP protection, armed response and cash-in-transit. By completing the questionnaires you will assist me in validating the coping questionnaire – in other words, making sure that it measures coping with stress.

Participation is voluntary and refusal to participate will not be held against you in any way. You have to complete both questionnaires (the coping questionnaire and Basic Traits Inventory) as the results will be compared to see if personality influences the way people cope with stress. It will take about two hours to complete both questionnaires. You may withdraw from the study at any time, with no consequences, and the information collected will be destroyed and not used for the research.

All the information you provide will be strictly confidential, and you will not be identified to any of your colleagues or managers/supervisors. Your results will also not be discussed with anyone. As a result, you will not be harmed in any way. Records will be kept for a period of five years, after which they will be destroyed. All completed answer sheets, this consent form and your biographical information will be locked away in a cabinet in a storeroom where I am the only person with access (pen & paper administration). All computerised information will be password protected (on-line completion).

This research can help by providing a questionnaire that organisations could use to add value to their assessment process and/or training interventions. Organisations could use the proposed questionnaires, coping questionnaire and Basic Traits Inventory, to form part of a more comprehensive screening process of candidates when applying for work or specific projects in high stress environments. Individuals could use the questionnaire for self-development as a measurement of how well they are currently coping with stress.

No individual results will be made available to any organisation or person. The final results will be published in a thesis and an article. Only the analysed results will be published, and no name or details of any participant. Confidentiality will be maintained and you will not be identified in any way.

Your participation will cost you nothing. I am prepared to present a hostage survival or anti-hijacking workshop (at no cost to you) as part of my appreciation for your participation in this study. This will be arranged through your HR office or line manager.

Thank you for taking time to participate in the study. I truly appreciate it.

Gerhard Schoeman

072 462 3942

gs@pgspsychologist.co.za

Consent to participate in the study:

Measuring coping in high stress security occupations by means of a stress management model

Conducted by Gerhard Schoeman, student number 58529802, as part of his PhD in Industrial and Organisational Psychology.

Yes , I consent to my results being used in the study	
No , I do not consent to my results being used in the study	

I confirm that I am participating of my own free will and that I have not been forced in any way to participate.

Date	
Signature	

ANNEXURE 4: ORIGINAL HIGH RISK COPING QUESTIONNAIRE (HRCQ)

High Risk Coping Questionnaire (HRCQ)

Instructions for completing the High Risk Coping Questionnaire

People manage stress in different ways. The aim of the Questionnaire is to measure how people respond to difficult or stressful situations. The purpose of this Questionnaire is to find out how you personally manage your daily work stress.

Different strategies are written in the form of statements. Please read each statement and then decide how much you agree with each statement. Please indicate your answer by choosing between the following five different options:

- 1 = strongly disagree,
- 2 = disagree,
- 3 = neither agree nor disagree,
- 4 = agree, and
- 5 = strongly agree.

Please be honest in answering the Questionnaire. There are no right or wrong answers. Do not spend too much time thinking about any statement. Choose the option that is true to you, normally it is the first choice that comes to your mind. Try to choose strongly disagree (1), disagree (2), agree (4) or strongly agree (5). Only choose (3), neither agree nor disagree, if you really cannot make another choice.

The Questionnaire has 69 statements and does not have a time limit. It will take about 20 minutes to complete. Remember to choose an answer to all the statements.

1.	I know that my family will be taken care of should anything happen to me
2.	I feel comfortable dealing with situations where the outcome is uncertain
3.	I am prepared to deal with difficult situations in my work
4.	I can work in conditions where there are no guidelines
5.	I deal with stress on my own
6.	I talk to a friend when I stress
7.	I talk to a family member when I stress
8.	I talk to a colleague when I stress
9.	I ask advice from other people on how to deal with my problems
10.	I talk to a therapist (counsellor) about my work stress
11.	I trust my colleagues with my life
12.	I am loyal to my colleagues
13.	I believe my colleagues are loyal to me
14.	I know my colleagues will help me when I need them
15.	I do physical exercises to help me relax
16.	I do physical exercises to help control my frustration
17.	I do physical exercises to help control my anger
18.	I enjoy doing physical exercises
19.	I make time in the day to relax
20.	I have a hobby to take my mind off my problems
21.	I watch television to relax
22.	I read to relax
23.	I listen to music to relax
24.	I spend a lot of time on the Internet
25.	I spend a lot of time on social media, for example, Facebook
26.	I sleep at least seven hours uninterrupted
27.	I wake up very early in the morning, worrying about my problems
28.	I fall asleep easily when I go to bed
29.	I sleep through when I go to bed
30.	I feel rested when I wake up
31.	I eat fresh fruit every day
32.	I eat fresh vegetables every day
33.	I eat breakfast every day

34.	I eat “junk food” every day, for example, hamburgers
35.	I drink about two litres of water a day
36.	I feel that I am well trained to do my work
37.	I am trained to deal with difficult situations
38.	I am trained to deal with dangerous situations
39.	I can use my past experience to deal with situations in my work
40.	I have done stress management training before
41.	I can see the humour in a difficult situation
42.	I make jokes about situations in my work
43.	I can laugh at mistakes I make
44.	I create opportunities to laugh
45.	I can laugh about difficult situations
46.	I tell myself that I can deal with any stressful situation
47.	I see stress as an opportunity to learn and improve myself
48.	I tell myself that I will be able to deal with a difficult situation
49.	I tell myself that the work I do is helping other people
50.	I tell myself that I am good enough to do my work
51.	I am a spiritual person
52.	I pray for guidance when I stress
53.	I use my faith to help me make sense of things that happen in my work
54.	I use my faith to help me through difficult times
55.	I drink alcohol to help me relax
56.	I drink alcohol to give me courage to deal with my problems
57.	I sleep better after taking sleeping pills
58.	I smoke to help me relax
59.	I use medication to relax
60.	I kick something when I get angry
61.	I break things when I get angry
62.	I throw things when I get angry
63.	I shout at people close to me when I am frustrated
64.	I blame someone else when I make a mistake
65.	I use more force to stop a suspect when I feel stressed
66.	I believe that there is no such thing as stress
67.	I feel that there is no stress in my life

68.	I believe that only weak people stress
69.	I know that stress does not affect me

Thank you for your time and participation. I really appreciate it.

ANNEXURE 5: HRCQ ANSWER SHEET

High Risk Coping Questionnaire – Answer sheet

	1	Strongly disagree	2	Disagree	3	Neither agree nor disagree	4	Agree	5	Strongly agree
1	1	2	3	4	5		36	1	2	3
2	1	2	3	4	5		37	1	2	3
3	1	2	3	4	5		38	1	2	3
4	1	2	3	4	5		39	1	2	3
5	1	2	3	4	5		40	1	2	3
6	1	2	3	4	5		41	1	2	3
7	1	2	3	4	5		42	1	2	3
8	1	2	3	4	5		43	1	2	3
9	1	2	3	4	5		44	1	2	3
10	1	2	3	4	5		45	1	2	3
11	1	2	3	4	5		46	1	2	3
12	1	2	3	4	5		47	1	2	3
13	1	2	3	4	5		48	1	2	3
14	1	2	3	4	5		49	1	2	3
15	1	2	3	4	5		50	1	2	3
16	1	2	3	4	5		51	1	2	3
17	1	2	3	4	5		52	1	2	3
18	1	2	3	4	5		53	1	2	3
19	1	2	3	4	5		54	1	2	3
20	1	2	3	4	5		55	1	2	3
21	1	2	3	4	5		56	1	2	3
22	1	2	3	4	5		57	1	2	3
23	1	2	3	4	5		58	1	2	3
24	1	2	3	4	5		59	1	2	3
25	1	2	3	4	5		60	1	2	3
26	1	2	3	4	5		61	1	2	3
27	1	2	3	4	5		62	1	2	3
28	1	2	3	4	5		63	1	2	3
29	1	2	3	4	5		64	1	2	3
30	1	2	3	4	5		65	1	2	3
31	1	2	3	4	5		66	1	2	3
32	1	2	3	4	5		67	1	2	3
33	1	2	3	4	5		68	1	2	3
34	1	2	3	4	5		69	1	2	3
35	1	2	3	4	5					

ANNEXURE 6: BIOGRAPHICAL QUESTIONNAIRE

Biographical information

The following biographical information will only be used to make comparisons between different groups.

1. What is your gender?

Male	Female
------	--------

2. When were you born?

Before 1946	Between 1946 and 1964	Between 1965 and 1981	Between 1982 and 2000
-------------	-----------------------	-----------------------	-----------------------

3. What is your occupation?

VIP protector	Armed response officer	Cash-in-transit guard	Security guard
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4. How long have you been doing the work as indicated in point 3 above?

Less than 2 years	Between 2 and 5 years	Between 5 and 10 years	Between 10 and 15 years	15 years or more
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5. How long have you been working in the security industry?

Less than 2 years	Between 2 and 5 years	Between 5 and 10 years	Between 10 and 15 years	15 years or more
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6. What is your race?

Asian	Black	Coloured	Indian	White
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Thank you for your participation.

ANNEXURE 7: DEFINITIONS OF THE FACTORS MEASURED BY MEANS OF THE HRCQ

Original factors	Definition
Dealing with uncertainty	Being able to deal with uncertainty in a high stress security environment.
Support	Having a network that can be trusted to offer advice and support when stress levels become too much.
Cohesion	The trust and association between members of a group and their commitment to each other.
Physical exercise	Doing physical exercises to reduce the potentially damaging effects of stress and also to help with improvements in mood.
Relaxation	Taking a break from a stressful event in order to interrupt the stress cycle.
Sleep	Having sound sleep patterns to allow a person's body to recharge and function effectively.
Diet	Having healthy eating habits to allow a person's body and mind to function effectively during times of high stress.
Training	Having positive expectations about one's own capabilities to effectively deal with work-related problems.
Humour	Turning stressful situations into a funny story and having the ability to laugh at oneself.
Positive appraisal	Using self-encouragement by highlighting the positive aspects of one's own skills and experience.
Religion	Finding the purpose and meaning in situations that can challenge the most fundamental beliefs.
Substance use	Using substances as a temporary coping method for managing stress to help lower anxiety and improve self-esteem.
Displacement	"Transferring" of emotions from their original source to a substitute object in order to avoid responsibility for problems.
Denial	Consciously making an effort not to acknowledge thoughts, feelings, desires or aspects of reality that would be painful or unacceptable in order to protect oneself from an unpleasant reality.

The factor support included therapy/counselling and social support. The factor training included learned resourcefulness.

New factors	Definition
Social media addiction	Using social media as a temporary coping method for managing stress to reduce anxiety, depression and "feeling empty".
Avoidance	Avoiding dealing with stressful situations by using substances, such as alcohol or medication, as well as "transferring" emotions from their original source to a substitute object in order to avoid responsibility for problems.

Avoidance is a combination of substance use and displacement.

ANNEXURE 8: MEAN, SKEWNESS AND KURTOSIS RESULTS OF THE ORIGINAL HRCQ (ALL QUESTIONS)

Item	n	Min	Max	Mean			Skewness		Kurtosis		Ratio K
				Statistic	SE	SD	Statistic	SE	Statistic	SE	
HRCQ 1	381	1	5	3,63	0,067	1,301	-0,738	0,125	-0,618	0,249	2,5
HRCQ 2	381	1	5	3,12	0,060	1,169	-0,202	0,125	-0,982	0,249	3,9
HRCQ 3	381	1	5	3,79	0,055	1,079	-1,044	0,125	0,627	0,249	2,5
HRCQ 4	381	1	5	3,08	0,065	1,277	-0,125	0,125	-1,124	0,249	4,5
HRCQ 5	381	1	5	3,37	0,064	1,247	-0,393	0,125	-0,939	0,249	3,8
HRCQ 6	381	1	5	3,43	0,063	1,230	-0,536	0,125	-0,730	0,249	2,9
HRCQ 7	381	1	5	3,43	0,065	1,277	-0,481	0,125	-0,907	0,249	3,6
HRCQ 8	381	1	5	3,08	0,062	1,215	-0,084	0,125	-1,054	0,249	4,2
HRCQ 9	381	1	5	3,37	0,063	1,226	-0,408	0,125	-0,873	0,249	3,5
HRCQ 10	381	1	5	2,83	0,070	1,364	0,133	0,125	-1,297	0,249	5,2
HRCQ 11	381	1	5	2,35	0,061	1,195	0,689	0,125	-0,462	0,249	1,9
HRCQ 12	381	1	5	3,52	0,060	1,169	-0,621	0,125	-0,462	0,249	1,9
HRCQ 13	381	1	5	2,84	0,058	1,126	0,079	0,125	-0,731	0,249	2,9
HRCQ 14	381	1	5	3,17	0,059	1,142	-0,275	0,125	-0,654	0,249	2,6
HRCQ 15	381	1	5	3,76	0,060	1,163	-0,893	0,125	-0,060	0,249	0,2
HRCQ 16	381	1	5	3,51	0,060	1,171	-0,554	0,125	-0,612	0,249	2,5
HRCQ 17	381	1	5	3,40	0,062	1,209	-0,367	0,125	-0,901	0,249	3,6
HRCQ 18	381	1	5	3,86	0,057	1,122	-1,067	0,125	0,434	0,249	1,7
HRCQ 19	381	1	5	3,79	0,053	1,038	-0,983	0,125	0,529	0,249	2,1
HRCQ 20	381	1	5	3,69	0,057	1,109	-0,726	0,125	-0,233	0,249	0,9
HRCQ 21	381	1	5	3,66	0,058	1,126	-0,760	0,125	-0,193	0,249	0,8
HRCQ 22	381	1	5	3,42	0,058	1,123	-0,495	0,125	-0,598	0,249	2,4
HRCQ 23	381	1	5	3,88	0,056	1,089	-1,095	0,125	0,676	0,249	2,7
HRCQ 24	381	1	5	2,80	0,065	1,268	0,255	0,125	-1,049	0,249	4,2
HRCQ 25	381	1	5	2,76	0,064	1,249	0,284	0,125	-0,993	0,249	4,0
HRCQ 26	381	1	5	3,20	0,063	1,229	-0,338	0,125	-0,938	0,249	3,8
HRCQ 27	381	1	5	2,71	0,065	1,270	0,406	0,125	-0,950	0,249	3,8
HRCQ 28	381	1	5	3,25	0,064	1,241	-0,344	0,125	-0,949	0,249	3,8
HRCQ 29	381	1	5	3,12	0,060	1,173	-0,222	0,125	-0,965	0,249	3,9

Item	n	Min	Max	Mean			Skewness		Kurtosis		Ratio K
				Statistic	SE	SD	Statistic	SE	Statistic	SE	
HRCQ_30	381	1	5	3,37	0,058	1,132	-0,506	0,125	-0,590	0,249	2,4
HRCQ_31	381	1	5	3,17	0,060	1,173	-0,203	0,125	-0,890	0,249	3,6
HRCQ_32	381	1	5	3,15	0,061	1,195	-0,086	0,125	-0,968	0,249	3,9
HRCQ_33	381	1	5	3,45	0,062	1,219	-0,481	0,125	-0,731	0,249	2,9
HRCQ_34	381	1	5	2,64	0,063	1,238	0,319	0,125	-0,984	0,249	4,0
HRCQ_35	381	1	5	3,46	0,064	1,245	-0,507	0,125	-0,803	0,249	3,2
HRCQ_36	381	1	5	3,95	0,054	1,054	-1,229	0,125	1,129	0,249	4,5
HRCQ_37	381	1	5	3,78	0,053	1,039	-0,946	0,125	0,424	0,249	1,7
HRCQ_38	381	1	5	3,49	0,059	1,160	-0,596	0,125	-0,561	0,249	2,3
HRCQ_39	381	1	5	3,68	0,057	1,106	-0,756	0,125	-0,249	0,249	1,0
HRCQ_40	381	1	5	2,75	0,065	1,277	0,252	0,125	-1,136	0,249	4,6
HRCQ_41	381	1	5	3,18	0,058	1,130	-0,284	0,125	-0,840	0,249	3,4
HRCQ_42	381	1	5	3,01	0,062	1,203	-0,074	0,125	-1,050	0,249	4,2
HRCQ_43	381	1	5	2,87	0,063	1,229	0,088	0,125	-1,078	0,249	4,3
HRCQ_44	381	1	5	3,27	0,059	1,151	-0,330	0,125	-0,801	0,249	3,2
HRCQ_45	381	1	5	2,84	0,061	1,199	0,095	0,125	-1,027	0,249	4,1
HRCQ_46	381	1	5	3,81	0,057	1,118	-1,047	0,125	0,480	0,249	1,9
HRCQ_47	381	1	5	3,62	0,062	1,207	-0,706	0,125	-0,526	0,249	2,1
HRCQ_48	381	1	5	3,91	0,052	1,013	-1,153	0,125	1,030	0,249	4,1
HRCQ_49	381	1	5	3,93	0,053	1,026	-1,337	0,125	1,670	0,249	6,7
HRCQ_50	381	1	5	4,01	0,053	1,030	-1,218	0,125	1,078	0,249	4,3
HRCQ_51	381	1	5	3,59	0,065	1,267	-0,630	0,125	-0,734	0,249	2,9
HRCQ_52	381	1	5	3,78	0,060	1,162	-0,863	0,125	-0,121	0,249	0,5
HRCQ_53	381	1	5	3,81	0,056	1,085	-0,982	0,125	0,452	0,249	1,8
HRCQ_54	381	1	5	3,82	0,058	1,129	-1,094	0,125	0,558	0,249	2,2
HRCQ_55	381	1	5	2,08	0,064	1,245	0,941	0,125	-0,269	0,249	1,1
HRCQ_56	381	1	5	1,95	0,063	1,230	1,190	0,125	0,303	0,249	1,2
HRCQ_57	381	1	5	2,09	0,062	1,210	0,882	0,125	-0,381	0,249	1,5
HRCQ_58	381	1	5	2,08	0,065	1,259	0,897	0,125	-0,468	0,249	1,9
HRCQ_59	381	1	5	1,89	0,058	1,126	1,212	0,125	0,546	0,249	2,2
HRCQ_60	381	1	5	1,97	0,062	1,213	1,222	0,125	0,498	0,249	2,0

Item	n	Min	Max	Mean			Skewness		Kurtosis		Ratio K
				Statistic	SE	SD	Statistic	SE	Statistic	SE	
HRCQ 61	381	1	5	1,89	0,057	1,114	1,311	0,125	0,957	0,249	3,8
HRCQ 62	381	1	5	1,88	0,056	1,101	1,312	0,125	0,950	0,249	3,8
HRCQ 63	381	1	5	2,12	0,061	1,187	0,870	0,125	-0,285	0,249	1,1
HRCQ 64	381	1	5	1,93	0,055	1,079	1,160	0,125	0,660	0,249	2,7
HRCQ 65	381	1	5	2,45	0,064	1,242	0,517	0,125	-0,816	0,249	3,3
HRCQ 66	381	1	5	2,43	0,060	1,174	0,526	0,125	-0,593	0,249	2,4
HRCQ 67	381	1	5	2,43	0,060	1,176	0,578	0,125	-0,524	0,249	2,1
HRCQ 68	381	1	5	2,34	0,062	1,213	0,703	0,125	-0,487	0,249	2,0
HRCQ 69	381	1	5	2,64	0,069	1,351	0,320	0,125	-1,178	0,249	4,7

ANNEXURE 9: CORRELATION SCORES OF THE EFA FACTORS AFTER FACTOR CLEAN-UP

Factors identified after exploratory factor analysis

Item	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13
6								0.674					
7								0.574					
8								0.632					
9								0.538					
11									0.524				
13									0.658				
14									0.620				
15			0.636										
16			0.812										
17			0.684										
18			0.667										
21											0.499		
22											0.545		
24										0.697			
25										0.787			
28									0.659				
29									0.633				
30									0.457				
31							0.821						
32							0.784						
33							0.455						
36				0.636									
37				0.812									
38				0.606									
39				0.499									
42						0.607							
43						0.685							
44						0.571							
45						0.609							
51				0.498									
52				0.628									
53				0.798									
54				0.688									
55												0.567	

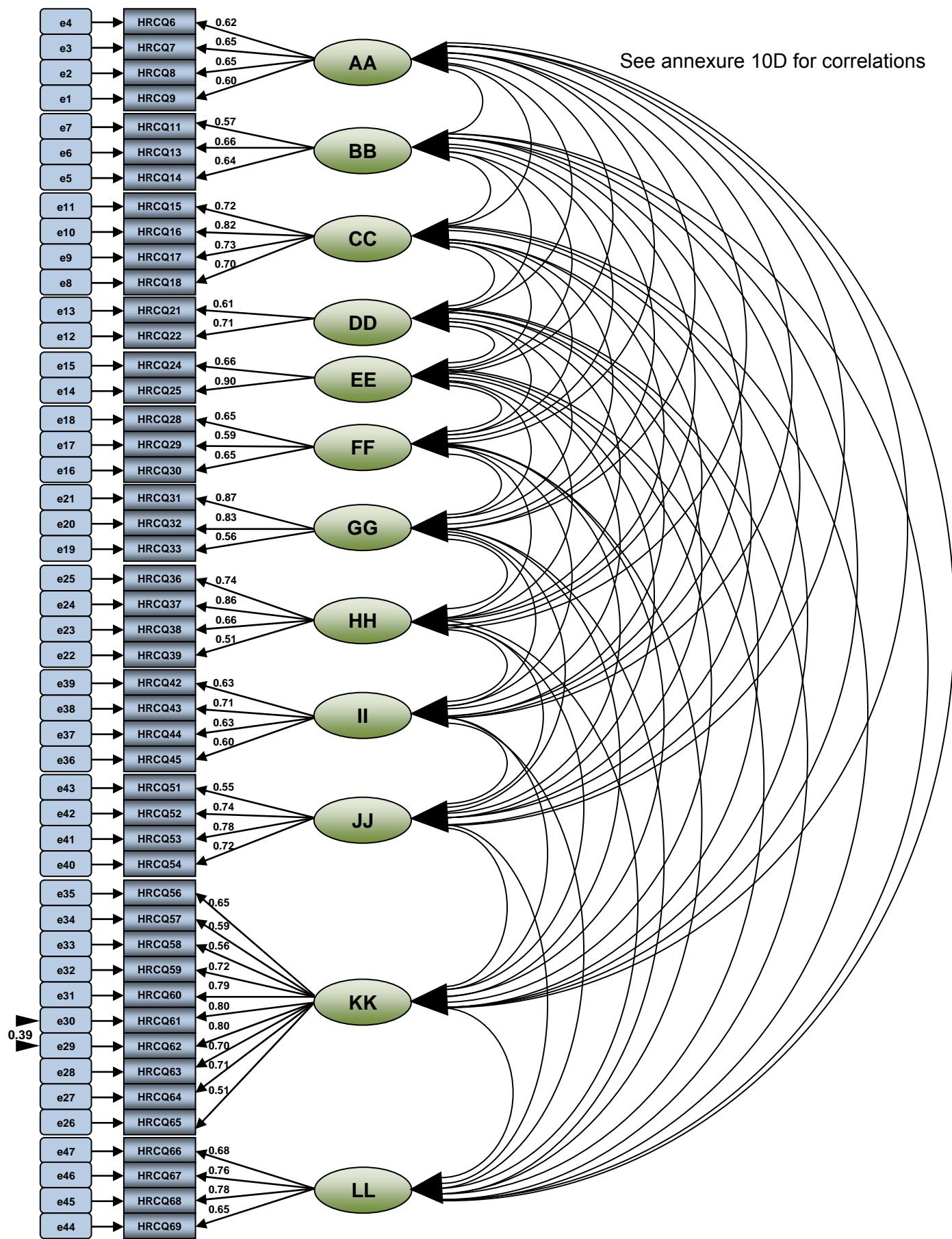
Item	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13
56	0.609												
57	0.568												
58	0.519												
59	0.683												
60	0.786												
61	0.839												
62	0.833												
63	0.700												
64	0.677												
65	0.478												
66							0.543						
67							0.713						
68							0.669						
69							0.619						

Note. Extraction method: Principal axis factoring with VARIMAX rotation (and Kaiser normalisation)

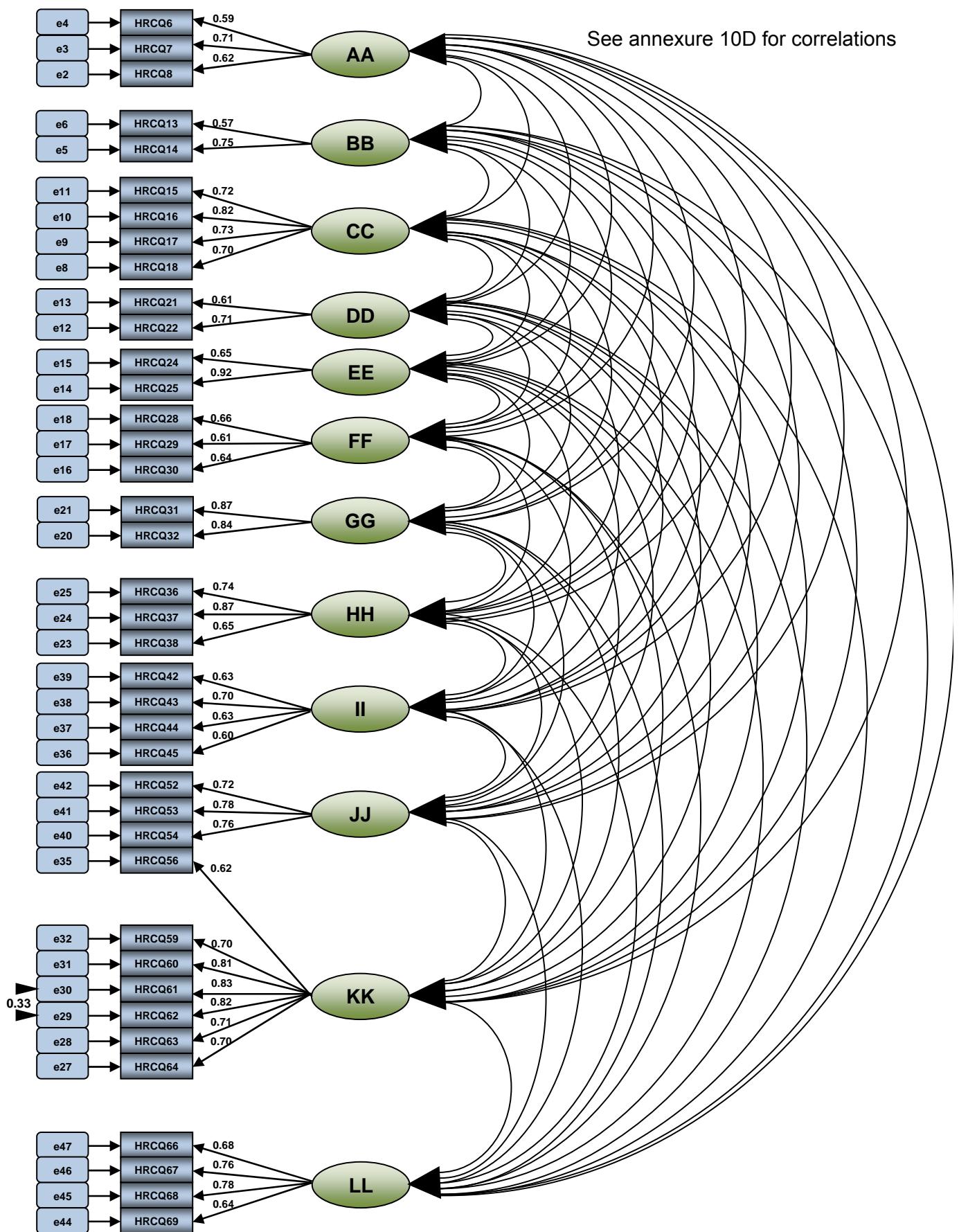
The following are the labels of the factors that were identified during the development of the HRCQ and extracted by the EFA.

Factor	Factor label
F1	Substance use and displacement (combined and labelled avoidance for CFA)
F2	Physical exercise
F3	Religion
F4	Training
F5	Denial
F6	Humour
F7	Diet
F8	Support
F9	Cohesion
F10	Sleep
F11	Social media addiction (new factor)
F12	Relaxation
F13	Single item new factor (was excluded from CFA)

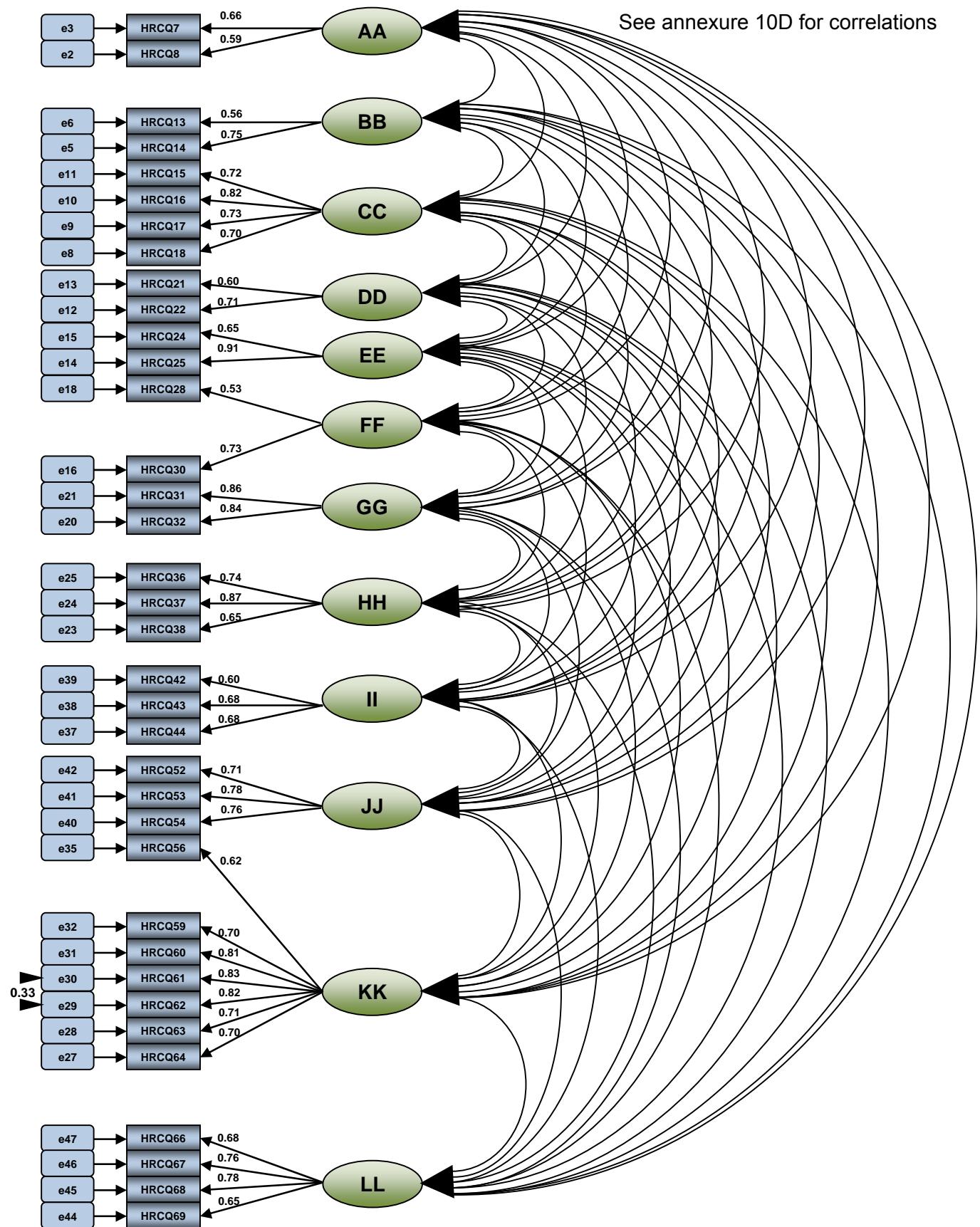
ANNEXURE 10A: BASELINE MODEL



ANNEXURE 10B: MODEL 2



ANNEXURE 10C: MODEL 3



ANNEXURE 10D: CORRELATIONS BETWEEN THE COPING CONSTRUCTS FOR THE BASELINE MODEL, MODEL 2 AND MODEL 3

Coping constructs		Estimated correlations		
		Baseline model	Model 2	Model 3
AA	↔	BB	0.36	0.47
AA	↔	CC	0.38	0.38
AA	↔	DD	0.33	0.26
AA	↔	EE	0.23	0.21
AA	↔	FF	0.39	0.38
AA	↔	GG	0.24	0.26
AA	↔	HH	0.28	0.28
AA	↔	KK	-0.03	-0.03
AA	↔	II	0.10	0.06
AA	↔	JJ	0.36	0.36
AA	↔	LL	0.20	0.21
BB	↔	CC	0.30	0.34
BB	↔	DD	0.40	0.39
BB	↔	EE	0.17	0.16
BB	↔	FF	0.36	0.41
BB	↔	GG	0.39	0.38
BB	↔	HH	0.21	0.28
BB	↔	KK	0.12	0.04
BB	↔	II	0.21	0.18
BB	↔	JJ	0.02	0.07
BB	↔	LL	0.21	0.18
CC	↔	DD	0.47	0.47
CC	↔	EE	0.06	0.06
CC	↔	FF	0.40	0.40
CC	↔	GG	0.35	0.34
CC	↔	HH	0.40	0.40
CC	↔	KK	-0.05	-0.04
CC	↔	II	0.08	0.08
CC	↔	JJ	0.39	0.39
CC	↔	LL	0.09	0.09
DD	↔	EE	0.06	0.05
DD	↔	FF	0.48	0.48
DD	↔	GG	0.38	0.36
DD	↔	HH	0.38	0.39
DD	↔	KK	-0.04	-0.06

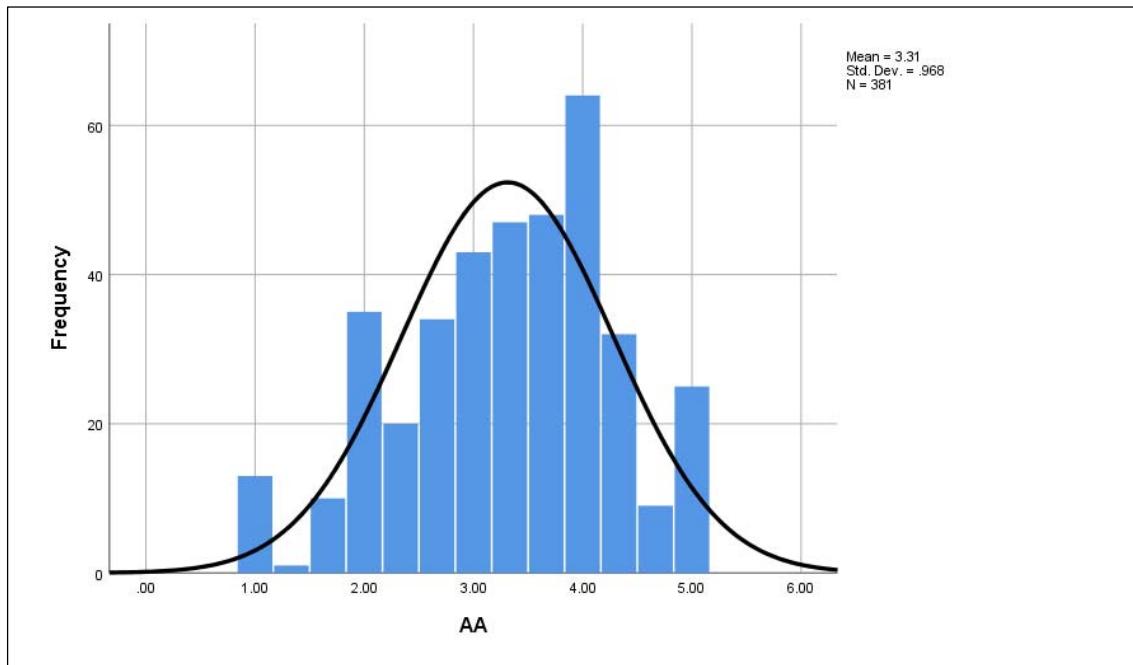
Coping constructs			Estimated correlations		
			Baseline model	Model 2	Model 3
DD	↔	II	0.24	0.25	0.25
DD	↔	JJ	0.44	0.41	0.41
DD	↔	LL	-0.06	-0.06	-0.06
EE	↔	FF	0.09	0.08	0.09
EE	↔	GG	0.12	0.10	0.10
EE	↔	HH	0.07	0.07	0.07
EE	↔	KK	0.29	0.27	0.28
EE	↔	II	0.26	0.25	0.25
EE	↔	JJ	0.06	0.07	0.07
EE	↔	LL	0.27	0.27	0.27
FF	↔	GG	0.42	0.40	0.48
FF	↔	HH	0.44	0.44	0.45
FF	↔	KK	-0.04	-0.02	-0.07
FF	↔	II	0.31	0.31	0.34
FF	↔	JJ	0.34	0.32	0.35
FF	↔	LL	0.15	0.15	0.14
GG	↔	HH	0.32	0.33	0.33
GG	↔	KK	0.04	0.03	0.03
GG	↔	II	0.04	0.04	0.03
GG	↔	JJ	0.33	0.32	0.31
GG	↔	LL	0.34	0.34	0.34
HH	↔	KK	-0.14	-0.15	-0.15
HH	↔	II	0.30	0.29	0.29
HH	↔	JJ	0.48	0.45	0.45
HH	↔	LL	0.05	0.05	0.05
KK	↔	II	0.15	0.14	0.11
KK	↔	JJ	-0.12	-0.12	-0.12
KK	↔	LL	0.57	0.57	0.57
II	↔	JJ	0.20	0.21	0.23
II	↔	LL	0.11	0.11	0.12
JJ	↔	LL	0.08	0.08	0.08

ANNEXURE 11: MEAN, STANDARD DEVIATION, SKEWNESS AND KURTOSIS FOR THE FINAL 12 CONSTRUCTS OF THE HRCQ

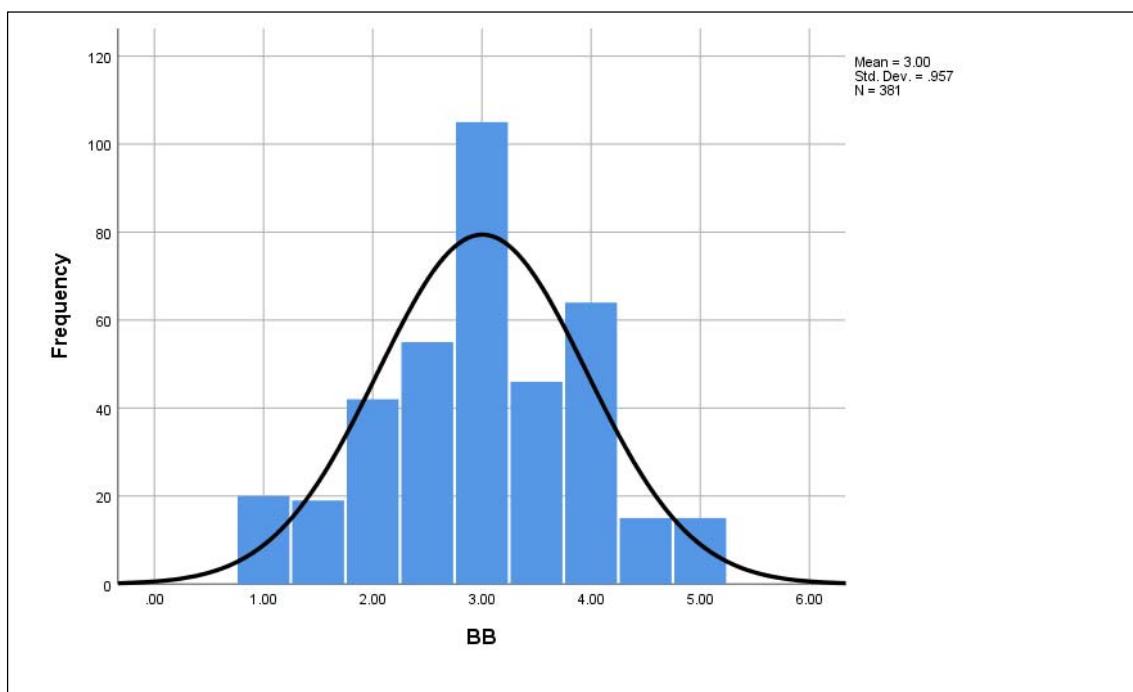
		AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL
n	Valid	381	381	381	381	381	381	381	381	381	381	381	381
	Missing	0	0	0	0	0	0	0	0	0	0	0	0
Mean		3.31	3.00	3.63	3.54	2.78	3.25	3.16	3.74	3.00	3.80	1.95	2.46
Std error of mean		0.050	0.049	0.049	0.049	0.058	0.047	0.056	0.047	0.046	0.048	0.046	0.050
Median		3.33	3.00	3.75	4.00	3.00	3.33	3.00	4.00	3.00	4.00	1.86	2.25
Std deviation		0.968	0.957	0.948	0.951	1.124	0.917	1.099	0.908	0.892	0.945	0.901	0.976
Variance		0.936	0.915	0.899	0.904	1.264	0.841	1.209	0.824	0.795	0.894	0.812	0.952
Skewness		-0.353	-0.111	-0.662	-0.647	0.299	-0.400	-0.084	-0.798	0.080	-0.964	0.996	0.491
Std error of skewness		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Kurtosis		-0.365	-0.326	0.178	0.098	-0.784	-0.161	-0.816	0.495	-0.423	0.718	0.414	-0.277
Std error of kurtosis		0.249	0.249	0.249	0.249	0.249	0.249	0.249	0.249	0.249	0.249	0.249	0.249
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00

ANNEXURE 12: HISTOGRAMS FOR THE 12 CONSTRUCTS OF THE HRCQ

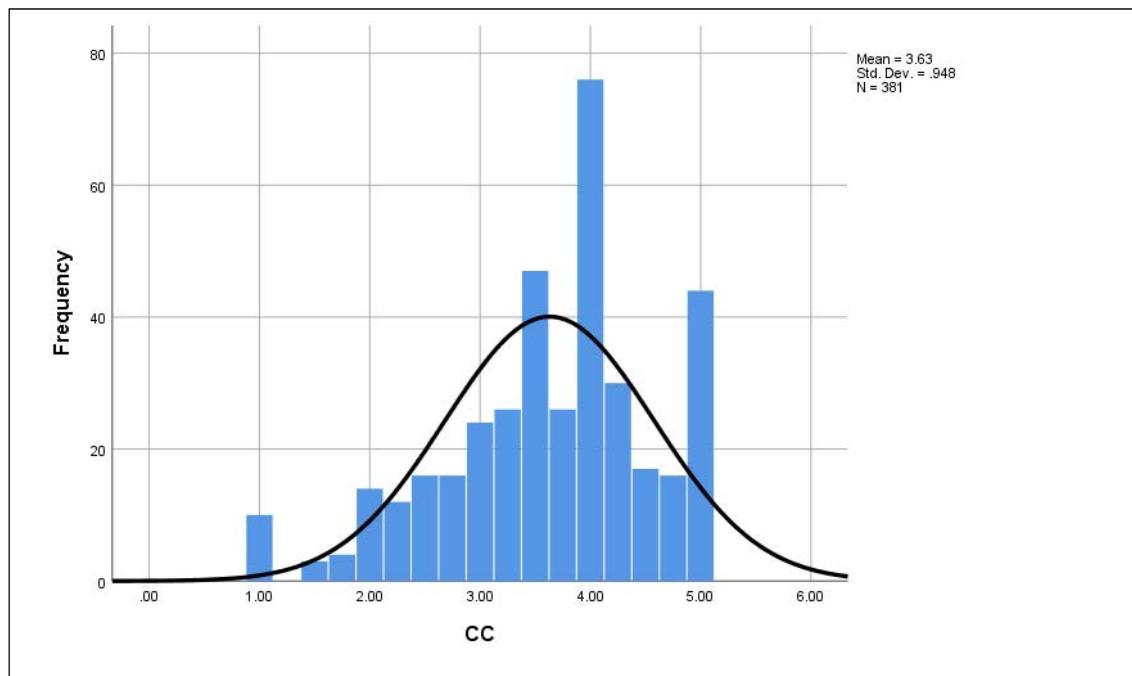
Social support (AA)



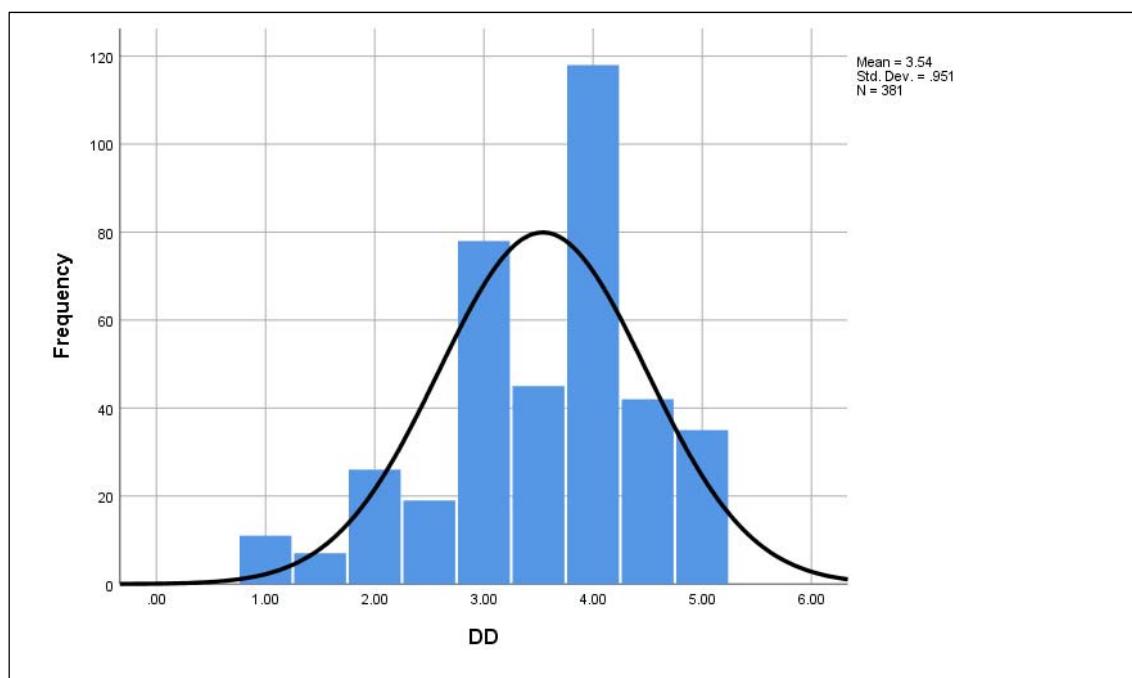
Group cohesion (BB)



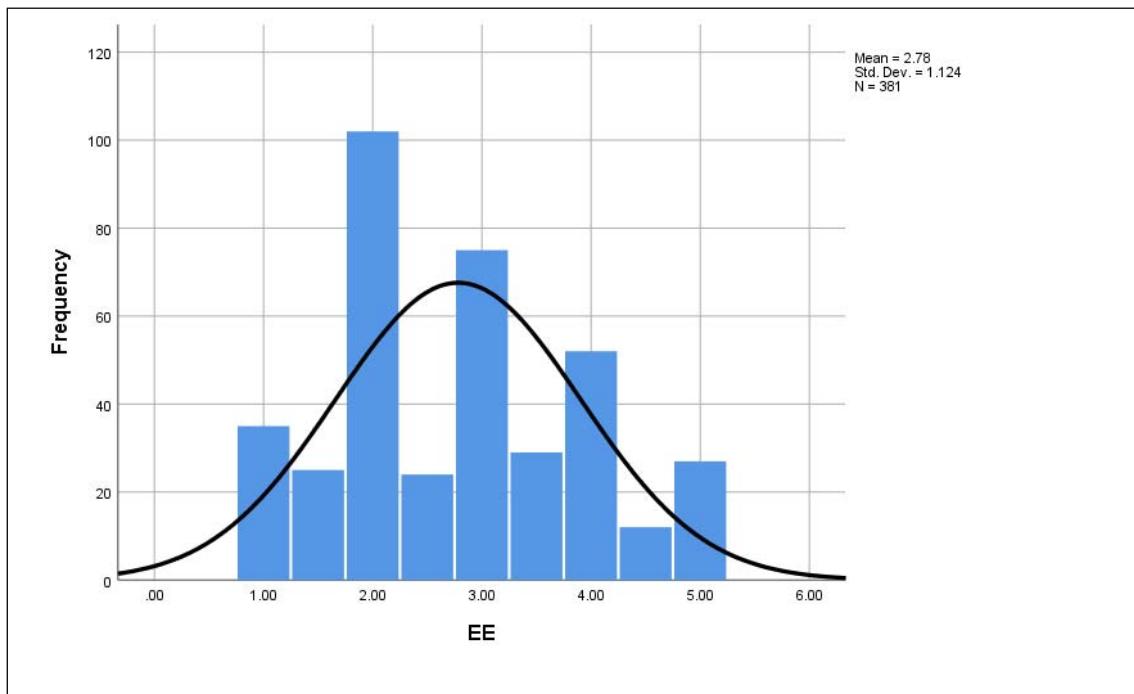
Physical exercise (CC)



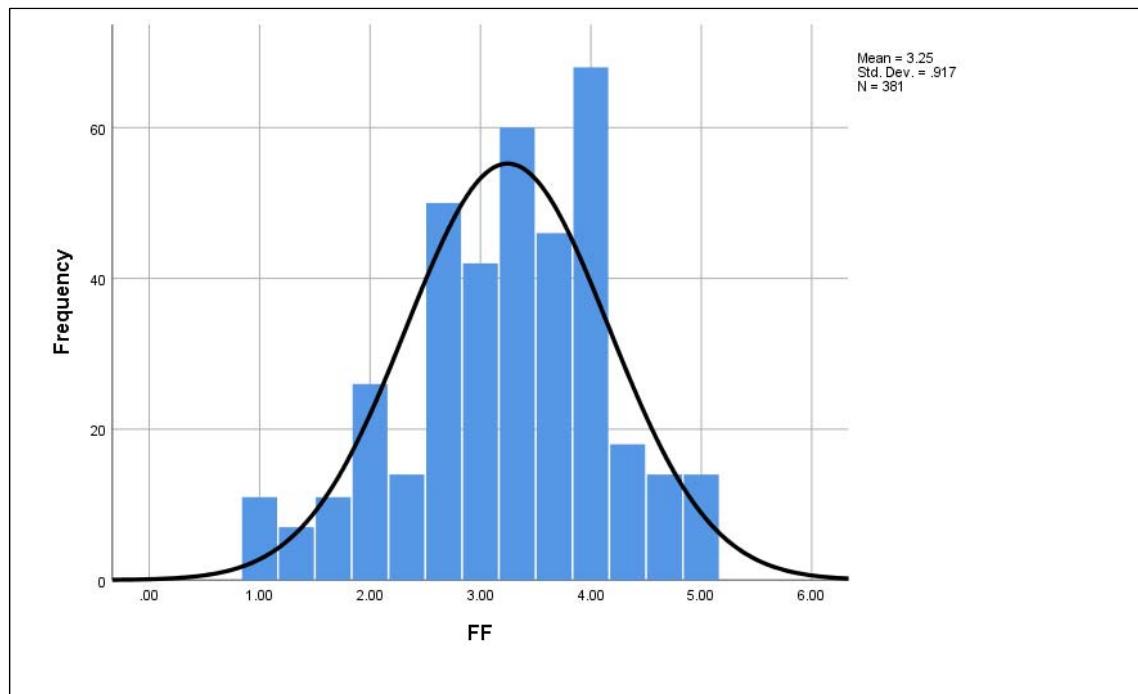
Relaxation (DD)



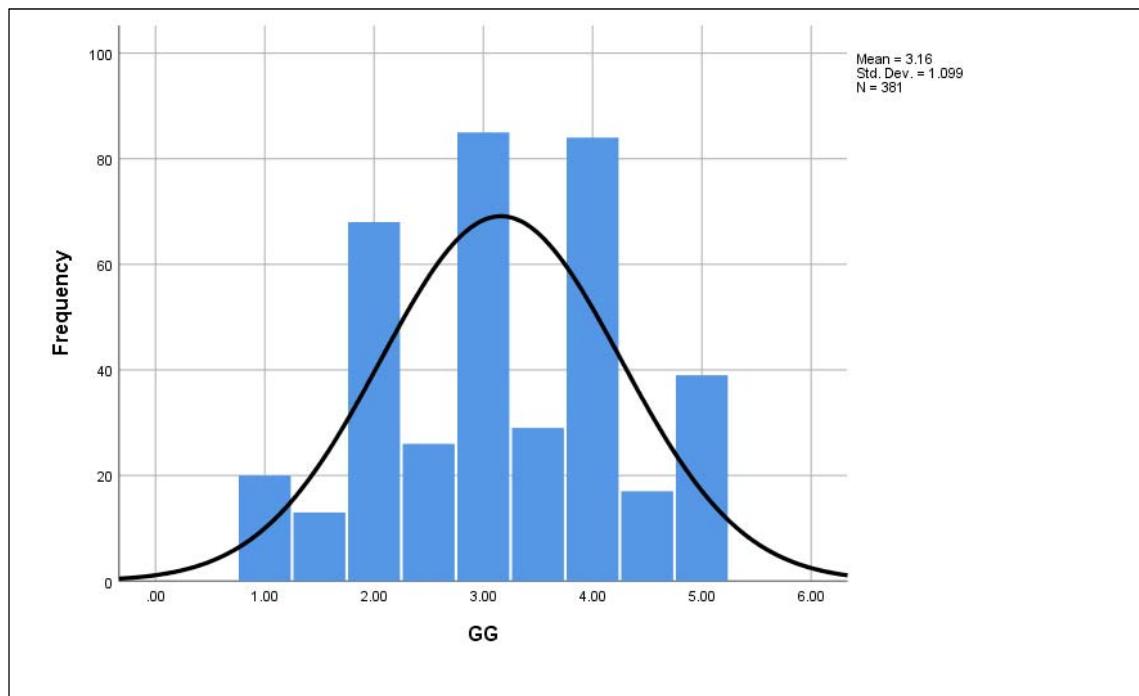
Social media addiction (EE)



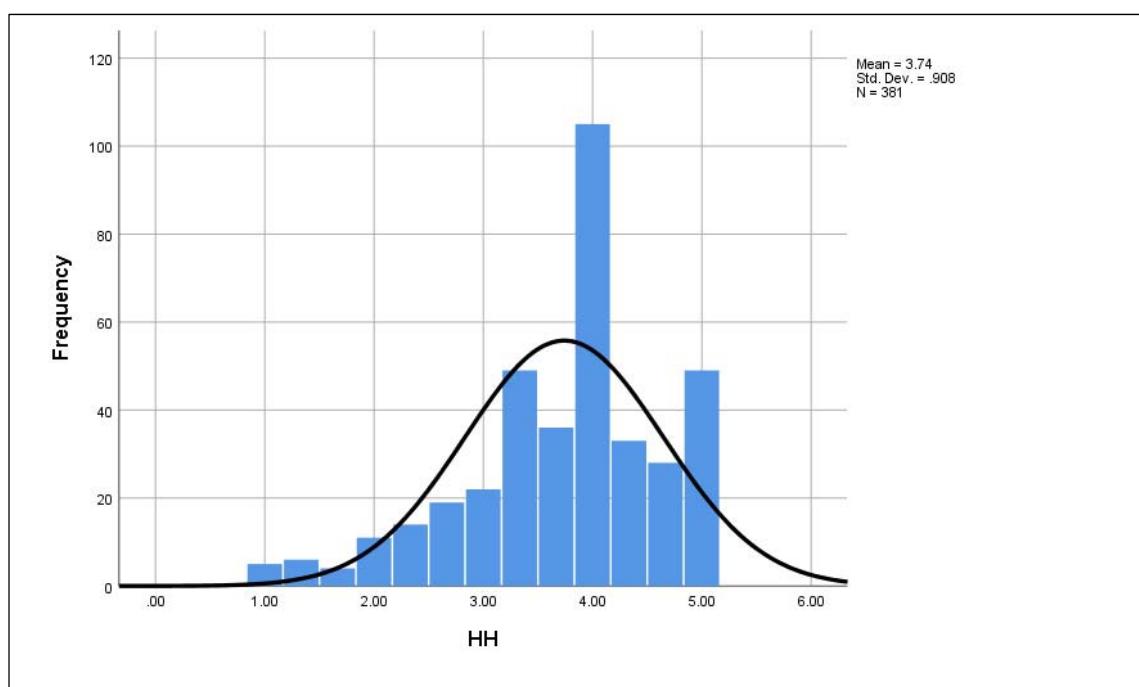
Healthy sleeping habits (FF)



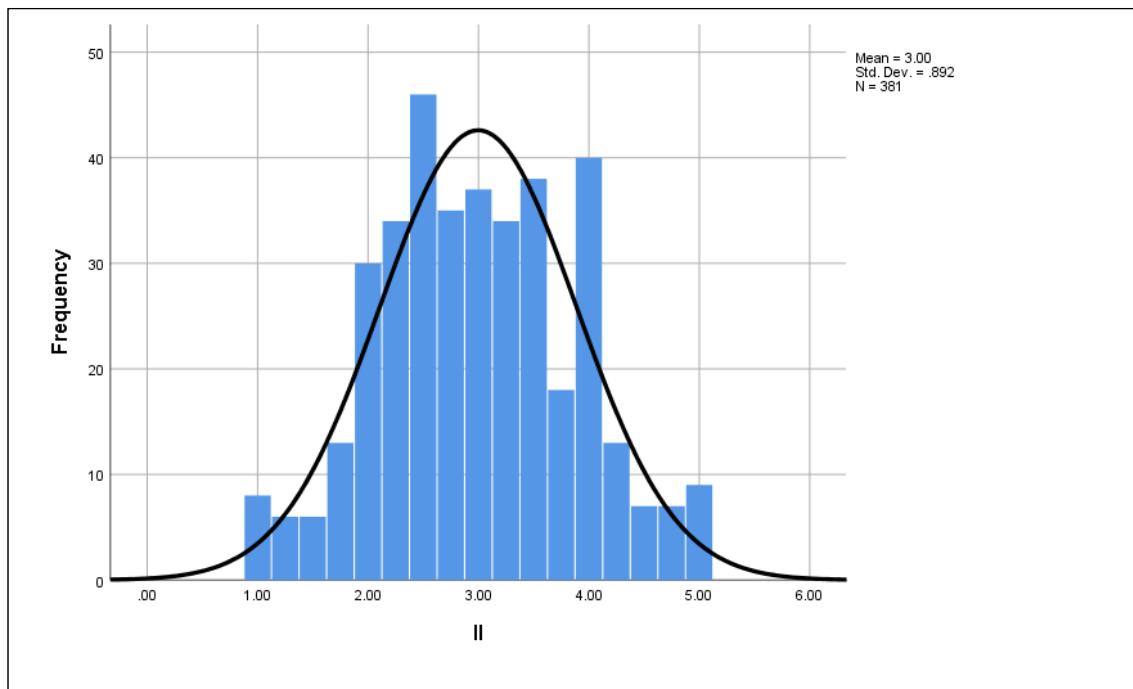
Healthy diet (GG)



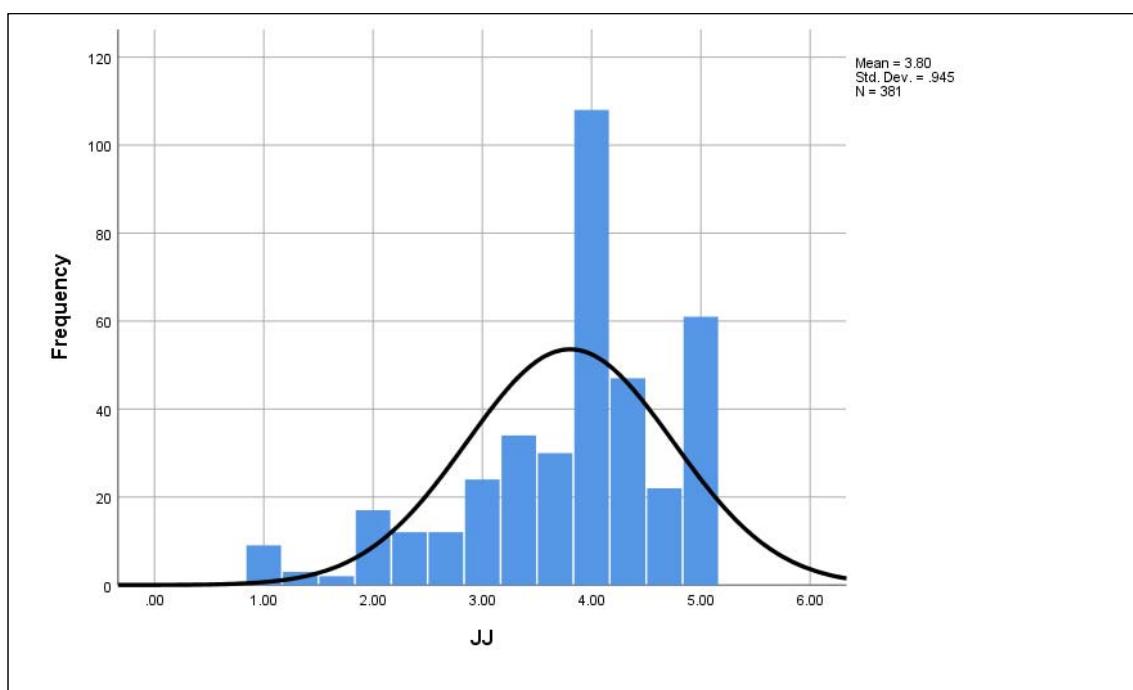
Training (HH)



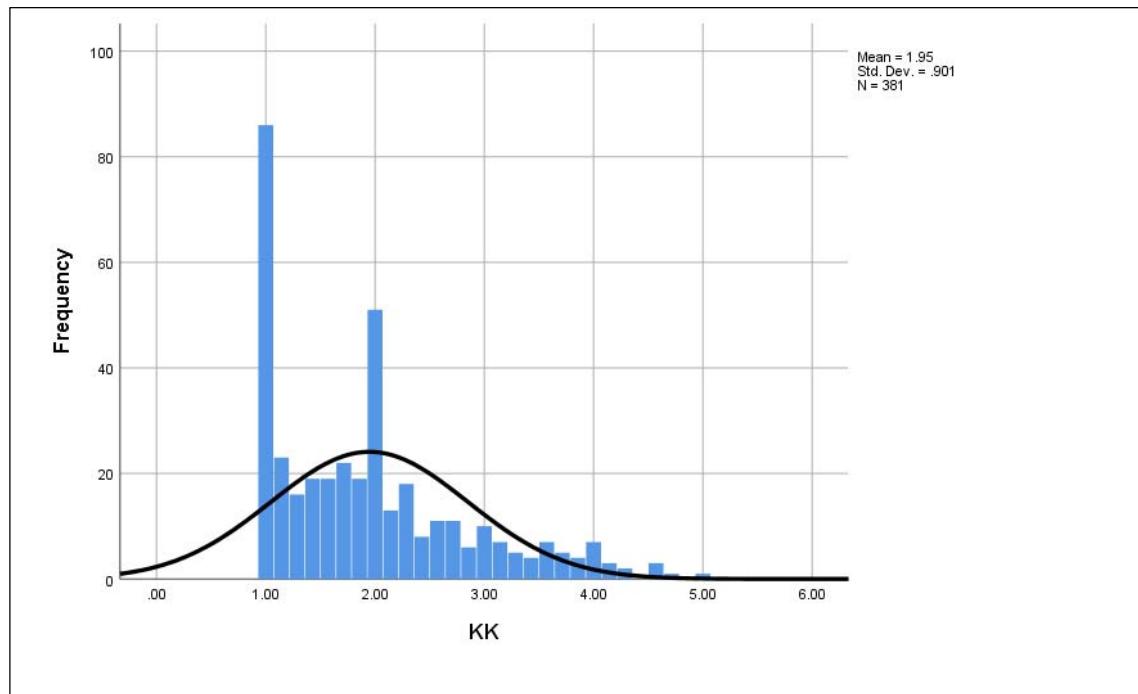
Humour (II)



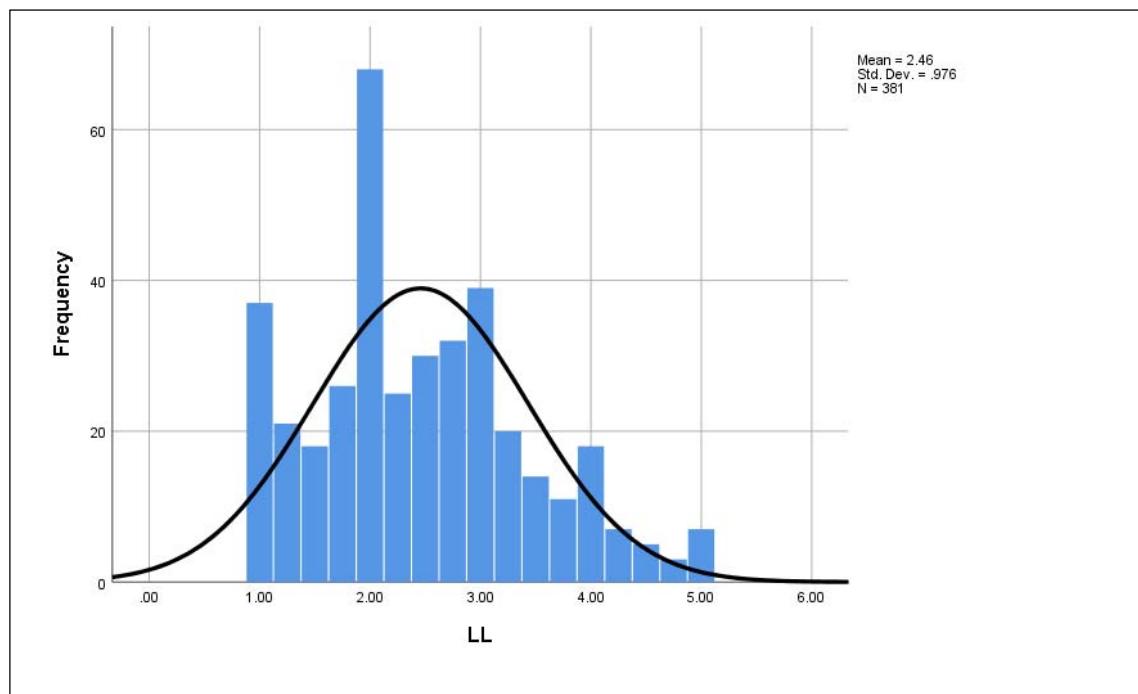
Religion (JJ)



Avoidance (KK)



Denial (LL)



ANNEXURE 13: PEARSON CORRELATIONS BETWEEN HRCQ FACTORS AND THE BASIC TRAITS INVENTORY

		AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL
BB (Cohesion)	Pearson correlation	.289**											
	Sig. (2-tailed)	0.000											
	n	381											
CC (Physical exercise)	Pearson correlation	.279**	.253**										
	Sig. (2-tailed)	0.000	0.000										
	n	381	381										
DD (Relaxation)	Pearson correlation	.189**	.247**	.340**									
	Sig. (2-tailed)	0.000	0.000	0.000									
	n	381	381	381									
EE (Social media addiction)	Pearson correlation	.163**	.138**	0.076	0.087								
	Sig. (2-tailed)	0.001	0.007	0.137	0.091								
	n	381	381	381	381								
FF (Sleep)	Pearson correlation	.240**	.253**	.294**	.317**	0.094							
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.066							
	n	381	381	381	381	381							
GG (Diet)	Pearson correlation	.181**	.264**	.291**	.255**	.116*	.296**						
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.024	0.000						
	n	381	381	381	381	381	381						
HH (Training)	Pearson correlation	.211**	.168**	.338**	.279**	0.060	.324**	.261**					
	Sig. (2-tailed)	0.000	0.001	0.000	0.000	0.246	0.000	0.000					
	n	381	381	381	381	381	381	381					

		Constructs													
		Constructs													
Construct	Type	Pearson correlation		.044	.108*	0.074	.167**	.221**	.220**	0.037	.251**				
		Sig. (2-tailed)		0.387	0.035	0.152	0.001	0.000	0.000	0.467	0.000				
		n		381	381	381	381	381	381	381	381				
Construct	Type	Pearson correlation		.255**	0.047	.322**	.302**	0.044	.241**	.260**	.369**	.164**			
		Sig. (2-tailed)		0.000	0.361	0.000	0.000	0.395	0.000	0.000	0.000	0.001			
		n		381	381	381	381	381	381	381	381	381			
Construct	Type	Pearson correlation		-.017	0.030	-0.046	-0.039	.220**	0.004	0.026	-.114*	.125*	-.103*		
		Sig. (2-tailed)		0.739	0.555	0.370	0.450	0.000	0.945	0.618	0.026	0.015	0.045		
		n		381	381	381	381	381	381	381	381	381	381		
Construct	Type	Pearson correlation		.157**	.131*	0.093	-0.042	.205**	.121*	.283**	0.051	0.096	0.069	.481**	
		Sig. (2-tailed)		0.002	0.011	0.069	0.419	0.000	0.018	0.000	0.316	0.060	0.177	0.000	
		n		381	381	381	381	381	381	381	381	381	381	381	
Construct	Type	Pearson correlation		.235**	.305**	.224**	0.086	.122*	.210**	.263**	.223**	0.069	.173**	0.001	.166**
		Sig. (2-tailed)		0.000	0.000	0.000	0.113	0.023	0.000	0.000	0.000	0.204	0.001	0.981	0.002
		n		344	344	344	344	344	344	344	344	344	344	344	344
Construct	Type	Pearson correlation		0.072	.179**	0.101	0.066	0.062	0.049	0.070	0.097	0.099	0.063	-0.050	-0.020
		Sig. (2-tailed)		0.185	0.001	0.061	0.222	0.254	0.368	0.197	0.071	0.066	0.241	0.356	0.715
		n		344	344	344	344	344	344	344	344	344	344	344	344
Construct	Type	Pearson correlation		0.091	0.104	.125*	.126*	0.014	.146**	.179**	.227**	0.103	.211**	-.141**	0.010
		Sig. (2-tailed)		0.091	0.055	0.020	0.020	0.798	0.007	0.001	0.000	0.056	0.000	0.009	0.859
		n		344	344	344	344	344	344	344	344	344	344	344	344
Construct	Type	Pearson correlation		.136*	.141**	0.100	.173**	.115*	.133*	-0.069	.124*	.161**	0.103	-0.008	0.030
		Sig. (2-tailed)		0.011	0.009	0.065	0.001	0.034	0.014	0.202	0.022	0.003	0.055	0.877	0.585
		n		344	344	344	344	344	344	344	344	344	344	344	344

BTI 5 (Excitement seeking - Extraversion)	Pearson correlation	-0.051	-0.039	-0.013	-0.035	.144**	-0.075	-0.026	-0.050	.243**	-0.065	.268**	.133*
	Sig. (2-tailed)	0.348	0.475	0.816	0.518	0.007	0.167	0.625	0.351	0.000	0.232	0.000	0.014
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 6 (Affective instability - Neuroticism)	Pearson correlation	0.023	-0.025	-0.042	0.006	0.081	-0.033	0.044	-0.069	0.020	-0.056	.318**	0.069
	Sig. (2-tailed)	0.668	0.643	0.433	0.912	0.135	0.546	0.417	0.205	0.716	0.301	0.000	0.204
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 7 (Depression - Neuroticism)	Pearson correlation	0.047	-0.046	-0.023	-0.005	.141**	-0.105	-0.052	-.141**	0.009	-.106*	.278**	.121*
	Sig. (2-tailed)	0.382	0.393	0.670	0.924	0.009	0.053	0.334	0.009	0.868	0.050	0.000	0.024
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 8 (Self-consciousness - Neuroticism)	Pearson correlation	0.050	-0.100	-0.078	-0.035	0.105	-0.039	-0.039	-0.058	0.050	0.000	.218**	0.034
	Sig. (2-tailed)	0.356	0.063	0.147	0.523	0.052	0.475	0.475	0.281	0.355	0.993	0.000	0.535
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 9 (Anxiety - Neuroticism)	Pearson correlation	0.020	-.130*	-0.044	0.026	0.086	-0.076	-0.072	-.129*	-0.049	-0.070	.235**	0.039
	Sig. (2-tailed)	0.707	0.016	0.421	0.637	0.111	0.158	0.183	0.017	0.369	0.195	0.000	0.471
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 10 (Effort - Conscientiousness)	Pearson correlation	0.084	.106*	.186**	.146**	-0.025	.168**	0.080	.163**	0.041	.256**	-.254**	-0.100
	Sig. (2-tailed)	0.122	0.049	0.001	0.007	0.641	0.002	0.141	0.002	0.450	0.000	0.000	0.063
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 11 (Order - Conscientiousness)	Pearson correlation	0.064	0.066	.144**	.205**	-0.023	.195**	0.097	.251**	0.061	.200**	-.269**	-.108*
	Sig. (2-tailed)	0.233	0.222	0.007	0.000	0.667	0.000	0.073	0.000	0.259	0.000	0.000	0.045
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 12 (Dutifulness - Conscientiousness)	Pearson correlation	0.082	0.085	.281**	.188**	-0.074	.195**	.123*	.275**	-0.007	.246**	-.259**	-0.077
	Sig. (2-tailed)	0.129	0.114	0.000	0.000	0.172	0.000	0.022	0.000	0.899	0.000	0.000	0.152
	n	344	344	344	344	344	344	344	344	344	344	344	344

	Pearson correlation	0.039	-0.017	.240**	.183**	-0.039	.213**	.117*	.286**	0.033	.293**	-.299**	-0.105
BTI 13 (Prudence - Conscientiousness)	Sig. (2-tailed)	0.476	0.759	0.000	0.001	0.475	0.000	0.031	0.000	0.545	0.000	0.000	0.053
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 14 (Self-discipline - Conscientiousness)	Pearson correlation	0.079	0.005	.112*	.125*	0.066	.179**	.144**	.264**	0.041	.186**	-.242**	-0.094
	Sig. (2-tailed)	0.143	0.932	0.037	0.021	0.220	0.001	0.008	0.000	0.451	0.001	0.000	0.080
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 15 (Aesthetics - Openness to experience)	Pearson correlation	-0.001	0.091	.133*	.129*	0.027	.208**	-0.01	.166**	.146**	.120*	-.184**	-.115*
	Sig. (2-tailed)	0.991	0.092	0.014	0.017	0.618	0.000	0.896	0.002	0.007	0.026	0.001	0.033
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 16 (Ideas - Openness to experience)	Pearson correlation	0.028	0.061	.131*	.149**	-0.024	.189**	-0.02	.220**	.174**	.161**	-.215**	-0.090
	Sig. (2-tailed)	0.611	0.260	0.015	0.006	0.654	0.000	0.648	0.000	0.001	0.003	0.000	0.097
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 17 (Actions - Openness to experience)	Pearson correlation	0.097	.140**	.180**	.242**	0.026	.177**	0.061	.198**	0.085	.153**	-.197**	-0.020
	Sig. (2-tailed)	0.072	0.009	0.001	0.000	0.631	0.001	0.256	0.000	0.115	0.004	0.000	0.717
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 18 (Values - Openness to experience)	Pearson correlation	0.015	0.067	.115*	.142**	-0.048	.125*	-0.04	.166**	.116*	0.1	-.112*	-0.092
	Sig. (2-tailed)	0.779	0.213	0.033	0.008	0.372	0.020	0.492	0.002	0.032	0.063	0.037	0.089
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 19 (Imagination - Openness to experience)	Pearson correlation	0.048	0.057	.150**	.111*	-0.012	.192**	0.003	.218**	.119*	.165**	-.275**	-.125*
	Sig. (2-tailed)	0.375	0.291	0.005	0.039	0.827	0.000	0.949	0.000	0.027	0.002	0.000	0.021
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI 20 (Straightforwardness - Agreeableness)	Pearson correlation	.154**	.157**	.174**	.150**	-0.014	.202**	0.097	.220**	0.028	.218**	-.296**	-0.026
	Sig. (2-tailed)	0.004	0.003	0.001	0.005	0.799	0.000	0.073	0.000	0.599	0.000	0.000	0.627
	n	344	344	344	344	344	344	344	344	344	344	344	344

	Pearson correlation	0.096	.123*	.152**	0.084	0.072	0.088	0.094	.160**	0.028	.154**	-0.09	.118*
BTI_21 (Compliance - Agreeableness)	Sig. (2-tailed)	0.076	0.023	0.005	0.118	0.181	0.104	0.083	0.003	0.610	0.004	0.106	0.029
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI_22 (Prosocial tendencies - Agreeableness)	Pearson correlation	0.087	.192**	.286**	.149**	0.021	.189**	.145**	.281**	0.089	.184**	-.229**	-0.020
	Sig. (2-tailed)	0.108	0.000	0.000	0.006	0.698	0.000	0.007	0.000	0.099	0.001	0.000	0.717
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI_23 (Modesty - Agreeableness)	Pearson correlation	-0.022	-0.002	.138*	0.104	0.099	.205**	.119*	.157**	.131*	.166**	-.131*	0.067
	Sig. (2-tailed)	0.688	0.969	0.010	0.054	0.067	0.000	0.028	0.003	0.015	0.002	0.015	0.215
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI_24 (Tendermindedness - Agreeableness)	Pearson correlation	0.058	.117*	.158**	.179**	0.064	.207**	0.079	.182**	.184**	.142**	-.196**	-0.010
	Sig. (2-tailed)	0.285	0.030	0.003	0.001	0.237	0.000	0.145	0.001	0.001	0.008	0.000	0.853
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI_E (Extraversion)	Pearson correlation	.139**	.210**	.158**	.136*	.164**	.142**	.119*	.177**	.228**	.144**	0.023	0.093
	Sig. (2-tailed)	0.010	0.000	0.003	0.012	0.002	0.008	0.027	0.001	0.000	0.008	0.667	0.083
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI_N (Neuroticism)	Pearson correlation	0.041	-0.102	-0.07	-0.02	.127*	-0.07	-0.05	-.130*	0.007	-0.07	.313**	0.087
	Sig. (2-tailed)	0.453	0.059	0.226	0.780	0.019	0.172	0.389	0.016	0.892	0.211	0.000	0.107
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI_C (Conscientiousness)	Pearson correlation	0.100	0.081	.241**	.207**	-0.014	.232**	.134*	.304**	0.041	.272**	-.322**	-.124*
	Sig. (2-tailed)	0.063	0.132	0.000	0.000	0.791	0.000	0.013	0.000	0.448	0.000	0.000	0.022
	n	344	344	344	344	344	344	344	344	344	344	344	344
BTI_O (Openness to experience)	Pearson correlation	0.036	.106*	.184**	.217**	0.006	.228**	-0.01	.225**	.165**	.175**	-.262**	-.122*
	Sig. (2-tailed)	0.510	0.050	0.001	0.000	0.917	0.000	0.908	0.000	0.002	0.001	0.000	0.023
	n	344	344	344	344	344	344	344	344	344	344	344	344

BTI_A (Agreeableness)	Pearson correlation	0.091	.158**	.224**	.171**	0.056	.221**	.148**	.248**	.110*	.226**	-.232**	0.035
	Sig. (2-tailed)	0.090	0.003	0.000	0.001	0.299	0.000	0.006	0.000	0.041	0.000	0.000	0.523
	n	344	344	344	344	344	344	344	344	344	344	344	344

Note. ** Correlation is significant at the p < 0.001 level (2-tailed).

* Correlation is significant at the p < 0.005 level (2-tailed).

ANNEXURE 14: CANONICAL CORRELATIONS BETWEEN HRCQ FACTORS AND THE BASIC TRAITS INVENTORY

Canonical function	Canonical correlation	Eigen-value	Wilks statistic	F	Num D.F.	Denom D.F.	Significance
1	0.559	0.454	0.503	4.047	60.000	1534.991	0.000
2	0.364	0.153	0.731	2.440	44.000	1256.801	0.000
3	0.300	0.099	0.842	1.938	30.000	966.356	0.002
4	0.246	0.064	0.926	1.445	18.000	660.000	0.104
5	0.122	0.015	0.985	0.623	8.000	331.000	0.758

Note. Num DF = The numerator degrees of freedom of the F-ratio.

Denom DF = The denominator degrees of freedom of the F-ratio

Other multivariate tests also completed

Test name	Value	F
Pillai's trace	0.610	3.831
Hotelling-Lawley trace	0.785	4.255
Roy's greatest root	0.312	-----

Note. All the above tests were significant at $p < 0.001$

Note. Each test can be converted to an F-statistic, which can then be evaluated for statistical significance. However, because of different theoretical frameworks, some tests, in this case Roy's, may not calculate an F value owing to limits in this approach (Sherry & Henson, 2005).

ANNEXURE 15: RELIABILITY STATISTICS FOR THE BTI

BTI factors	Cronbach's alpha	
Extraversion	0.809	Big Five
Neuroticism	0.918	
Conscientiousness	0.935	
Openness to experience	0.882	
Agreeableness	0.907	
Ascendance	0.660	Extraversion
Liveliness	0.601	
Positive affectivity	0.633	
Gregariousness	0.656	
Excitement seeking	0.721	
Affective instability	0.826	Neuroticism
Depression	0.769	
Self-consciousness	0.718	
Anxiety	0.817	
Effort	0.734	Conscientiousness
Order	0.816	
Dutifulness	0.806	
Prudence	0.802	
Self-discipline	0.744	
Aesthetics	0.668	Openness to experience
Ideas	0.655	
Actions	0.694	
Values	0.529	
Imagination	0.753	
Straightforwardness	0.723	Agreeableness
Compliance	0.743	
Prosocial tendencies	0.740	
Modesty	0.680	
Tendermindedness	0.747	

ANNEXURE 16: MEAN, STANDARD DEVIATION, SKEWNESS AND KURTOSIS RESULTS OF THE BTI

	n	Mean	Std deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std error	Statistic	Std error
Extraversion	344	126.0558	17.32505	0.169	0.104	0.056	0.207
Neuroticism	344	102.8291	24.36090	0.242	0.104	0.188	0.207
Conscientiousness	344	172.4011	25.22995	-0.450	0.104	-0.299	0.207
Openness to experience	344	124.4802	17.94570	-0.356	0.104	0.137	0.207
Agreeableness	344	138.7320	21.41966	-0.257	0.104	0.274	0.207
Ascendance	344	25.2032	5.19841	-0.211	0.104	-0.295	0.207
Liveliness	344	26.3579	5.32067	0.135	0.104	-0.121	0.207
Positive affectivity	344	22.1583	4.26722	-0.553	0.104	0.618	0.207
Gregariousness	344	24.2518	5.06227	-0.315	0.104	0.038	0.207
Excitement seeking	344	21.3309	6.03669	0.592	0.104	-0.007	0.207
Affective instability	344	20.5665	7.20067	0.612	0.104	-0.008	0.207
Depression	344	24.1817	7.15348	0.310	0.104	-0.129	0.207
Self-consciousness	344	27.7968	6.90998	0.005	0.104	-0.150	0.207
Anxiety	344	23.3777	7.03232	0.046	0.104	-0.316	0.207
Effort	344	31.6385	5.41708	-0.505	0.104	-0.310	0.207
Order	344	39.4478	6.83387	-0.629	0.104	0.058	0.207
Dutifulness	344	35.6853	6.08941	-0.527	0.104	-0.097	0.207
Prudence	344	24.4155	4.38651	-0.749	0.104	0.132	0.207
Self-discipline	344	30.3993	5.35133	-0.349	0.104	-0.135	0.207
Aesthetics	344	25.9137	4.64755	-0.390	0.104	-0.023	0.207
Ideas	344	21.2968	4.26256	-0.330	0.104	-0.172	0.207
Actions	344	26.1727	4.89924	-0.455	0.104	0.300	0.207
Values	344	21.8058	4.12835	-0.394	0.104	0.566	0.207
Imagination	344	23.2752	4.49602	-0.488	0.104	-0.002	0.207
Straightforwardness	344	25.9335	4.93389	-0.382	0.104	0.326	0.207
Compliance	344	28.5000	5.72162	-0.321	0.104	0.582	0.207
Prosocial tendencies	344	28.4928	5.75897	-0.392	0.104	0.160	0.207
Modesty	344	25.3381	4.78971	-0.255	0.104	0.049	0.207
Tendermindedness	344	26.8381	5.06417	-0.576	0.104	0.261	0.207

Note. The scores in the table above were based on the raw scores of the BTI.

ANNEXURE 17: ETHICS APPROVAL



CEMS/IOP RESEARCH ETHICS REVIEW COMMITTEE

25 July 2016

Ref #: 2016_CEMS/IOP_070

Student #: 58529802

Staff #: N/A

Dear Gerhard Schoeman,

Decision: Ethics approval

Address: P O Box 15740
Lyttelton
0140
Cell no: 072 462 3942
E-mail: gs@pgspsychologist.co.za

Supervisor: Prof N Martins **Co-supervisor:** N/A

Proposal: Measuring stress in high stress security occupations through the development of a coping questionnaire and a stress management framework

Qualification: Postgraduate degree/Non-degree output/Commissioned research

Thank you for the application for research ethics clearance by the CEMS/IOP Research Ethics Review Committee for the above mentioned research.

The resubmitted documentation was reviewed in compliance with the Unisa Policy on Research Ethics by the CEMS/IOP on 18 July 2016.

The proposed research may now commence with the proviso that:

- 1) *The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*
- 2) *Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the CEMS/IOP Ethics Review Committee.*
- 3) *An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.*



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- 4) The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

Note:

The reference number **2016_CEMS/IOP_070** should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the CEMS/IOP RERC.

Kind regards,



Dr Sonja Grobler

Chair: IOP Research Ethics Committee

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Prof M T Mogale

Executive Dean

College of Economic and Management Sciences
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ANNEXURE 18: PERMISSION TO CONDUCT RESEARCH WITHIN THE SECURITY INDUSTRY

Security Industry Alliance

**PO Box 62436 Marshalltown 2107
11th Floor - Chamber of Mines - 5 Hollard Street - Marshalltown
Tel: +27 11 498 7468 / 7445 Fax: +27 86 570 8837
Website: www.securityalliance.co.za e-mail: sia@iburst.co.za
Security Industry Alliance (Association Incorporated Under Section 21)
Registration Number 2008/021722/08**

24 May 2016

To Whom It May Concern

Assistance with PhD research – Gerhard Schoeman – Student Number 58529802

I would hereby like to confirm that the Security Industry Alliance (SIA) has no objection against Mr Schoeman conducting his PhD research amongst members of SIA. We will do so by encouraging our Alliance members to make available their employees for the purposes of completing questionnaires, as supplied by Mr Schoeman.

We acknowledge that the main aim of the research is to develop a coping with stress questionnaire and a framework for managing stress within a high stress security environment.

We agree that the results may be published as part of his thesis.

Please do not hesitate to contact me should you have any questions.

Sincerely



**Steve Conradie
Chief Executive Officer
Security Industry Alliance**

Directors: D Lengosane (Chairman), WS Conradie (CEO), C Diavastos, WJ Bartmann, S Clarkson, CJ Phipps, JJ Bodenstein, M Coetzee, PA van Niekerk, L Mkhethoni, AW Botes.
Alliance Partners: Chamber Of Mines; CGC Consumer Goods Council; ESIA; EXSA; LASA; SAIS; SANSEA; SASA.

ANNEXURE 19: USE OF BTI DEFINITIONS FOR RESEARCH

JvR PSYCHOMETRICS (PTY) LTD

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Co.Reg No. 2001/015618/07 VAT Reg.No. 4300195064



23 April 2019

To whom it may concern,

RE: USE OF DEFINITIONS FOR SCALES OF THE BASIC TRAITS INVENTORY IN PHD THESIS

Permission is hereby granted to Gerhard Schoeman to use the exact definitions provided for the scales of the Basic Traits Inventory as they are presented in Section 2.3 of the Manual (Taylor & de Bruin, 2016) in his study entitled: *Measuring stress in high stress security occupations through the development of a coping questionnaire and a stress management framework*. This permission is not transferable, and is valid only for use in the above-mentioned study, provided that the reference is attributed to the authors.

Yours sincerely,

A handwritten signature in black ink, appearing to read "N Taylor".

Dr Nicola Taylor

Director: Research

JvR Psychometrics



MANAGING DIRECTOR: Dr J de Beer D Litt et Phil (Psych)
DIRECTOR: Dr N Taylor PhD (Psych)

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www.psychologiafrica.com