

**AN EXPLORATION OF SAFETY AND SECURITY AT OR TAMBO
INTERNATIONAL AIRPORT**

By

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DECLARATION

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I, Michael Panyapanya, declare that this dissertation: “An exploration of safety and security at OR Tambo International Airport” is my own work and that all the sources used or quoted have been indicated and acknowledged by means of complete references. I further acknowledge that this research has not been previously submitted to the University of South Africa or any other institution of higher learning for examination. I further confirm that this research was language edited.

A handwritten signature in black ink, appearing to read 'M Panyapanya', with a long, sweeping flourish extending to the right.

11 November 2022

Signature

Date

Michael Panyapanya

DEDICATION

This dissertation is dedicated to the aviation security industry.

ACKNOWLEDGEMENTS

I praise God Almighty for providing me with the strength to accomplish this study. I would not have been able to accomplish my study without God's strength and constant blessings at times when it seemed unattainable.

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ABSTRACT

The goal of this study was to explore the effectiveness of existing safety and security measures at OR Tambo International Airport (ORTIA) in crime prevention. The value of ORTIA was established in terms of tourism and a healthy economy. However, the study was premised on the risks and vulnerabilities at ORTIA which manifest in crime taking place at the airport.

The study used a quantitative research methodology and established the study as explorative and descriptive. A non-experimental and randomised cross-sectional research design was used. Through random sampling, a total of 100 participants contributed to the study and yielded a representative percentage of 36%. Data were collected through online self-administered questionnaires from security personnel employed at ORTIA. Data were analysed through descriptive analysis and efforts were made to ensure validity and reliability as well as adhering to ethical considerations.

The study's main findings revealed that the airport is fairly safe and the most problematic crimes taking place at ORTIA were reported to be theft, mishandled baggage, Automated Teller Machine (ATM) crimes, burglary, robbery, illegal immigrants and smuggling of drugs. Most participants had witnessed a crime at ORTIA that mostly included theft, ATM crimes and robbery. Most of the participants reported the crimes and confirmed that action was taken against the crimes. Moreover, crime prevention and intervention strategies were proposed by the participants.

The study achieved its aim by achieving its objectives. Thus, the nature and extent of crime committed at ORTIA were achieved. Also, the existing safety and security measures at ORTIA were established. Finally, recommendations were made for ORTIA based on the theoretical and empirical findings of the study. No research study is exempt from limitations thus the limitations of the study were outlined and recommendations for future research were proposed. Through the holistic understanding of the dissertation, it can be concluded that safety and security were explored to inform crime prevention at ORTIA.

KEY TERMS: airport, aviation security, OR Tambo International Airport (ORTIA), safety, security, security risk, security risks, vulnerability.

ISICATSHULWA

Injongo yolu phononongo ibikukuphicotha/ukuhlola impumelelo yamanyathelo akhoyo okhuselo nokhuseleko kwisikhululo senqwelomoya saMazwe ngaMazwe i-OR Tambo (ORTIA) ekuthinteleni ulwaphulo-mthetho. Uxabiseko le-ORTIA lamiselwa ngokwezokhenketho kunye noqoqosho oluphilileyo. Nangona kunjalo, uphononongo lwalusekelwe kumngcipheko kunye nobuthathaka e-ORTIA obubonakala kulwaphulo-mthetho olwenzeka kwisikhululo seenqwelomoya.

Uphononongo lusebenzise indlela yophando yobuninzi kwaye lwamisela uphononongo njengoluphicothayo/oluhlolayo kunye noluchazayo. Kusetyenziswe uyilo lophando olungenamfuniselo/olungenalingelo nolungenamkhethe. Ngokusebenzisa iisampulu ezingacwangciswanga, inani lilonke labathathi-nxaxheba abali-100 babanegalelo kuphononongo kwaye bavelise ipesenti emele i-36%. Idatha yaqokelelwa ngokusebenzisa iphepha lemibuzo elizilawulayo nge-intanethi ivela kubasebenzi bokhuseleko abaqeshwe e-ORTIA. Idatha yacalulwa ngokohlalutyo oluchazayo kwaye zenziwa iinzame zokuqinisekisa ukunyaniseka nokuthembeka kunye nokubambelela kwiingcamango zokuziphatha.

.Iziphumo eziphambili zophononongo ziveze ukuba isikhululo seenqwelomoya sikhuseleke ngokufanelekileyo kwaye ezona zenzo zolwaphulo-mthetho ziyinxaki ezenzeka e-ORTIA kunikwe ingxelo ngazo bubusela, imithwalo engaphathwanga kakuhle, ulwaphulo-mthetho koomatshini abakhupha imali (ATM), ukuqhekeza, ukukhuthuza, abangeneleli ngokungekho mthethweni kunye nokuthutyeleziswa kwezinyobisi. Uninzi lwabathathi-nxaxheba babone ulwaphulo-mthetho e-ORTIA olubandakanya ikakhulu ubusela, ulwaphulo-mthetho lwe-ATM kunye nokukhuthuza. Uninzi lwabathathi-nxaxheba lunike ingxelo yolwaphulo-mthetho kwaye baqinisekisa ukuba kwenziwa okuthile malunga nolwaphulo-mthetho. Ngaphezu koko,uthintelo lolwaphulo-mthetho nezicwangciso-qhinga zokuthintela ulwaphulo-mthetho zacetyiswa ngabathathi-nxaxheba.

Uphononongo lwaphumumelela ukufezekisa injongo zalo. Ngoko ke, uhlobo nobungakanani bolwaphulo-mthetho obenziwe e-ORTIA bafumaneka. Kwakhona, amanyathelo akhoyo okhuseleko kunye nokhuselo e-ORTIA asekwa. Ekugqibeleni, izindululo zenzelwa i-ORTIA ngokusekwe kwiziphuma zethiyori kunye nezisekelwe kumava ophando. Akukho sifundo sophando singenamida ngoko ke imida yophononongo yachazwa kwaye izindululo zophando lwexesha elizayo zacetyiswa. Ngokuqondwa ngokupheleleyo kwethisisi, kunokufikelelwa kwisigqibo sokuba

ukhuselo nokhuseleko lwaphononongwa ukuze kufunyanwe iindlela zokuthintela ulwaphulo-mthetho e-ORTIA.

AMAGAMA ANGUNDOQO: isikhululo seenqwelomoya; ukhuselo lwenqwelomoya; iSikhululo senqwelomoya saMazwe ngaMazwe i-OR Tambo (ORTIA); ukhuselo, ukhuseleko; Ukhuseleko; umngcipheko wokhuseleko; imingcipheko yokhuseleko; ukuba sesichengeni/ubuthathaka

KGUTSUFATSO

Sepheo sa phuputso e ne e le ho hlahloba ka hloko katleho ya mehato e sebediswang ya poloheho le tshireletso, ho thibela bosenyi OR Tambo International Airport (ORTIA) (Boemafofane ba Matjhaba ba OR Tambo). Bohlokwa ba ORTIA bo fumanwe ho ya ka melawana ya bohahlaodi le moruo o holang o kgonang ho tshehetswa nako e telele. Le ha ho le jwalo, phuputso e ne e itshetlehile dikotsing le dikgonahalong tsa hore ho hlaselwe ORTIA, tse bonahalang diketsong tsa bosenyi tse etsahalang boemafofaneng.

Phuputso e entswe ka ho bokella lesedi le ka lekwangwang ka palo le ho amohelwa e le patlisiso le ho hlalosa boemo bo fuputswang ka nepo. Ho sebedisitswe leano le mokgwa wa tlhahlobisiso oo ho oona mofuputsi a bokellang datha bathong ba fapaneng ka nako e le nngwe. Mokgwa ona o hlalosa boemo bo le jwalo ntle le kameho ya maikutlo a mofuputsi le ho sa latele moralo kapa tlhophiso efe kapa efe. Ka ho nka disampole ho sa latelwe moralo kapa tlhophiso efe kapa efe, palokaofela ya bankakarolo ba 100 e bile le seabo phuputswang le ho etsa diphesente tse 36 tsa batho ba nkang karolo. Datha e bokelletswa ka mananepotso ao bankakarolo ba ka ikarabelang oona inthaneteng a tswang basebetsing ba tshireletso ba hirilweng ORTIA. Datha e hlahlobilwe ka ho e hlalosa kapa ho e kgutsufatsa ka tsela e thusang hore e sebedisehe le ho hlahisa sephetho se lebelletsweng mme ho entswe matsapa a ho netefatsa hore mokgwa o sebediswang o lekanya/metha seo ho fuputswang ka sona ka nepo le makgetlo ao o kgonang ho hlahisa dipheho tse tshwanang le tse sa fetoheng, le ho etsa patlisiso ka tsela e amohelang e itshetlehleng mekgweng e behetsweng ya boitshwaro.

Lesedi le ka sehloohong le fumanweng phuputswang le bontshitse hore boemafofane bo bolokehile le hore boholo ba diketso tsa bosenyi tse bakang mathata tse etsahalang ORTIA di tlalehilwe e le tsa boshodu, dithoto tsa bapalami tse lahlehileng, tse sentsweng, tse diehisitsweng le tse utswitsweng, tsa Motjhini wa Tjhelete (ATM), tsa ho thuba, ho khothotswa, bafalli ba seng molaong le ho rekisa dithethefatsi. Boholo ba bankakarolo bo bone kapa bo etsahalletswa ke ketso ya bosenyi ORTIA, eo boholo ba yona e neng e kenyetsa boshodu, diketso tsa bosenyi ba diATM le ho khothotswa. Boholo ba bankakarolo bo tlalehile diketso tsa bosenyi le ho tiisa hore ho ile ha etswa ho hong ho thibela diketso tseo. Ho feta moo, ho thibela bosenyi le mawa a ho thusa ho bo fedisa a sisintswe ke bankakarolo.

Phuputso e fihletse sepheo sa yona ka ho phethahatsa maikemisetso a yona. Kahoo, mofuta wa ketso ya bosenyi e ntsweng ORTIA le boholo ba yona bo fumanwe ka katleho. Hape, mehato e seng e sebetsa ya polokeho le tshireletso ORTIA e kentswe. Ntlheng ya ho qetela, ORTIA e etseditswe ditshisinyo tse itshetlehileng leseding le fumanweng mohopolong le diketsahalang tsa nnete tsa phuputso. Ha ho na patlisiso e dumelletsweng ho se be le dithibelo, kahoo dithibelo tsa phuputso di hlalositse mme ho hlahisitse le ditshisinyo tsa patlisiso ya nako e tlang. Ka kutlwisiso ya dikamano tsa dikarolo kaofela tsa patlisiso e entsweng thutong ho fumantshwa setefekeiti sa boemo bo phahameng, ho ka phethelwa ka hore ho hlahlobilwe polokeho le tshireletso ka hloko ho hlokomedisa ka thibelo ya diketso tsa bosenyi ORTIA.

MAREO A BOHLOKWA: boemafofane, mehato le disebediswa tsa ho sireletsa boemafofane le dintho le batho kaofela ba amehang, OR Tambo International Airport (ORTIA) (Boemafofane ba Matjhaba ba OR Tambo), polokeho, tshireletso, motho kapa boemo bo ka amang polokeho hampe, batho kapa maemo a ka amang polokeho hampe, boemo bo bontshang kgonahalo ya ho hlaselwa.

ACRONYMS AND ABBREVIATIONS

ACSA	Airports Company South Africa
AFCAC	African Civil Aviation Commission
ASLCs	Air Service Licencing Councils
ATM	Automated Teller Machine
CCTV	Closed Circuit Television
CPTED	Crime Prevention Through Environmental Design
CSIRTs	Computer Security Incident Response Teams
GDP	Gross Domestic Product
ICAO	International Civil Aviation Organization
ICT	Information and Communication Technology
IED	Improvised Explosive Device
KCAA	Kenya Civil Aviation Authority
MANPADS	Man-Portable Air-Defence Systems
ORTIA	Oliver Reginald Tambo International Airport
OSAC	Overseas Security Advisory Council
PSIRA	Private Security Industry Regulatory Authority
SACAA	South African Civil Aviation Authority
SACH	South African Cybersecurity Hub
SADC	Southern African Development Community
SANASP	South Africa's National Aviation Security Programme
SAPS	South African Police Service
SARPs	Standards and Recommended Practices
TTCI	Travel and Tourism Competitiveness Index
UAS	Unmanned Aircraft Systems
USAP	Universal Security Audit Program
USOAP	Universal Safety Oversight Audit Program

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CHAPTER 1

PROBLEM STATEMENT AND OVERVIEW OF STUDY

1.1 INTRODUCTION

Across the globe, airports are regarded as essential infrastructure needing protection. Airports play a critical role in transporting people and goods. One of the major goals of an airport, as encouraged through the regulatory bodies and evoked through public expectation, is safety (Quilty, 2019:6). However, a public environment, such as an airport, is vulnerable to crime (Feijoo-Fernández, Halty & Sotoca-Plaza, 2020:1). Criminality associated with airports includes but is not limited to unlawful acts against civil aviation, smuggling, theft, human trafficking, and terrorism. Often, unlawful activity occurs in public areas in airports (Feijoo-Fernández et al., 2020:2). Thus, this study explored safety and security in the airport environment.

This chapter begins with the study's problem statement, research aims and objectives as well as research questions. Thereafter, the key concepts are defined, and the value of the study is explored. The chapter concludes with a presentation of the dissertation layout.

1.2 PROBLEM STATEMENT

The Oliver Reginald Tambo International Airport (ORTIA) is Africa's biggest and busiest airport, servicing approximately 19 million passengers annually. Thus, it serves more than 50% of South Africa's air travelling passengers. The ORTIA is in the heart of South Africa's commercial and industrial hub, Kempton Park, and has excellent road infrastructure linking it to the national road network (South African History Online, 2021:np). Furthermore, it has an annual passenger capacity of 28 million (Airports Company South Africa [ACSA], 2021:np). Consequently, this colossal economic infrastructure is vulnerable to various security breaches.

People frequenting the airport may fall victim to various criminal activities. In South Africa, violence is often associated with contact and economic crimes as well as the manifestations of crimes regardless of socio-economic status (Overseas Security

Advisory Council [OSAC], 2020:np). OSAC produces annual security reports, with specific reference to travel advisories, in collaboration with the United States of America Embassies in Cape Town, Durban and Johannesburg. Criminal activities in airports include but are not limited to theft of money and bags, drug smuggling and terrorist attacks. Commonly reported crimes that take place in ORTIA are the theft of unattended baggage, baggage pilferage and associated robberies (OSAC, 2020:np). For instance, a perpetrator will follow a passenger to his or her hotel and use a weapon to rob the victim. As organised crime syndicates are rife within ORTIA, the South African Police Service (SAPS) has made the public aware of potential victimisation (SAPS, 2015:np). There are various measures in place to limit baggage tampering. A specialised task team consisting of various airlines, ground handlers and SAPS officials have been assigned to address the problem of baggage pilferage. Considering these security breaches, travellers, as well as family and friends doing pick-ups at the airport are continuously encouraged to be alert and vigilant (Brophy, 2016:np).

Tourism is a key component of a healthy economy. Therefore, safety and security are important for the developing and sustaining tourism in South Africa (Seabra, Dolnicar, Abrantes & Kastenholz, 2013:502). For this purpose, the research study aims to explore safety and security at ORTIA.

The aim and objectives guide scientific studies. The aim and objectives of this research study are delineated below.

1.3 RESEARCH AIMS AND OBJECTIVES

Fouché (2021:37) explains that the researcher should explicitly delimit the focus of the study and articulate the specific problem under investigation by stipulating the aims and objectives of the study. The purpose of this research study was to investigate security at ORTIA. The researcher defined the problem, what the proposed research study includes and what it excludes (Fouché, 2021:37). The following are the aim and objectives of the study:

1.3.1 Aim of the study

- To explore the effectiveness of existing safety and security measures at ORTIA

in crime prevention.

1.3.2 Objectives of the study

- To determine the nature and extent of crime committed at ORTIA.
- To establish the existing safety and security measures at ORTIA.
- To make informed recommendations based on the findings of the study.

The aim and objectives contribute to literature in terms of aviation security and formed the foundation needed to conduct empirical research. The research study provides recommendations to prevent the occurrences of criminal activities at ORTIA through the improvement of the existing security risk control measures.

1.4 RESEARCH QUESTIONS

Kumar (2019:96) asserts that a research question must be explicit. Furthermore, Bertram and Christiansen (2015:38) maintain that research questions centre on the study's aim and objectives.

1.4.1 Primary research question

- How can exploring the effectiveness of existing safety and security measures at ORTIA prevent crime?

1.4.2 Secondary research questions

- What is the nature and extent of crime committed at ORTIA?
- What are the existing safety and security measures at ORTIA?
- What informed recommendations can be made based on the findings of the study?

The key concepts of the topic under investigation are defined below.

1.5 KEY CONCEPTS

Fouché and Geyer (2021:79) explain that defining key concepts encourages mutual understanding and provides clarity and direction for the research study.

1.5.1 Airport

An airport is a place where planes land and take off. Moreover, it has buildings to accommodate waiting passengers (Cambridge Dictionary, 2022:np). Bartholomew (2010:272) describes an airport as a place that consists of terminal buildings that are accessible to the public as well as an airside, which consists of various access-controlled, secured and restricted areas.

1.5.2 Aviation security

Aviation security entails the safeguarding of civil aviation against acts of unlawful interference. The objective is achieved by a combination of human and material resources (Debyser, 2022:1). Furthermore, Bartholomew (2010:12) emphasises that the role of aviation security is to carry out screening procedures as well as to comply with the regulatory mandate to station armed guards at all airport screening checkpoints.

1.5.3 Cyber security

In brief, cyber security is the protection of information and data through the prevention, detection, and response of attacks (National Institute of Standards and Technology, 2023:np).

1.5.4 Safety

Safety is the state of being safe and protected from danger or harm (Cambridge Dictionary, 2022:np). Seabra et al. (2013:502) clarify that safety is one of the most important and fundamental conditions for tourism development.

1.5.5 Security

The primary aim of security is to provide effective levels of protection for people, property and organisations against risks or malevolent threats (Sears, 2020:256).

1.5.6 Security breach

A security breach involves the unauthorised access to data, information, applications,

networks, devices or organisations (Information Commissioner's Office, 2022:np).

1.5.7 Security services

As maintained by the Private Security (Industry Regulatory Act No. 56 of 2001), "security service" means one or more of the following services or activities:

- "protecting or safeguarding a person or property in any manner;
- providing a reactive response service in connection with the safeguarding of a person or property in any manner;
- giving advice on the protection or safeguarding of a person or property or the use of security equipment;
- providing a service aimed at ensuring order and safety on premises used for sporting, recreational, entertainment, or similar purposes;
- manufacturing, importing, distributing or advertising of monitoring devices contemplated in Section 1 of the Interception and Monitoring Prohibition Act, No. 127 of 1992;
- providing services related to the functions of an investigator;
- providing security training or instruction to a security service provider or prospective service provider;
- monitoring signals or transmissions from electronic security equipment;
- installing, servicing or repairing security equipment;
- performing the functions of a locksmith; and
- managing, controlling or supervising the rendering of any of the above services" (Private Security Industry Regulatory Act, No. 56 of 2001:Section1:8).

1.5.8 Security risk

Risk control begins with the identification and classification of the risk. Security is concerned with four main risk or loss areas that include: risk of criminal confrontation (theft or fraud); accidental losses (natural disasters such as cyclones and earthquakes); unaccountable losses (stock losses where criminal actions are

suspected); and public liability losses (use of unwarranted force and wrongful arrest) (Sennewald, 2015:169). Furthermore, a security risk is a situation where vulnerabilities exist that can bring about a malicious event (Amundrud, Aven & Flage, 2017:286).

1.5.9 Security risk control measures

Fay (2011:123) indicates that security risk control measures make up an organisation's exposure to loss in various forms and the response measures that the security practitioner proposes after conducting the security survey.

1.5.10 Security risk officer

According to the Private Security Industry Regulatory Act, No. 56 of 2001, a security officer refers to any person "who is employed by another person, including an organ or department of the State and who receives or is entitled to receive from such other person any remuneration, reward, fee or benefit, for rendering one or more security services".

1.5.11 Vulnerability

The term "vulnerability" refers to the exposures to risk, which can result in the loss of life or assets. Vulnerability is determined by taking the security risks and weaknesses into account (Garcia, 2013:14).

1.6 VALUE OF THE RESEARCH

A scientific study evokes meaning when its value and significance are determined and outlined (Erickson, 2018:95). The study aimed to contribute to the discipline of security science and aviation security. Thus, the research will benefit scientific research, aviation security, government, and local and international passengers. The value of the study is demarcated below.

1.6.1 Scientific research

The purpose of disseminating findings is to improve theory and practice. The findings of this study will be disseminated through a research report in the form of a dissertation (Fouché & Chubb, 2021:138). In this way, the dissertation and its findings will benefit

the scientific community, particularly in the field of security science and aviation security.

1.6.2 Aviation security

Crime and criminal behaviour are an ongoing, evolving problem facing airports throughout the world (Feijoo-Fernández et al., 2020:2; Marteache, 2018:164; Wood & Gardiner, 2019:1621). In the United Kingdom (UK), crimes that take place at airports range from burglary, possession of weapons and robbery to drug-related offences, terrorism and violent and sexual offences (Fowler, 2021:np). Furthermore, in the UK, Heathrow Airport is recognised as the most dangerous, while Teesside International Airport is noted as the least dangerous. Since the 9/11 terrorist attacks in the United States of America (USA), airports have faced increased scrutiny and, as a response, increased protective measures (Weseka & Rikhotso, 2021:np) (see section 2.2). Africa also encounters violent terrorist activity particularly in Lake Chad (Boko Jaram), Sahel region (al Mourabitoun) and in Kenya and Uganda (al Shabaab). These terrorist activities and attacks warrant stricter national and international counter-terrorism policy measures. There were also discussions around culture clashes and prejudices that prompted the need for transformation in the international security landscape (Weseka & Rikhotso, 2021:np). Thus, there is a demand for research in aviation security especially concerning South African airports.

1.6.3 Airport security management

Airports can be held liable when crime incidences occur on their premises. Security management is therefore crucial for the protection of airports. Security management has evolved to hold executive portfolios in business corporations therefore effective security management contributes to increased profit margins through the reduction of preventable losses carried out by criminals (Sennewald & Baillie, 2021:11). The investment and commitment to security management in South African airports will, in turn, influence national legislation. This study aims to benefit airport and local government security management through its findings and recommendations.

1.6.4 Local and international passengers and airport staff members

Safety and security are important for local and international passengers and airport employees. If passengers do not feel safe travelling through South African airports, it will negatively impact tourism and the country's economy. In 2018, the tourism industry contributed 130,1 billion rand to the GDP (Gross Domestic Product) and an estimated 4,5% of total employment in South Africa (Statistics South Africa [Stats SA], 2018:np). Therefore, this study will contribute to maintaining safety and security at South African airports.

Next, the layout of the dissertation is outlined.

1.7 DISSERTATION LAYOUT

The following is an overview of the chapters included in the dissertation:

Chapter 1: Problem statement and overview of the study

The chapter orientates the reader with an overview of the study under investigation. The introduction and problem statement contextualise safety and security at ORTIA and establish the need for the study. The aim and objectives of the study are established as well as the research questions. Moreover, key concepts, the value and the limitations of the study are presented.

Chapter 2: Literature review of aviation security

Literature pertaining to aviation security internationally and locally is unpacked which includes an in-depth expose into the safety and security measures at ORTIA. Additionally, theoretical explanations underpinning the study are highlighted.

Chapter 3: Research methodology

The methodological aspects of the study are discussed as applicable to the topic under investigation. The research approach and design are established. The population, sampling and unit of analysis are demarcated. Furthermore, the data collection and analysis procedures used in the study are explained and the pilot study is outlined. The reliability and validity of the study as well as the ethical guidelines are presented.

Chapter 4: Analysis and interpretation of quantitative data

A comprehensive discussion is formulated based on the analysis of the data collected. The analysis and interpretation of the empirical findings are presented in six main themes. These include: the profile of the research participants; general information; security measures; and crime at ORTIA. After that, training initiatives and crime prevention and intervention strategies are discussed.

Chapter 5: Achievement of aim and objectives, recommendations and conclusion

The chapter outlines how the study's aim and objectives were achieved. In addition, the recommendations, based on the study's findings, are made. The chapter concludes with recommendations for future research in aviation security.

1.8 CONCLUSION

ORTIA faces a range of vulnerabilities and therefore needs to be proactive in its preventative strategies. The study explored safety and security at ORTIA and the present security measures to make recommendations to improve the airport's security. This chapter highlights the need for such a study and provides a guideline as to achieve the specified aim and objectives.

CHAPTER 2

LITERATURE REVIEW OF AVIATION SECURITY

2.1 INTRODUCTION

The goal of the research was to determine the effectiveness of the safety and security systems at ORTIA in relation to crime prevention. This guided the study's literature review on aviation security and thus provided the groundwork for the empirical section of the study (see Chapter 4). This chapter encompasses a narrative literature review relating to the argument being made. This type of review entails searching for publications that are related to the research to be carried out. The information must be analysed and assessed in the context of a bigger picture to produce a comprehensive understanding of the field, including what has been done, and what needs to be done (Schurink, Roestenburg & Fouché, 2021:113).

Manana (2020:182) explains that, in South Africa, there is a regulatory body called the South African Civil Aviation Authority (SACAA) that has the authority and responsibility of performing comprehensive aviation industry audits and surveillance. This responsibility includes assessing the impact of the industry management's safety and security-related choices at all levels of the aviation industry. It consists of the monitoring, implementation, and enforcement of aviation policies, such as South Africa's National Aviation Security Programme (Serfontein & Govender, 2020:88).

Air Service Licencing Councils (ASLCs) execute economic governance to ensure that each licence holder can afford to meet the appropriate operational standards. The governance authority works in a complex environment that includes: the infrastructure of airports and airspace; scheduled and non-scheduled domestic and international flight operations; private operations; commercial operations; medical and specialised services; flight surveying; and crop spraying. It also encompasses design and manufacturing, training and personnel licencing and aircraft maintenance.

Abeyratne (2015:289) stresses that Man-Portable Air-Defence Systems (MANPADS) pose the greatest threat to security when aircraft land and take off are at their lowest altitude. Since the events of September 11, 2001, various attempts have been made to compromise the security of aircraft in flight by utilising MANPADS. The international

aviation community has attempted to address it through the International Civil Aviation Organization (ICAO). The ICAO is subject to a variety of treaties. These usually specify the mandatory regulatory frameworks and requirements that airports must follow in order to be recognised and certified as international entry and departure terminals.

This chapter begins with an introduction to aviation security and an overview of global aviation security particularly in South Africa. The South African aviation security procedures are examined in terms of aviation security regulations and theories of situational crime prevention and crime prevention through environmental design (CPTED).

2.2 AVIATION SECURITY

According to Atonko (2019:125), aviation security is defined as a combination of material and human resources and measures intended to counter unlawful interference with aviation. Furthermore, it deals with third-party elements that seek to interfere with the safe operation of the aircraft or endanger the lives of passengers, crew, other persons, and property, including air navigation facilities, on board, in flight, or on the ground.

Aviation security's purpose is to protect aircraft, passengers, and crew while supporting national security and counter-terrorism policies. Both airline and airport security are included in aviation security. The former is concerned with procedures and infrastructures aimed at preventing security issues aboard airplanes, whilst the latter is concerned with security issues on the ground. Attempts are made by airport security to prevent potential attackers from bringing weapons into the airport. To provide aviation security, a variety of gadgets and security technologies are deployed that include x-ray machines and aviation security staff who conduct random checks (Atonko, 2019:125; McFarlane, 2020:34).

Many airports have security identification display areas and other advanced types of identification. Identification cards, which identify airline, airport or authorised employees, are the most common security measures. Many regional and international airports use fibre optic perimeter intrusion detection systems to lock and detect any intrusion on the airport perimeter, ensuring real-time, immediate intrusion notification

that allows security personnel to assess the threat, track movement, and engage the necessary security procedures. As a result, aviation safety is regarded as a priority (Atonko, 2019:125-126).

Wittmer, Bieger, and Müller (2011:178) point out that aviation security structures, regulations, procedures, and practices have evolved since the implementation of the Convention on International Civil Aviation (commonly known as the Chicago Convention), influenced by a series of high-profile aviation security incidents. Manana (2020:211) notes that the Civil Aviation Security Department of SACAA ensures that security provisions are consistent by reviewing and approving security programmes.

In addition to the security measures prepared under Section 111 of the Civil Aviation Act, South Africa has developed a comprehensive national security programme. International organisations, government departments, and corporate companies, such as airlines, use the programme to coordinate their aviation security operations. In order to maintain effective regulation, the programme also ensures that entities communicate effectively. The coordination foundation of the curriculum is crucial in averting terror attacks that need multi-role play. The strategy is the safest way to address today's technologically advanced security challenges. Furthermore, the South African framework achieves its security goals by establishing basic geographical restrictions and functional standards on Unmanned Aircrafts Systems' (UAS) operations. To comply with security protocols, the limits prevent operations in regulated airspaces, which are locations where key installations are located.

Manana (2020:246) found that Kenya's Aviation Policy promotes and facilitates civil aviation by ensuring an adequate regulatory framework for UAS operations is in place across the country. Its main goal is to enable operations in a safe, secure, coordinated, and seamless manner, similar to manned operations.

Dube (2021:278) mentions that the COVID-19 pandemic disrupted a substantial amount of trade at airports around the world, with immediate and long-term financial and operational consequences. As a result, financial aid was needed to allow airports to retool and prepare the necessary technologies to assure biosafety management. The financial aid includes purchasing screening equipment, contactless technology to ensure touchless travel, and enhancing efficiency as part of efforts to reduce visitors'

chances of infection at airports.

The pandemic's detrimental impact on the aviation business harmed a number of airports in South Africa and the rest of the area. The Airports Company of South Africa's financial results for the year ending March 2020 announced a provision of R270 million for "questionable debts". This coincided with a decrease in arrivals and departures, as well as the closure of some airport shops. Moreover, the airports suffered a considerable financial loss due to the lack of parking fees.

Wittmer et al. (2011:178) explain that the various components of aviation security include:

- Intelligence gathering: To identify and disrupt terrorist activities, international and national intelligence and law enforcement organisations worldwide collaborate to gather information.
- Customs and Border Protection actions that detect possible terrorists and prevent them from entering a country or flying into an airport; and
- Pre-boarding protocols, airport security personnel and the plane itself.

According to Wittmer et al. (2011:178), historically, national governments have held that air carriers and airports are responsible for security as part of their cost of doing business. However, as air piracy and terrorist activities increased, posing a threat not only to the aviation industry but also to the security of the country, debates have erupted over who should oversee airport security.

Access control regulations are used as security measures for operation areas in airports to prevent unauthorised people from gaining access to secured areas by utilising counterfeit, stolen, or expired identity documents or their familiarity with airport procedures. Access control regulations involve the security clearance and badging of personnel with access to airport areas and planes. All passengers also pass through access control with their luggage for screening to protect against terrorism.

Airport and Unmanned Aircraft Systems (UAS) legislation, as well as approval procedures, security programmes, and trainings, all play a crucial part in ensuring airport and UAS security in the USA. These arrangements mirror the spirit of ICAO

Annex 17 and the ICAO Guidance in its Security Manual by focusing on mitigating security risks with a preventative approach. Despite its powerful protocols, the USA's overall commitment to aviation security has been criticised, especially in the aftermath of failed and attempted terrorist attacks like the September 11 disaster (Manana, 2020:154).

Edna (2020:12) advocates that the emphasis placed on improving passenger air transport security in the wake of the 9/11 terror attack has left the cargo security system more exposed and therefore a more likely target for terrorists. Ineffective border control procedures compromise the security framework of any aircraft industry. Airports are a part of a country's border crossing points. Due to the inadequacies of border control measures, ineffective security at airports leaves the nation open to organised crime, including terrorism, illegal immigration, human and drug trafficking, and smuggling of weapons and drugs. Many nations are revising the designs of their border crossing security systems. Additional controls on immigrants, asylum seekers, and other foreigners need to be implemented, including tamper-proof passports and the imposition of strict guidelines for granting visas.

The following section unpacks literature on global aviation security.

2.3 AN OVERVIEW OF GLOBAL AVIATION SECURITY

In the surveillance discourses of airport security, the constraints that govern entries and departures are transformed “if the schematic motors of dataveillance reify the post-9/11 agenda” (Masemola, 2018:136). On September 11, 2001, four aeroplanes were hijacked by Al-Qaeda-affiliated terrorists and flown into critical targets in the USA. These include the twin towers of the World Trade Center (New York City) and the Pentagon (Washington, DC). This strategic attack killed 2819 individuals and altered the course of aviation security across the globe. Consequently, the unprecedented and notorious attacks alerted nations worldwide to the significance of effective aviation security (Demir & Guler, 2020:2).

Aviation, as a global industry, comprises interconnected systems that ensure the safe and secure movement of air traffic. Performance-driven and technology-enhanced aviation Information and Communication Technology (ICT) systems architecture are

critical to expand connectivity and ensure the airport's long-term profitability. In the aviation business, traditional ICT systems, such as radar technology, are integrated with complicated industrial control systems that deal with baggage handling, weather and temperature, airline, and airport systems. These systems collaborate to ensure safe airline operations, airport buildings and maintenance, check-in, passenger screening, and other activities (Lekota & Coetzee, 2020:28).

According to Lekota and Coetzee (2020:32), attacks are seen as a global threat to key infrastructure, particularly aviation information and communication systems. They also stress that cyber-attacks have been blamed for a number of security problems, proving that weaknesses in the civil aviation system do exist and must be addressed swiftly.

Edna (2020:75-76) adds that, through the Aviation Security Department, the Kenya Civil Aviation Authority (KCAA) conducts aviation security audits, inspections, system tests, investigations, and surveys on airports, airlines, cargo agencies, and in-flight catering companies, among others. The audits include a regular and mandated Universal Security Audit Program (USAP), whose goal is to uncover and correct vulnerabilities in implementing security-related Standards and Recommended Practices (SARPs). Kenya participated in the audits in 2004 and 2008. A follow-up audit was completed by the ICAO Universal Safety Oversight Audit Program (USOAP) in 2013. The KCAA is actively working on corrective action plans. When this measure is implemented correctly in the aviation industry to prevent terrorism, weaknesses in the system are recognised and rectified promptly, before vulnerabilities and dangers are exploited. The action demonstrates that the aviation industry in Kenya is taking a proactive approach to combating terrorism.

The principal international organisation is the ICAO. The objective of the ICAO is outlined in the Chicago Convention, which addresses state sovereignty, the right to fly as well as the responsibility of states to provide infrastructure, safety, and security. Although the future growth of international civil aviation has the potential to significantly contribute to the development and maintenance of international friendship and understanding, its misuse may pose a threat to general security. As a result, the signatories of the Chicago Convention urge all parties to avoid conflict and to foster the international cooperation that is essential to maintaining global peace (Wittmer et

al., 2011:178).

MANPADS pose the greatest threat to security in the airport's immediate neighbourhood, when aircraft landing and take-off occur at the lowest altitude. Efforts to compromise the security of flying airplanes by abusing MANPADS is the most concerning but the global aviation community has made progress through ICAO (Abeyratne, 2011:289). There have been a number of changes since the events of September 11th, 2001. Nevo (2015:39) explains that several international conventions and treaties, run and monitored by the United Nations, currently govern the numerous security measures and requirements for all cargo and air passengers.

According to Edna (2020:12), there is little empirical literature on aviation terrorism, a political act against civil aviation committed by non-state actors who deliberately target civilians and use violence to sow fear among the public and exert pressure on the government, sometimes in the form of demands. There are three characteristics of aviation terrorism. The first aspect concerns the nature of the actions, which Edna (2020) characterises as terrorist acts targeted at the civil aviation sector with the potential to jeopardise public safety and security. Secondly, regarding legal systems, Edna (2020) points out that the aviation industry maintains specific legal and regulatory frameworks under the supervision of the ICAO, which are strengthened by the state justice systems. Thirdly, Edna (2020) expresses concerns about the intricate issues involving law enforcement because the common aviation terror risks are global in scope and interrelated and must be addressed at the global, regional, and local levels.

Aviation security has been briefly explored in its global context; next aviation security in South Africa is explored.

2.4 AN OVERVIEW OF AVIATION SECURITY IN SOUTH AFRICA

Manana (2020:206) indicates that aviation security is concerned with safeguarding UAS from potential usage in committing acts that could interfere unlawfully with the airport or possibly the UAS system itself. Even as South Africa develops measures for integrating UAS into public aviation, security in UAS use remains an issue.

Lekota and Coetzee (2020:33) mention that, to protect the safety and security of operations and passengers, all members of the aviation community in South Africa should build cybersecurity response structures and plans. When a cyberattack occurs at an aviation facility, it is vital that other aviation facilities, both locally and globally, are alerted as soon as possible. This alert will serve to mitigate the attack's domestic and international consequences. International standards, as well as a coordinated approach to information exchange, should be followed. This can be accomplished if aviation sector Computer Security Incident Response Teams (CSIRTs) are created.

According to Serfontein and Govender (2020:2), in the context of South Africa, the Department of Transportation has endorsed four policy principles: (1) aviation safety and security measures are paramount; (2) the market should resolve economic decisions; (3) users' interests in terms of safety, security and reliability should be considered; and (4) all participants in the aviation industry should be treated equally before the law. Local aviation legislation is governed by the SACAA.

People frequenting the airport may fall victim to various criminal activities. In South Africa, the severity of violence is often associated with contact and economic crimes regardless of socio-economic status (South Africa 2016 Crime and Safety Report, 2016). Criminal activities in the airport include but are not limited to theft of money and bags, drug smuggling and even terrorist attacks. Commonly reported crimes that take place in OR Tambo International Airport are the theft of unattended baggage, baggage pilferage and robberies. For instance, a perpetrator will follow a passenger to his or her hotel and use a weapon to rob the victim. As organised crime syndicates are rife within ORTIA, the SAPS has made the public aware of potential victimisation (South Africa 2016 Crime and Safety Report, 2016).

There are various measures in place to limit baggage tampering. A specialised task team, made up of various airlines, ground handlers and SAPS officials, has been tasked to address the problem of baggage pilferage. In light of these security breaches, travellers, family and friends doing pick-ups at the airport are continuously encouraged to be alert and vigilant (Brophy, 2016:np).

Dube (2021:278) adds that the pandemic's negative effects on the aviation industry negatively impacted a number of airport enterprises in South Africa and the

surrounding countries. When the Airports Company of South Africa released its financial statements for the fiscal year ending in March 2020, it raised red flags by revealing that it was setting aside R270 million for provision for “doubtful debts” (ACSA, 2021). This occurred at the same time that arrivals and departures were declining, some airport shops closed and revenues at the airport were significantly impacted by the lack of parking fees. Moreover, the COVID-19 global disruption to the airport industry has significant financial and long-term operational repercussions for the present and the future. Therefore, it was vital to provide financial stimulus aid to airports so they could afford the technology needed to ensure biosafety management. Attempts to lower tourists' chances of contracting an infection at airports included purchasing screening equipment, contactless technology to assure touchless travel, and increasing efficiency.

Between 1986 and 1994, South Africa was excluded from the global aviation community because of international sanctions related to apartheid. Due to the negative effects of isolation on the South African industry's economic development, starting in 1991, the domestic aviation market had to be deregulated in order for privately owned firms to participate. As a result, the South African aviation industry is regarded as being relatively new and institutional arrangements and stakeholder relationships needed to maintain and advance a cooperative system are still being developed. Despite this, during the previous ten years, the South African aviation industry has directly contributed between 3.1% and 3.5% of the country's yearly GDP. This endowment is comparable to the global aviation industry's contribution to GDP, and an industrial growth rate of 4.5% per year is anticipated through to the year 2035. Serfontein and Govender (2020:87-88) indicate that South Africa now participates in the global aviation system and incorporates international operational standards into its domestic regulatory framework as a contracting state to the ICAO. SACAA is still in charge of developing, supervising, and enforcing operational standards, according to the Department of Transport's definition of a two-dimensional governance approach to regulating the country's aviation sector. The individual Air Service Licencing Councils (ASLC) carry out economic governance to ensure that each licence holder can afford the necessary operating standards. Infrastructure, airports, and other supporting roles are part of the governance authority.

Lekota and Coetzee (2020:35) explain that information security incident response services are offered to communities by CSIRTs. A national point of contact for the coordination of cybersecurity incidents in South Africa, the South African Cybersecurity Hub (SACH), has so far only been successful in aiding in the creation of a CSIRT for the financial industry. There is no mention of a transportation or vital infrastructure sector CSIRT, which would allow an aviation CSIRT to report cyberattacks on the aviation sector. The aviation industry's responsibility is to maintain operations and passenger security in southern Africa. This research recognises the need for a CSIRT framework for the sub-Saharan aviation community, acknowledging the urgency and significance of protecting civil aviation's key infrastructure, information and communication technology systems, and data against cyber-attacks.

An aviation CSIRT should implement frameworks, programmes, and international information security standards, and aviation communities must share cyber information with the CSIRT. The evaluation of internationally recognised CSIRTs is done to provide such a framework. Due to the complexity of managing the aviation industry, an integrated CSIRT approach that involves ecosystem stakeholders must be established. In order to effectively handle aviation cyberattacks, a proposed airline CSIRT mandates implementing best practice cyber security incident response standards (Lekota & Coetzee, 2020:35).

Nevo (2015:76) explains that the now-repealed South African Civil Aviation Authority Act No. 40 of 1998, passed on October 1, 1998, created the SACAA. South Africa, as a signatory, must abide by all of the Chicago Convention's requirements and all major advancements in aviation security on a global scale. Regarding aircraft, airports, airspace, and personnel, the CAA has been given the primary oversight role for aviation in South Africa. It also monitors and oversees the processes used at airports for screening travellers and their bags, for access control using fencing and lighting, and handling, packaging, and documentation of hazardous materials. The CAA's responsibility is to supervise and guarantee that standards and employees adhere to international security competency levels in the area of aviation safety and security.

The SACAA was created by the South African Civil Aviation Act 29 (Manana, 2020:181) and officially acknowledged under Section 71 of the Civil Aviation Act when

it was revised in 2009. The organisation is responsible for developing technical standards for airworthiness and the operation of aircraft that are not type approved. The Civil Aviation Act's preamble aims to broaden the SACAA's authority regarding safety and security monitoring responsibilities. These tasks are undertaken at the policymaking level, along with the daily operations of the SACCA, which are managed by the Director General's office and the SACAA employees. The officer also reports to the Board on subjects under the Board's purview, whereas the Director General reports to the Minister of Transport on civil aviation, safety, and security matters. The Director General and staff members are chosen by the former carry out SCAA's duties.

2.4.1 Safety and security at South African airports

South Africa, which has a developed economic infrastructure, has eleven international airports. These airports are vulnerable to a number of crimes, including the use of illegal substances. Drug mules, who smuggle illegal substances for international drug cartels across national boundaries, including onto and off international airplanes, have been detained. Growing drug trafficking networks have been seen in international airports (Dunlop, 2018:40).

According to Mnguni (2020:147-148), raising awareness about the recruitment of drug mules in workshops, community engagement projects, and communities may lower the number of people recruited into drug smuggling. The ACSA, the Department of Home Affairs (DHA), the SAPS, and other pertinent government agencies are therefore urged to create awareness campaigns to reach vulnerable people who may be used as drug mules. These campaigns can be publicised on the radio, television, social media, and in booklets. Although the SAPS and ACSA hold conferences on drug trafficking in the security sector, they fail to inform people and communities about the dangers of drug smuggling. Motseki and Mofokeng (2022:3) explain that, from the supply side, human trafficking of women and children is frequently viewed as a development issue. Poverty and a lack of other job and income-earning alternatives are said to compel or pressure young women and children into the sex and domestic service sectors.

There have reportedly been several instances of foreigners being followed by cars

from Johannesburg's OR Tambo International Airport to their destinations before being robbed, frequently at gunpoint (South Africa 2016 Crime and Safety Report, 2016).

According to Nevo (2015:78-79), the responsibility for ensuring that civilian aircraft are maintained in accordance with requirements, supervising aircraft maintenance organisations, approving aircraft modifications and Supplementary Type Certificates, the regulation of aviation security training organisations and confirming that maintenance engineers comply with applicable regulations fall under the purview of the Aircraft Safety Division. This responsibility applies to the security of airports, air carriers, cargo, and the safe movement of hazardous materials. The SACAA's Air Safety Infrastructure Division ensures that all South African airports, helistops, heliports, and airspace are secure, and that all off-airport constructions that could have an impact on the security of air navigation adhere to all applicable safety regulations. This division's duties also include approving flight plans, licensing air traffic controllers, and giving the industry access to information on aeronautical safety. This division is in charge of flight inspections, maintenance of examinations, testing standards, aviation medical standards, certification of technical safety compliance of aviation navigation aids, and safety oversight of all air operators, aviation training organisations, designated flight examiners, designated aviation medical examiners, and aircraft maintenance engineers. The SACAA Aircraft Safety Division's management capabilities include client services, aviation personnel licencing and examinations, information management, enterprise-wide risk management and risk assessments centred on the areas of strategic core operational and support service-related risks.

In reaction to several global incidents, notably the 9/11 attacks in the USA, and efforts to prevent the theft of cargo as well as increased surveillance tools to combat drug trafficking and smuggling at airports, security measures at South African airports were increased (Nevo, 2015:5). In addition, the application of the new South African Firearms Control Act (FCA), the implementation of the new SAPS National Firearms Programme, and the final preparation and approval by Cabinet of the Border Police Procedure Manual (in May 2002) had a positive impact on security.

2.5 SAFETY AND SECURITY AT ORTIA

As ORTIA is the focus of the study, the status of safety and security is reviewed below.

2.5.1 Nature and extent of crime at ORTIA

ORTIA is South Africa's primary gateway airport located in Johannesburg, Gauteng. The airport's location resides outside the boundaries of the metropolitan area of Johannesburg and falls within the municipality of Ekurhuleni. Ekurhuleni is one of the country's newest metropolitans and is still under-researched (Rogerson, 2018:124) (see section 1.2). However, the airport is vulnerable to ongoing criminal activities. According to Lubbe and Vermooten (2021:923), safety and security are basic conditions for tourism. South Africa has a reputation as a dangerous destination as it was ranked 134 out of 140 nations on the 2019 Travel and Tourism Competitiveness Index (TTCI) Safety and Security indicator.

Even though initiatives have been implemented to prevent the theft of luggage, suitcases are stolen daily. The airport is internationally recognised for the highest numbers of mishandled luggage. In February 2017 at ORTIA, criminals, posing as SAPS agents, targeted a cargo plane and stole more than R20 million in foreign currency. Although the suspects were taken into custody and the heist's cars were seized, the case is still open. Evidence suggests that insider knowledge was provided in order to commit the heist (Bateman, 2017).

A crime intelligence agent who spent time in jail for carrying out a theft on cash-in-transit and was also freed on parole after spending two years in prison for armed robbery has returned to his job after being released from jail. He is now a suspect in the R200 million heist at ORTIA carried out at the beginning of March 2017. These shocking specifics are in a private document put together by a top crime intelligence officer and delivered to the head of the police portfolio committee of Parliament in March 2017. Additionally, the information has been independently corroborated in City Press by high-ranking members of the crime intelligence community (Saal, 2017).

Van Heerden and Minnaar (2016:20) explain that, in terms of the nature and extent of crime at ORTIA, they submitted a request to the SAPS for access to police dockets

pertaining to drug mules apprehended at ORTIA. The researchers could not access the dockets despite several attempts and permission granted by the SAPS. The major reasons provided were that all people detained were classified as having drugs in their possession therefore the SAPS could not produce dockets exclusively for drug mules. As a result, the researchers were unable to identify specific jailed individuals for correctional services interviews.

Dunlop (2018:52-53) describes members of the South African government who are convicted drug smugglers. Sheryl Cwele, Hibiscus Coast Municipality's director of health services and the wife of South African State Security Minister Siyabonga Cwele, was found guilty of narcotics trafficking in 2011. Judge Piet Koen found her and Nigerian drug dealer Frank Nabolisa guilty of conspiring to enlist Charmaine Moss and Tessa Beetge, two South African women, to smuggle cocaine from Brazil to South Africa. Sicelo Shiceka, the Minister of Cooperative Governance, was removed by former president Jacob Zuma in 2012 for making unauthorised purchases. Shiceka used more public funds on illicit lodging and travel, including a visit to his girlfriend, who was imprisoned in Eswatini for transporting drugs (News24, 2012). The High Commissioner of South Africa to Singapore, Hazel Francis Ngubeni, has a history of drug trafficking offences. The convicted drug trafficker served two years in a New York prison, between 1999 and 2001, for attempting to transport 9kg of heroin from Thailand into South Africa. She was detained on September 20, 1995, at ORTIA (Afrika, 2016:np).

Despite media attention on South African drug mules imprisoned abroad and case studies of South Africans who received death sentences in other countries, Van Heerden and Minnaar (2016:24) believe that the number of drug mules does not appear to be affected by the experiences of those who have faced harsh punishment for smuggling drugs across borders in the past. For example, importing drugs into Indonesia might result in death by firing squad. Professional mules are aware of the expenses and hazards but they also understand how these risks can be reduced by working with dishonest law enforcement personnel.

2.5.2 Existing safety and security measures at ORTIA

Atonko (2019:125-126) notes that aviation security is the mix of material and human resources and measures intended to counter unlawful interference with aircraft. Aviation security is concerned with outside forces that aim to obstruct the aircraft's safe operation or put the lives of passengers, crew, other people, and property, such as air navigation infrastructure, in danger when the aircraft is in flight or on the ground. Aviation, airport and airline security aims to protect national security while preventing harm to aircraft, passengers, and crew. While the latter relates to the strategies and methods used to protect airports and aircraft from crime, the former deals primarily with the policies and infrastructures intended to prevent security issues aboard aircraft.

Airport security aims to deter terrorists from bringing weapons into the airport. This deterrence requires many devices that include metal detectors, watchdogs, and guards who do random checks. Modern airports use sophisticated identifying methods including security identification display areas. The most popular security measures are identification cards that identify airline employees, airport employees or authorised persons. Many regional and international airports employ fibre optic perimeter intrusion detection systems. These systems enable airport security to lock and detect any intrusion on the airport perimeter, ensuring real-time, immediate intrusion notification that allows security personnel to assess the threat, track movement, and engage the necessary security measures. In general, aviation security exists to safeguard airports from assaults and criminal activity, to safeguard planes, and to reassure the general public of their safety while travelling (Atonko, 2019:129).

Wood and Raj (2021:281) explain that Closed Circuit Television (CCTV) at airports expand surveillance. It monitors suspicious behaviour, detects criminal behaviour and maintains the overall health and safety of the airport. CCTV systems have been used worldwide to prevent and intervene in criminal behaviour and offer evidence for recourse (Wood & Raj, 2021:282).

According to Weiland, Law, and Sunjka (2020:98), safety and security are not always viewed in the same way in air traffic control. However, as the industry's infrastructure continues to expand, they frequently overlap and interact with one another and therefore must be integrated.

Policy design and the organisation's strategic direction are the executive level's primary responsibilities. In order to coordinate the SACAA's international activities with other organisations, such as the Southern African Development Community (SADC), the African Civil Aviation Commission (AFCAC), ICAO, and other national CAAs, the executive's responsibilities are to foster and support good relationships within the industry.

The primary area of the project management level is to supervise and coordinate technical endeavours, for instance, the investigation of accidents and incidents, aircraft safety, aviation security, air safety infrastructure, and risk and compliance in air safety operations. Technical departments are held accountable for the areas of oversight relevant to their specific operations at the operational level. This accountability implies that a technical department may report to a different oversight area depending on the activity. The primary responsibilities of each area of supervision are to establish, monitor, and uphold standards as well as to promote safety (Nevo, 2015:77-78).

Du Plessis, Saayman and Van der Merwe (2017:10) explain that the safety and security, quality of service, value for money, geographical features, and attitude toward tourists are the most essential factors for South Africa as a worldwide tourism destination. According to Part 108 laws in South Africa, there are many screening procedures at airports, just as in the United States and the European Union. The following screening processes have been audited and authorised by the SACAA: technical or bio-sensory screening; using an Improvised Explosive Device (IED) to detect explosive vapour or traces of it; and the use of sniffer dogs/K9s (Nevo, 2015:87).

According to Nevo (2015:88), security measures may be tolerated (if not supported) by passengers, but not by the air freight industry. Cargo is packed in the same hold as passenger luggage on passenger flights and is subjected to the same environmental variables as checked luggage. As a result, IEDs in cargo or checked baggage are equally deadly. However, this does not imply that checked baggage and air cargo should be treated equally in terms of security. Although an aircraft's vulnerability to an IED is the same, cargo and checked baggage have quite different

characteristics and must be managed accordingly.

Van Heerden and Minnaar (2016:17) explain that both maritime harbours and airport security are constantly being evaluated and improved based on the information gathered by law enforcement organisations, particularly with regard to the methods used by the drug syndicates. Modern luggage and container scanners are being installed in airports and seaports around the world, and postal distribution centres that handle foreign mail now routinely inspect parcels. Full-body scans, X-rays of persons and luggage, ion scanners that can spot minute particles of illegal substances, and sniffer dogs are employed to find drug mules that carry drugs. Furthermore, the authors recommend that the police must monitor numerous points of entry. In order to do this, they depend on tips and information leaks.

2.5.2.1 Security Management at ORTIA

Safety and security are compromised in South Africa due to the high crime rates (SAPS, 2022:np). Thus, government policing strategies are not adequate to enhance safety and security in South Africa. Consequently, the private security industry has expanded to defend and protect its client's interests (Maboa, 2022:43). In an effort to regulate the South African private security sector, the Private Security Industry Regulatory Authority (PSIRA) was formed. PSIRA's mandate stems from the Private Security Industry Regulation Act 56 of 2001 (Republic of South Africa [RSA], 2001). The main goal of the regulatory authority is to regulate the private security industry and practice effective control over security service providers. This goal is to be carried out in line with the best interest of the public, country, and private security industry itself (PSIRA, 2022:np). ORTIA uses both private security personnel and SAPS officials to enhance safety and security at the airport (ACSA, 2021:np).

2.5.3 Security risk factors and vulnerabilities at ORTIA

Safety and security concerns and the nation's political instability pose threats to South Africa's tourism industry, as they do to the industries of many other popular tourist destinations (Du Plessis et al., 2017:5).

2.5.3.1 Tourism and safety

In South Africa, tourism provides the livelihood of many South Africans. Moreover, it is estimated that tourism contributes to 7.4% of the GDP in sub-Saharan Africa and 3.7% to South Africa (Santana-Gallego & Fourie, 2022:995; Sisulu, 2022:np). People do not want to travel to a destination where their safety and security can be compromised (Santana-Gallego & Fourie, 2022:996). Criminal activities manifest in a variety of ways at ORTIA.

Criminals target travellers leaving Johannesburg's ORTIA as they travel to hotels or other lodgings. As a result, travellers should be warned to exercise extreme caution when leaving the airport and ensure that a reliable method of transportation is used such as a hotel pick-up or airport-approved form of transportation (Thobane, 2016:34).

At ORTIA, baggage theft is a significant issue. Travellers are advised to use TSA-approved locks to secure their bags, to use an airport plastic wrapping service, and to avoid packing anything of value in their checked luggage. Travellers are urged to list everything in their checked luggage to help with claims processing if theft does happen (South Africa 2016 Crime and Safety Report, 2016).

2.5.3.2 Drug trafficking

Dunlop (2018:40) maintains that, to expand networks of narcotic trafficking, geo-narcotics requires certain territories to have built infrastructure, like the ORTIA. South Africa has eleven international airports and eight international seaports, which criminal organisations target. Therefore, drug mules – those who transport illegal drugs in and out of international planes across national borders for international drug syndicates – are apprehended frequently at these locations. At ORTIA, 149 people, 22 of whom were South Africans, were apprehended for drug possession in 2011.

Drug trafficking and commodity trade by international criminal organisations are becoming more of a concern in South Africa. The heroin and cocaine markets in South Africa are controlled by drug trafficking networks established by organisations from Nigeria, the Balkans, Tanzania, and China. Many smugglers are unemployed Pakistanis, Tanzanians, Indians, Nigerians, South Americans, Chinese, and South

Africans who rely on the illegal economy for income. As drug use has increased, many women have joined criminal organisations to earn quick money. Since women are less likely to be searched, drug gangs rely on them to work as drug couriers. As a result, South African citizens are often arrested for drug trafficking abroad (Dunlop, 2018:42; Mnguni, 2020:136).

Van Heerden and Minnaar (2016:43) maintain that, to combat and deter drug smuggling, the South African government has implemented visible policing and crime prevention efforts. Airports with international ports of entry employ drug sniffer dogs and scanners to intercept drug smugglers coming into South Africa. The machinery is still operated mainly by humans and is thus still susceptible to factors like corruption and untrained workers.

South Africa serves as a major international trade centre, making it hard to scan all the people and commodities arriving here. Drug smugglers have changed their routes by flying into Johannesburg as in-transit passengers, continuing to other southern African locations, and then returning through border posts that lack the same level of security and monitoring measures as those in place at ORTIA. When law enforcement organisations discover their routes, international syndicates also turn to other forms of drug smuggling, like sending a cargo by freight rail and deploying drug couriers or mules (Van Heerden & Minnaar, 2016:45)

2.5.3.3 Quality assurance system

Serfontein, and Govender (2020:97) advise that, in order to create the capacity for fluid and autonomous adaptation to gradual changes and generally disruptive situations, the nature of the South African aviation industry requires multi-level congruence between management control systems. The South African Civil Aviation Regulations demand the installation of a quality assurance system; however, they do not address multi-level inclusivity and cohesive cooperation within functions. The South African aviation business has a negative and onerous relationship with quality assurance, despite stakeholders seeing it as a need. The South African aviation industry's implementation of corporate governance, an organisational control framework that encourages transparent, moral, and sustainable business behaviour,

is insufficient. The link between the two control systems in the South African aviation industry is fragmented and complex, despite theoretical constructions supporting the interrelationship between quality assurance and corporate governance. To increase an organisation's sustainability, stakeholders emphasise the need for purposeful action toward a cohesive relationship to overcome and embrace security concerns.

2.5.3.4 Unmanned aircraft systems

Another essential security precaution used by South Africa is registration. The Civil Aviation Regulations Eighth Amendment's Part 101 of the Civil Aviation Regulations acknowledges the security risks posed by the spread of unmanned aircraft systems (UAS) into the country's airspace. As a result, it enables the registration of imported UAS. According to these Regulations, UAS must be re-registered whenever they depart the airspace. The re-registration requirements are designed to adhere to security standards by considering UAS that re-enter South African airspace. A UAS can only be registered if it has not previously been registered in another state, according to the second rule. This circumstance is intended to prevent espionage in South Africa's airspace (Manana, 2020:209).

The following section briefly discusses incident reporting at airports.

2.6 AIRPORT INCIDENT REPORTING

Incidences are defined as any mistake, error or action that can cause harm, hazard or injury. It is an unusual occurrence that has implications on the safety, finances, brand and overall functioning of an organisation. Policy and regulations usually require mandatory reporting of incidences. However, often the concern is towards incidences that go unreported (Quilty, 2019:16), particularly crime incidences.

There are two main approaches to incident reporting – safety-centric and enterprise-centric. Both approaches are discussed below.

2.6.1 Safety-centric approach

This approach relies on the processes engaged to ensure safety and prevent incidents from occurring at airports which involves proactively addressing weaknesses at the

airport to ensure a safe environment. Efforts should focus on recognising the status of safety and working towards enhancing safety initiatives (Quilty, 2019:7).

2.6.2 Enterprise-centric approach

This approach centres on strategic, business, operational, marketing, and environmental elements within an airport (Quilty, 2019:7). As much as these elements are vital for the functioning and profitability of an airport, if safety is compromised, the enterprise is compromised.

The following section outlines the theoretical explanations this study is based on.

2.7 THEORETICAL EXPLANATIONS

Theories must adhere to scientific testing for truth and comprehension. Theories function as possible explanations for a particular phenomenon which, in this study, is the phenomenon of crime activity at ORTIA. The study applies CPTED and Situational Crime Prevention as theoretical explanations for safety and security at ORTIA.

2.7.1 Crime Prevention through Environmental Design (CPTED)

CPTED argues that the social reasons for crime have been exaggerated, and that the biological and environmental factors of crime need to be examined. It takes a comprehensive and holistic approach to understanding the origins of crime, drawing on social, behavioural, political, psychological, and biological factors. In determining crime, CPTED maintains that the interior environment of the brain is just as essential as the external physical environment (Love & Cozens, 2015:394). In summary, First-Generation CPTED centered around the physical environment while Second-Generation CPTED included other motives for crime from disciplines such as social psychology and cognitive and health sciences (Mihinjac & Saville, 2019: 2).

Rachel (2016:34) explains that minimising crime through designing, constructing, and managing homes and their surroundings is a cost-effective and common-sense strategy. There is a disparity between what is defined as CPTED principles and how this approach is implemented on the ground particularly the extent to which this method can be used in different cultures, in areas where violent crime is prevalent,

and in nations where there is insufficient preparation or police infrastructure to apply CPTED. The perils of suffocating creativity by over-standardising to protect against such inconsistencies, due to a lack of consistency in application, are linked to the individual's interpretation of risk. Finally, the extent of the almost dogmatic pursuit of compliance with these principles risks failing to modernise, reassess, or even overhaul what is meant by CPTED and how relevant it is to the current crime concerns.

The CPTED-based interventions aim to reduce crime and violence while also promoting positive connections with design and architecture. The fundamentals of CPTED are based on three major overlapping strategies: limiting access and expanding options for casual visitors; monitoring; and instilling a sense of ownership. These techniques can have far-reaching consequences in minimising criminal opportunities to increase positive outcomes and generate a sense that people care about social connections and other people, and environmental initiatives aimed at reducing crime and violence. Efforts to improve the quality of life have been made in various ways and situations, such as villages, industrial regions, companies, and public transportation (Vagi, Stevens, Simon, Basile, Carter & Carter, 2018:297).

When principles of CPTED are not effectively implemented and adhered to at ORTIA, the airport is vulnerable to crime incidences. ORTIA adheres to many principles of CPTED however crime is still ongoing and consequently affects the safety and security of the airport.

2.7.2 Situational Crime Prevention

Situational crime prevention originates from the 1980s and is founded on prior opportunity theories, such as routine activity, crime prevention and rational choice theories. Situational crime prevention moves the focus of crime from the offender to the crime problem because it is difficult to control the offender whereas controlling the situation may be easier (Block, 2016:13; Newburn, 2017:308). As summarised by Clark (1983:225), situational prevention comprises:

“measures directed at highly specific forms of crime that involve the management, design, or manipulation of the immediate environment in as systematic and permanent a way as possible so as to reduce the

opportunities for crime and increase its risks as perceived by a wide range of offenders.”

The theory suggests that crime can be prevented when the circumstances change. Crime prevention should focus on near causes of crime – an opportunity that provides an opportunity for a criminal to commit a crime within a location. To determine the elements in a situation that need to be changed, the modus operandi (how a crime is carried out) of a crime should be identified (Block, 2016:14). Hard and soft techniques can be used to prevent crime. The former includes increasing the effort needed for a crime to occur and the risk of being apprehended while the latter minimises the incentives for successfully committing a crime. This can be done through strict access control, screening and vetting process, effective surveillance systems and restricting the access to weapons by the consistent presence of capable guardianship. The latter techniques include reducing motivations and justifications for committing crimes through visible and clearly communicated rules and regulations throughout the airport (Block, 2016:15).

Furthermore, situational crime prevention incorporates elements of design to assist in minimising crime as outlined by Newburn (2017:309):

- Territoriality conceptualises space so that role players can protect their areas, clearly demarcate authority, and discourage criminals from gaining entry.
- Surveillance designs property to make it easy to observe certain areas.
- Image involves designing property that appears to be safe and secure with few to no vulnerabilities.
- Environment entails ensuring that surrounding areas are also classified as safe zones.

2.8 CONCLUSION

Aviation security is of vital importance. Internationally and nationally, airports are vulnerable to risks to their safety and security. The purpose of this chapter was to gather information on aviation security in order to contextualise aviation security in South Africa. The current study's goals and objectives were considered when

conducting the literature review. Ultimately, the chapter centred on safety and security at South African airports at ORTIA.

To obtain a comprehensive understanding of aviation security, various themes were discussed. These include conceptualising aviation security and contextualising it in South Africa and abroad. After that, South Africa's aviation security was reviewed regarding ORTIA. The chapter concluded with theories applicable to the study at hand.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 INTRODUCTION

Tourism is a key component of a healthy economy. Therefore, safety and security are a prerequisite for the development and sustainability of tourism in South Africa (Seabra et al., 2013:502). For this purpose, the research study endeavoured to explore safety and security at ORTIA to make security risk control recommendations.

Scientific methods are the ideas, guidelines, principles, procedures and approaches implemented to solve social problems and produce knowledge. A scientific attitude is how people perceive and interact in their world while a scientific method is how this attitude is carried out. Continuous methodological checks are required to control and authenticate scientific activities. Thus, reliable and dependable scientific knowledge will be generated. In addition, the rigour of a scientific approach is vital during the research approach. Hence, the significance of a chapter dedicated to outlining the research methodology implemented in this study. Moreover, research methodology should provide evidence of critical thinking, deductive logic and scientific methods (Leedy & Ormrod, 2021:41).

Creswell and Creswell (2018:49) assert that quantitative research is a useful way of measuring the properties of a phenomenon under study. The research study adopted a quantitative inquiry using self-administered questionnaires to obtain raw data. The research procedures consisted of the research approach, design population and sampling techniques, unit of analysis, data collection, and data analysis.

The purpose of the research is discussed below.

3.2 PURPOSE OF RESEARCH

As a point of departure in a research study, it is important to determine the purpose of the research. The purpose of the research study is to support the processes needed to answer the research questions. There are various research purposes such as exploratory, descriptive, and participatory. This study was exploratory and descriptive in nature (Fouché, 2021:64). The following is explained by Rubin and Babbie

(2016:154) and Fouché (2021:64):

3.2.1 Exploratory research

Exploratory research is used to gain insight into the topic or phenomenon under investigation. This study sought to explore safety and security at ORTIA.

3.2.2 Descriptive research

Descriptive research takes a step further than exploratory research as it describes experiences and phenomena. It seeks to answer the “how” and “why” questions thus more comprehensive details are provided. This study sought to be descriptive in its theoretical and empirical findings.

The research approach is at the core of any research study and is discussed below.

3.3 RESEARCH APPROACH

Research approaches represent the plans and procedures that guide the study in terms of research design, data collection, analysis and interpretation (Creswell & Creswell, 2018:40). In social science research, there are three broad research approaches. These approaches are qualitative, quantitative, and mixed methods research. Qualitative research is self-reflective and descriptive in nature. Qualitative research encourages incessant reflection on the research in progress. Additionally, more interaction with the research participants is required. There is more room for ongoing modification and adjustments as the research proceeds. Mixed methods research integrates elements of both qualitative and quantitative research (Creswell & Creswell, 2018:41; Tracy, 2020:4). Even though a qualitative or mixed methods approach to research is scientifically valid, due to the nature of the topic under study, the researcher chose to use quantitative research to achieve its aim and objectives.

Quantitative research makes use of standardised procedures to collect numerical data. It is used to answer questions about the relationship among measured variables. In this way, the phenomenon under study can be explained and controlled for future purposes. Thereafter, statistical procedures are applied to analyse and deduct the collected data. The intention is to establish, confirm or validate relationships and to

develop generalisations. Quantitative research uses a form of statistical analysis of the data and uses a minimum sample size (Bertram & Christiansen, 2015:63; Creswell & Creswell, 2018:41).

Aidley (2019:5) maintains that quantitative research aims to make definitive statements about the relationship between factors in the form of comparisons, examining associations or testing for a causal relationship. According to Ruane (2016:33), quantitative research depends on numerical data to document reality and measure variables for data analysis. Fouché and Geyer (2021:89) explain that within quantitative research there is a variety of choices concerning data collection methods. These range from observation schedules, questionnaires, checklists, indexes and scales. Considering the above discussion, a quantitative approach was used to obtain information from the research participants.

A research study needs to be contextualised within a specific research design. The research design chosen for this study is outlined below.

3.4 RESEARCH DESIGN

A research design is the identification and systematic development of procedures and logistical arrangements essential to commencing an academic study. After that, South Africa's aviation security was reviewed regarding ORTIA. Bertram and Christiansen (2015:40) explain that a research design is the systematic and purposeful proposed plan detailing how the researcher will methodically collect and analyse the data to answer the research questions. Bordens and Abbott (2018:103) postulate that the choice of research design is crucial for the research process. The study made use of a non-experimental research design as outlined below.

3.4.1 Non-experimental research design

Non-experimental designs are often used in descriptive studies in which the aspects that make up the research are measured on all the pertinent variables at a specific time. In non-experimental research designs, variables are not manipulated and there is no need to incorporate an experimental or a control group. Moreover, surveys are the most used non-experimental designs in social science research. Surveys are

used in all types of studies – exploratory, descriptive, explanatory, and evaluative. Surveys give participants a series of questions to be answered that require insight into their personal attitudes, beliefs, prejudices, preferences or opinions (Fouché & Roestenburg, 2021:160). Depending on the consistency and orderliness of the phenomenon under study, researchers may obtain satisfactory results by means of non-experimental research. Therefore, the researcher must be familiar with the nature of the variables in the field of research. The researcher should be well-equipped to understand the statistical methods available to reveal the relationships among the variables (Bryman & Bell, 2019:64). According to Ruane (2016:154), non-experimental survey research is different from experiment research designs. Surveys do not employ experimental and control groups and do not intentionally manipulate independent variables. Thus, surveys are not as controlled as experiments.

The study used a self-administered online questionnaire which is a type of survey. Thus, no manipulation of variables took place. In brief, the quantitative data were collected from the self-administered questionnaire survey utilising the non-experimental design. These, in conjunction to the literature study, were incorporated and analysed and resulted in the findings and recommendations for this research study (see Chapters 4 and 5).

3.4.2 Randomised cross-sectional design

The randomised cross-sectional design is usually linked with exploratory and descriptive studies that observe a group of people at one point in time. A research design can also be used to determine whether a problem exists within a group of participants and the nature of the problem. This design uses assessments to identify problems and gaps in research (Fouché & Roestenburg, 2021:163).

To generate new information, data need to be collected from research participants. The subsequent discussion highlights the population and sample used in this study.

3.5 POPULATION AND SAMPLING

A population is the total number of people, groups or organisations that could be included in a study (Bertram & Christiansen, 2015:59). Strydom (2021:228) delineates

a sample as a subcategory of a population. A sample represents the existence of a population of which the sample is a smaller sub-section, or a set of individuals selected from a total population. Moreover, in quantitative studies, a sample includes all the elements of the population considered for inclusion in the study. Literature suggests that at least 10% of a population must be included in a study for a sample to be representative and accurate (Strydom, 2021:228).

Sampling can be categorised into probability and non-probability sampling as discussed below.

3.5.1 Non-probability sampling

As explained by Strydom (2021:381), with non-probability sampling, the chances of selecting an individual are unknown. This is because the researcher does not know the exact population size or the members of the population. Aidley (2019:84) believes that non-probability sampling methods usually entail less systematic effort and time but the disadvantages include poorer quality and sampling bias. This type of sampling approach is often used in qualitative studies. Through the researcher's contact person at the ORTIA, he was able to determine the population size of the security staff component. For this reason, the researcher used probability sampling to collect data.

3.5.2 Probability sampling

Probability sampling is founded on randomisation while non-probability sampling is done without randomisation. In probability sampling, every individual in the demarcated population has an equal chance of being included in the sample (Aidley, 2019:82). Furthermore, simple random sampling is a type of probability sampling where everyone in a population has the same opportunity to be chosen to take part in the study (Bertram & Christiansen, 2015:60; Strydom, 2021:233). The researcher received a list of names of the security staff personnel at ORTIA and used random sampling to select the participants.

3.5.2.1 Random sampling

A random sample is a structured method of sampling where all possible individuals in

a targeted population have a fixed chance of having the same probability of being selected (Strydom, 2021:232). The target population for this study comprised security personnel working at ORTIA during the study. The following steps, as guided by Strydom (2021:232), were taken to draw up the study:

- Step 1

To create a random sample, the researcher needs a list of the research population. The researcher received a list of security personnel which consisted of 276 employees. The researcher used this list, received from the contact person, to draw up the sample.

- Step 2

The next step entailed allocating a number to everyone represented on the list of 276 security staff members. Each individual was allocated a number from 1 to 276.

- Step 3

Usually, a sample should consist of 10% of the population. The researcher was cognisant that not all the targeted participants might want to participate in the study. Therefore, the researcher decided to target 50% of the population. This totals 138 individuals. Out of these 138 invited participants, 100 participants took part in the study.

- Step 4

Strydom (2021:227) explains that, during the development of a random sample, the size of a population is determined by the number of digits used from the random sample. In a sample of about 200 potential participants, a sample of 32% is suggested as representative of the sample. The sample in this study yielded a representative percentage of 36%. The researcher used a randomiser application to draw the sample of 138 potential participants (Research Randomiser, 2021:np). These participants were invited to take part in the study. Of the 138 targeted participants, 100 participants completed the online questionnaire.

3.6 DATA COLLECTION

Roestenburg (2021:199) clarify that the choice of data collection methods in quantitative research can be characterised by structured observation schedules, questionnaires, checklists, indexes, and scales. A questionnaire's aim is to attain facts and perceptions about a phenomenon from individuals who are informed on the topic. For this reason, questionnaires were selected as the data collection tool. The questionnaire (see Annexure E) was informed by the literature study regarding security risks at ORTIA (see Chapter 2).

3.6.1 Online self-administered questionnaire

A questionnaire is a type of survey that presents questions via a self-administered template (Ruane, 2016:247). The researcher made use of online self-administered questionnaires. The advantages of these questionnaires are that they save time, are relatively cheap and can easily be completed by the end-user. The participants were given a link to the online self-administered questionnaire to complete in their own time. Data were collected over a period of six months. The participants were prompted on a weekly basis to complete the questionnaire, if they had not done so. The researcher provided his contact details and was available if any problems were experienced.

3.7 UNIT OF ANALYSIS

A unit of analysis describes any person or object the researcher collects information from. A unit of analysis in a research study denotes the people or things whose characteristics researchers observe, define and elucidate, for instance, individuals, groups or communities. In sum, the unit of analysis can be any of the individual or communal aspects of the entity being researched (Fouché, 2021:67).

This research study was carried out in the City of Ekurhuleni Metro at ORTIA in Gauteng Province, Republic of South Africa. The research study explored security risks that affect employees, passengers and stakeholders at ORTIA from the perspectives of security personnel working at ORTIA. When the data were collected, there were 276 security personnel employed at ORTIA. Through randomised sampling (see section 3.5.2.1), 138 security personnel were invited to participate in the study,

however only 100 participants completed the online self-administered questionnaire. The participants were chosen randomly without discrimination against attributes such as gender, race or ethnicity. Provided a participant was employed at ORTIA in a security function, they received an equal chance of being selected for the study.

3.8 DATA ANALYSIS

Quantitative data analysis entails the techniques used to convert raw data into numerical form. Thereafter, the numerical data are subject to statistical analysis which is like translation as the data are presented as a meaningful and logical description of patterns and relationships. The goal of quantitative data analysis is to reduce raw data into interpretable sections to answer the research questions and make conclusions (Bartley & Hashemi, 2021:249).

The raw data were collected and transcribed into Microsoft Excel format to generate charts and frequencies. The researcher used frequency distributions to summarise and display the collected data in tabular form. It also allowed for easier description, comprehension, interpretation and utilisation of the synthesised information (Bartley & Hashemi, 2021:250). The researcher used descriptive analysis to analysis the data as detailed below.

3.8.1 Descriptive analysis

Fouché and Roestenburg (2021:161) emphasise the use of computers when organising and analysing quantitative data. A statistician helped the researcher in organising the quantitative data retrieved from the Microsoft Excel spreadsheet. The researcher used this simplified presentation of data to meaningfully relate the research aims and objectives.

Prior to analysing quantitative data, the measurement level of the collected data needs to be taken into consideration. Levels of measurement are classified into nominal, ordinal, interval and ratio. The nominal level classifies themes into categories such as gender, race or marital status. The ordinal level organises data into ranks such as employment status or level of education. The interval level measures the distance between variables without an absolute zero (e.g., intelligence and personality tests)

while ratio measures variables with an absolute zero (e.g., age, number of dependents or salary). Descriptive analysis reports on the distribution of the sample across a range of variables using the above levels of measurement. Data distribution is described in terms of its frequency, central tendency and dispersion (Roestenburg, 2021:216). Ruane (2016:36) explains that descriptive analysis accurately accounts for of a social phenomenon. Descriptive analysis was used to analyse and interpret the empirical findings as the aim of the study was to explain and describe the topic at hand.

3.9 PILOT STUDY

Bertram and Christiansen (2015:49) describe a pilot study as the preliminary stage of research when the research instruments are tested on a similar group of participants as those in the unit of analysis (see section 2.6). According to Jensen and Laurie (2016:160), the researcher can make mistakes during the data collection phase. These mistakes can cause problems later if they are not identified and eliminated in the early phases of the design of the questionnaire. The pilot study can assist in determining whether the selected research procedures are suitable for the investigation (Strydom, 2021:236). In addition, the pilot study tests the measuring instrument such as identifying poorly worded or confusing questions (Jensen & Laurie, 2016:145). In brief, a pilot study is a practice run of the actual research investigation. The researcher used a pilot study by administering questionnaires to three security personnel previously employed at ORTIA. The researcher knew these participants as former colleagues. They gave helpful insight and recommended minor revisions to the questionnaire which the researcher subsequently corrected. The sample used for the pilot study was not included in the study's findings and analysis.

3.10 RELIABILITY AND VALIDITY

Validity entails the capacity of the research findings to yield authentic findings. Reliability is the degree to which a data instrument can be replicated with a similar group of participants and still produce similar findings (Bertram & Christiansen, 2015:186). The researcher endeavoured to ensure validity and reliability, throughout the study, in the following ways:

3.10.1 Ensuring validity

Validity ensures that the conclusions derived from a research study are accurately based on the context and time frame of the study. Moreover, validity is the capacity of an instrument to measure what it is designed to measure (Roestenburg, 2021:200).

Validity was ensured in the following ways as guided by Roestenburg (2021:200):

- Face validity is the extent to which the data instrument measures what it intended to measure. The questionnaire (see Annexure E) was designed to retrieve data from security personnel at ORTIA concerning their experiences with the questions posed.
- Content validity ensures that various elements of the phenomenon under study are measured. In this way, various dimensions of the topic under study are explored. The data collection tool (see Annexure E) covered various themes to assist in answering the study's research questions (see section 1.4).
- Construct validity denotes an instrument's capability to successfully measure theoretically based hypotheses. The questionnaire (see Annexure E) was designed based on the theoretical discussion outlined in Chapter 1 and Chapter 2 of the present study (see Chapters 1 and 2).

3.10.2 Ensuring reliability

Reliability refers to the consistency applied throughout the research process. Reliability advocates that the same variable should be used to measure a constant value. Once this is done, it can be entrusted to yield an accurate measurement, producing a high reliability. Reliability promotes consistency, trustworthiness and dependability. Anything that is reliable will perform in the future in the same way it has in the past (Roestenburg, 2021:200). To achieve reliability, the researcher ensured that the questionnaires were answered in a consistent manner, without any bias. The questionnaire remained unchanged as the participants needed only to follow the link to answer the questions. Moreover, the questionnaires were tested (piloted) to check whether they consistently yielded similar results (see section 3.8).

The following section describes the ethical research guidelines that were adhered to in the present research study.

3.11 ETHICS

Ethical studies strive to bring no harm to participants. In social science research, human beings are often the main subject of investigation and have the potential to feel and experience physical or psychological distress and trauma (Cannella & Lincoln, 2018:172; Strydom & Roestenburg, 2021:117). As individuals were the focus of this investigation, the researcher considered all the ethical implications involved in the study (Leedy & Ormrod, 2021:120).

The following ethical considerations were considered and implemented throughout the study.

3.11.1 Informed consent form

Informed consent is a common method used in ethically collecting data in research studies (Strydom & Roestenburg, 2021:119). Through the informed consent form (see Annexure D), the research participants were made aware of the purpose and procedures involved in the study. Moreover, the research participants were informed why the information was being requested, its purpose and use, and their role in the study (Creswell & Creswell, 2018:329; Strydom & Roestenburg, 2021:121). Through the URL link ([Click Here](#)) made available to the participants, they were asked to complete the informed consent before commencing the questionnaire. In South Africa, agreeing to terms and conditions on an online platform is an acceptable form of consent (Jansen van Rensburg, 2017: 202).

3.11.2 Voluntary participation

Participation in a research study should always be voluntary and done so under free will (Strydom & Roestenburg, 2021:121). Furthermore, Ruane (2016:52) maintains that, for the element of voluntarism to be met, transparency must exist between the researcher and participants. Voluntarism was ensured through the informed consent form (see Annexure D). Thus, none of the participants was forced to participate in the study. It was their informed choice to participate in the study as they were provided with a link and requested to complete the questionnaire. Hence, participation in the study was based solely on voluntary participation.

3.11.3 Incentives

Some individuals might only want to participate in a study to receive some sort of compensation which compromises the study's credibility. However, most people participate in a research study because they acknowledge its value and importance (Strydom & Roestenburg, 2021:125). The researcher made the value and importance of the study known to the participants through the request to participate in the research study in the informed consent form (see Annexure D). The targeted unit of analysis was all security personnel working at ORTIA thus they had a vested interest in improving the safety and security at ORTIA. No incentives were provided to take part in the study. Padgett (2017:85) and Thobane and Jansen van Rensburg (2022:195) advocate that the disseminating research findings to the participants is a form of incentive.

3.11.4 No harm to participants

As explained by Strydom and Roestenburg (2021:119), research must cause no harm to the participants. Anyone who participates in a research study should be safe at all times during participation. This study did not pose any harm to any of the research participants as the goal was to merely gather information regarding their work experience.

3.11.5 Privacy, anonymity and confidentiality

Every individual has the right to privacy. Privacy entails each participant's free choice to decide whether their attitudes, beliefs and behaviour will be revealed. Privacy is further embraced by the physical setting in which the data are collected. The environment should allow the participant to share information privately (Strydom & Roestenburg, 2021:123). The participants completed the questionnaire safely and privately through a smart device. Anonymity ensured that the identity of the participant is unknown to the researcher or anybody else as this information was not requested. Confidentiality refers to the extent to which the researcher knows the identity of the participants but chooses not to disclose or publish it (Strydom & Roestenburg, 2021:123). No names or contact details were sourced from the research participants. Hence, the researcher ensured that each research participant's privacy, anonymity

and confidentiality were safe. Informed consent to participate in the study was obtained from each participant before the questionnaire commenced.

3.11.6 Publication of findings

The findings of a scientific study should be documented in written form. Any scientific investigation should be published for its findings to effectively inform the scientific community and relevant stakeholders. The researcher documented the study's details so readers could understand what was being written (Strydom & Roestenburg, 2021:128). Sharing the findings with the communities it affects enhances transformed research (Thobane & Jansen van Rensburg, 2022:195). The findings of the study will be published in the form of an academic dissertation. Additionally, a summary of the findings will be sent to the security department at ORTIA once the dissertation is published.

3.12 CONCLUSION

It has been established that ORTIA faces a range of vulnerabilities and therefore needs to be proactive in its preventative strategies. The study explored safety and security at ORTIA and examined the present security measures in order to make recommendations. This chapter highlights that the objectives and methodological principles were followed to realise the study's aim by explaining how the researcher implemented the elements of research design such as research approach, population and sampling, unit of analysis, data collection and analysis. Moreover, piloting, reliability, validity and ethical considerations were comprehensively delineated.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION OF FINDINGS

4.1 INTRODUCTION

This chapter delineates the findings of the empirical research conducted. The study explored the effectiveness of safety and security measures at ORTIA in preventing crime. To do this, the security personnel working at ORTIA were contacted to participate in the study.

Online questionnaires (see Annexure E) were sent out to potential participants (see section 3.4) and a total of one hundred questionnaires were successfully completed. The ethical clearance was amended and endorsed by the College of Law Ethics Review committee (see Annexure B) and permission was granted from the airport security department (see Annexure C). All the participants worked at ORTIA in the security department, thus were professionally informed to assist the study in meeting its aim and objectives (see section 1.2). The raw data were collected in Microsoft Excel format which generated frequencies that are presented graphically. The data received were analysed statistically and descriptively as described in Chapter 3 (see section 3.7).

The analysis and interpretation of the empirical findings are reviewed and unpacked in the following six themes:

- Profile of the research participants
- General information about ORTIA
- Security measures at ORTIA
- Crime at ORTIA
- Training
- Crime prevention and intervention

4.2 PROFILE OF THE RESEARCH PARTICIPANTS

The profile of the research participants is outlined below. This section contextualises the research participants in terms of their gender, age, race, marital status and

dependents. In addition, the demographic information (see section 4.2.1) of the participants includes their job title and work experience to provide an overall representation of the research participants.

4.2.1 Demographic information of participants

One hundred participants from the ORTIA security department were included in this study. Males comprised 51% of the sample while women made up 49%. Black people were the majority of the sample (n=75; 75%), and the biggest age group was the 41–50-year-olds (n=39; 39%). Most of the participants identified themselves as security officers (n= 76; 76%). The participants reported varied work experience, however the most common number of years of work experience reported was 5-10 years (n= 27; 27%) and 16-20 years (n= 25; 25%) respectively.

Table 4.1 Demographic information of participants

No.	Gender	Age	Race	Job title	Work experience
1	Male	41-50	Black	Instructor	16-20 years
2	Male	18-30	Black	Security Manager	5-10 years
3	Male	41-50	Black	Chief Control Officer	> 20 years
4	Male	18-30	Black	Senior Claims Specialist	5-10 years
5	Male	18-30	Coloured	Security Officer	5-10 years
6	Female	18-30	Black	Security Officer	5-10 years
7	Female	18-30	Black	Security Officer	5-10 years
8	Female	18-30	Black	Security Officer	5-10 years
9	Female	31-40	Black	Security Supervisor	5-10 years
10	Female	31-40	Black	Security Officer	5-10 years
11	Female	31-40	Black	Security Officer	5-10 years
12	Male	31-40	Black	Security Officer	5-10 years
13	Male	41-50	Black	Security Supervisor	16-20 years
14	Male	31-40	Black	Security Officer	5-10 years

15	Male	41-50	Black	Security Officer	16-20 years
16	Male	31-40	Black	Security Officer	5-10 years
17	Male	41-50	Black	Security Supervisor	> 20 years
18	Male	31-40	Black	Security Officer	5-10 years
19	Female	31-40	Coloured	Security Officer	5-10 years
20	Male	31-40	Black	Security Officer	5-10 years
21	Female	31-40	Black	Security Officer	5-10 years
22	Male	41-50	Black	Security Officer	16 - 20 years
23	Male	41-50	Black	Security Supervisor	16 - 20 years
24	Male	31-40	Black	Security Officer	5-10 years
25	Male	51-65	Black	Security Officer	> 20 years
26	Male	31-40	Black	Security Officer	5-10 years
27	Female	41-50	Indian	Security Officer	16 - 20 years
28	Male	31-40	Coloured	Security Officer	< 5 years
29	Male	18-30	Black	Security Officer	< 5 years
30	Female	41-50	Black	Security Officer	< 5 years
31	Female	18-30	Black	Security Officer	< 5 years
32	Female	41-50	Black	Security Supervisor	16 - 20 years
33	Male	18-30	Coloured	Security Officer	< 5 years
34	Female	41-50	Coloured	Security Officer	16 - 20 years
35	Male	18-30	Black	Security Officer	< 5 years
36	Female	18-30	Black	Security Officer	< 5 years
37	Male	51-65	Coloured	Security Officer	> 20 years
38	Female	41-50	Indian	Security Officer	16 - 20 years
39	Male	31-40	Black	Security Officer	5-10 years

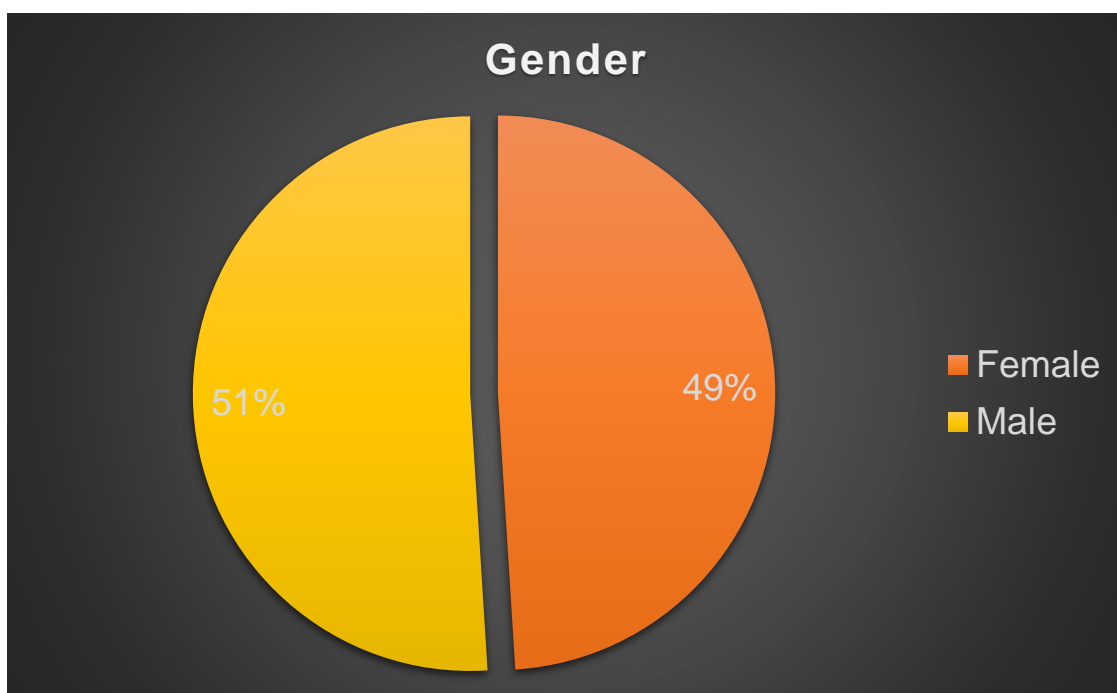
40	Female	31-40	Coloured	Security Officer	5-10 years
41	Male	31-40	Coloured	Security Officer	5-10 years
42	Female	31-40	Black	Security Officer	5-10 years
43	Male	31-40	Coloured	Security Officer	5-10 years
44	Male	51-65	Black	Security Officer	> 20 years
45	Female	31-40	Black	Security Supervisor	5-10 years
46	Female	31-40	Black	Surveillance Analyst	5-10 years
47	Male	31-40	Black	Security Officer	5-10 years
48	Male	51-65	Black	Security Officer	> 20 years
49	Female	41-50	Coloured	Security Officer	16 - 20 years
50	Female	18-30	Black	Security Officer	< 5 years
51	Male	41-50	Coloured	Security Supervisor	16 - 20 years
52	Male	18-30	Black	Security Officer	< 5 years
53	Female	41-50	Coloured	Security Officer	16 - 20 years
54	Male	18-30	Black	Security Officer	< 5 years
55	Female	31-40	Black	Security Officer	5-10 years
56	Female	51-65	Black	Security Officer	16 - 20 years
57	Male	51-65	Coloured	Security Supervisor	16 - 20 years
58	Female	41-50	Black	Aviation safety compliance	11-15 years
59	Female	41-50	Black	Security Supervisor	11-15 years
60	Male	41-50	Black	Security Supervisor	11-15 years
61	Female	41-50	White	Security Supervisor	16 - 20 years
62	Male	41-50	Black	Security Officer	11-15 years
63	Male	41-50	Black	Security Supervisor	11-15 years
64	Female	41-50	Black	Security Supervisor	11-15 years

65	Female	41-50	Black	Security Supervisor	11-15 years
66	Male	51-65	Black	Security Officer	16 - 20 years
67	Male	18-30	Black	Security Officer	< 5 years
68	Female	41-50	Black	Security Officer	11-15 years
69	Male	51-65	Black	Security Officer	16 - 20 years
70	Female	41-50	Black	Security Officer	11-15 years
71	Male	18-30	Black	Security Officer	< 5 years
72	Male	41-50	Black	Security Officer	11-15 years
73	Female	51-65	Black	Security Officer	16 - 20 years
74	Female	51-65	Coloured	Security Officer	16 - 20 years
75	Male	18-30	Black	Security Officer	< 5 years
76	Female	41-50	Black	Security Officer	11-15 years
77	Female	41-50	Coloured	Security Officer	11-15 years
78	Female	41-50	Black	Security Officer	11-15 years
79	Male	18-30	Black	Security Officer	< 5 years
80	Male	41-50	Black	Security Officer	16 - 20 years
81	Female	41-50	Black	Security Officer	11-15 years
82	Male	18-30	Black	Security Officer	< 5 years
83	Female	51-65	Coloured	Security Officer	16 - 20 years
84	Female	41-50	Indian	Security Officer	11-15 years
85	Female	41-50	Black	Security Officer	11-15 years
86	Female	41-50	Black	Security Officer	11-15 years
87	Female	41-50	Black	Security Officer	11-15 years
88	Female	41-50	Black	Security Officer	11-15 Years
89	Female	31-40	Coloured	Security Officer	< 5 years

90	Male	51-65	Black	Security Supervisor	16 - 20 years
91	Male	31-40	Black	Security Officer	< 5 years
92	Female	51-65	Coloured	Security Officer	16 - 20 years
93	Female	31-40	White	Security Officer	< 5 years
94	Female	18-30	Black	Security Officer	< 5 years
95	Male	41-50	Black	Security Officer	11-15 years
96	Male	51-65	Indian	Security Supervisor	16 - 20 years
97	Female	41-50	Coloured	Security Officer	11-15 years
98	Female	18-30	Black	Security Officer	< 5 years
99	Male	41-50	Black	Chief Control Officer	16 - 20 years
100	Male	51-65	Black	Chief Control Officer	11-15 years

4.2.2 Gender

Figure 4.1 Gender

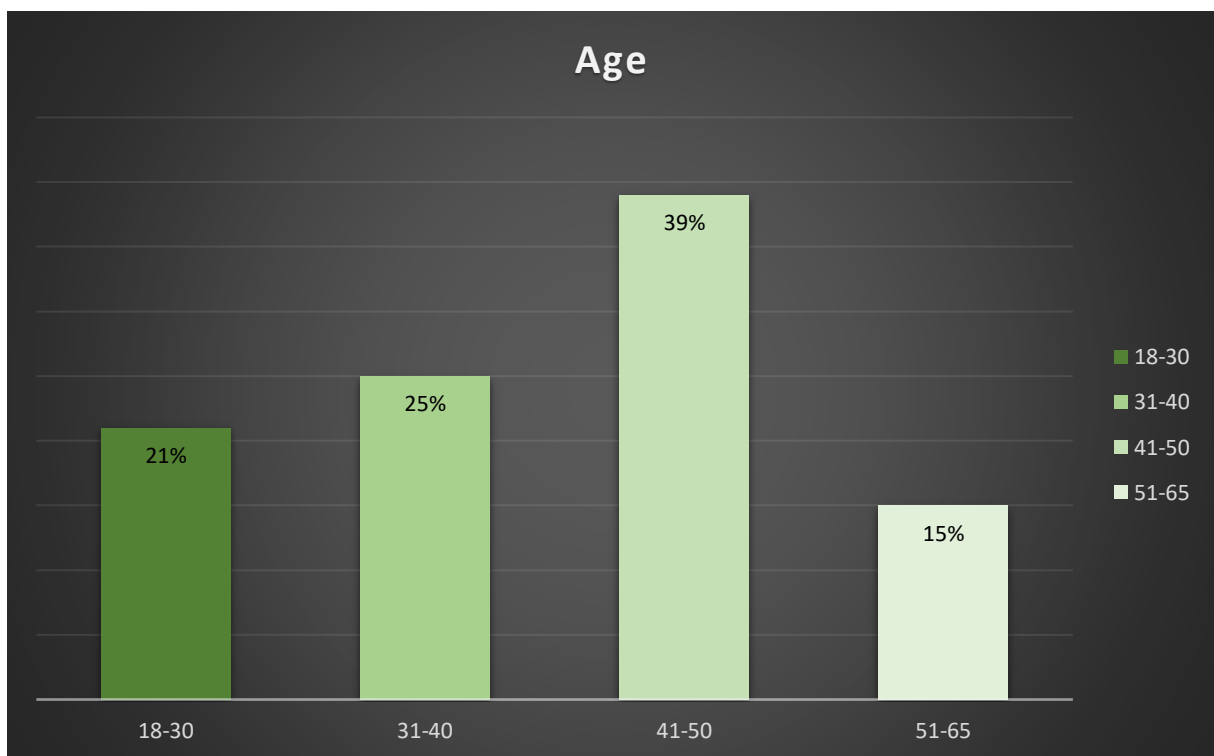


The sample demarcated an almost equal representation of males (51%) and females

(49%). None of the participants identified themselves as non-binary. Thus, the frequency depicts that n=51 of the sample is male while n=49 is female. This finding is not a common trend in security fields. Contrastingly, the gender gap is often skewed to the male advantage (Hinton & Friedman, 2016:np; Jansen van Rensburg, 2021:2; Louw-Vaudran, 2015:np).

4.2.3 Age

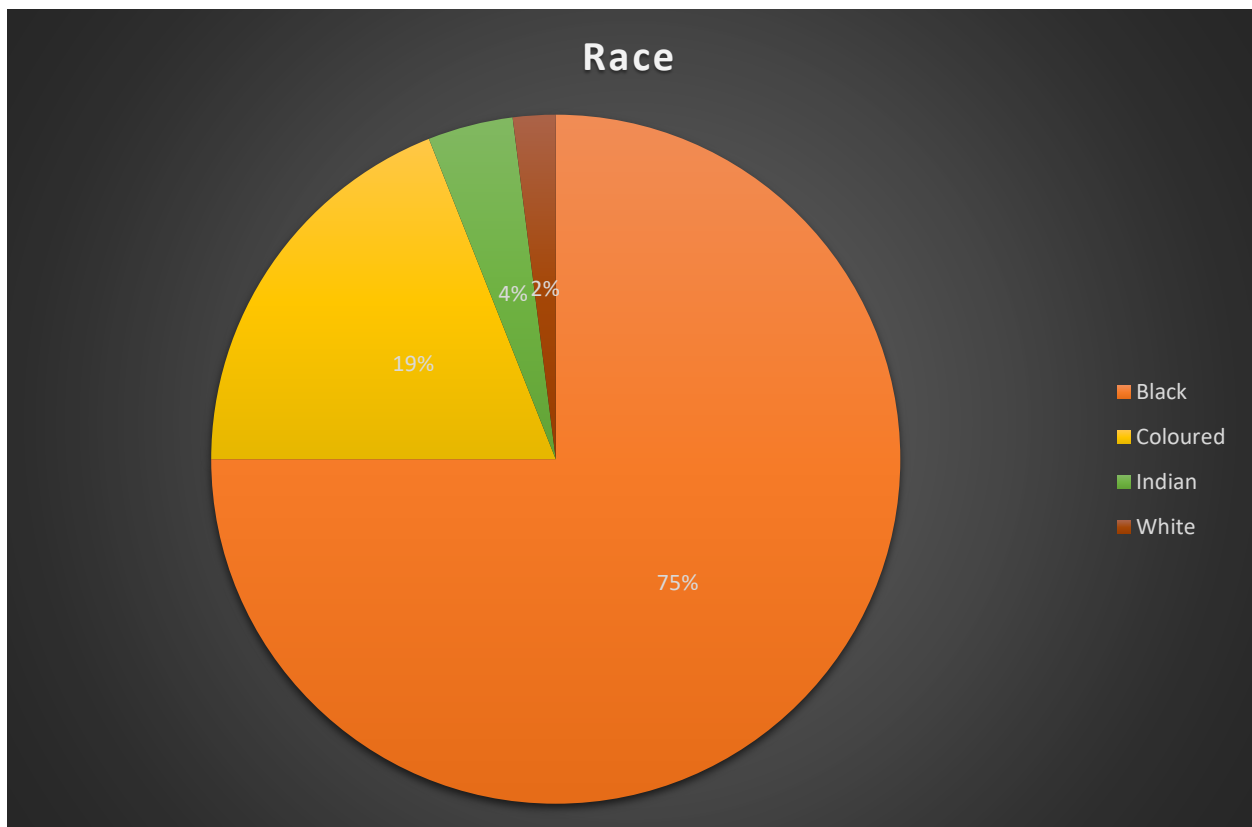
Figure 4.2 Age



The research participants' ages ranged from 18 to 65 years old. Most participants (n=39; 39%) identified themselves as being between the age range of 41-50 years old. However, younger participants (participants between 18 and 40 years old) made up 46% (n=46) of the sample while older participants (51 to 65 years old) made up the smallest group (n=15; 15%). These findings are consistent with current literature as security employees tend to be 40 years old and younger (Gwara, 2021:60).

4.2.4 Race

Figure 4.3 Race



The research participants' races varied as they identified themselves as Black (n=75; 75%), Coloured (n=19; 19%), Indian (n=4; 4%) and White (n=2; 2%). According to statistics published by the South African Government, Black African people constitute 81% of the total population, followed by the Coloured, White and Indian populations (South African Government, 2021:np). The sample is thus aligned with the diversity of the South African population.

4.2.5 Marital status and dependants

Table 4.2 Marital status and dependants

Marital status and dependants							
Marital status	No of dependants						
	One	Two	Three	Four	Five	Six or more	Grand Total
Married	4	15	12	7	1	1	40
Not married	41	11	3	3			58
Divorced/Separated		1	1				2
Grand Total	45	27	16	10	1	1	100

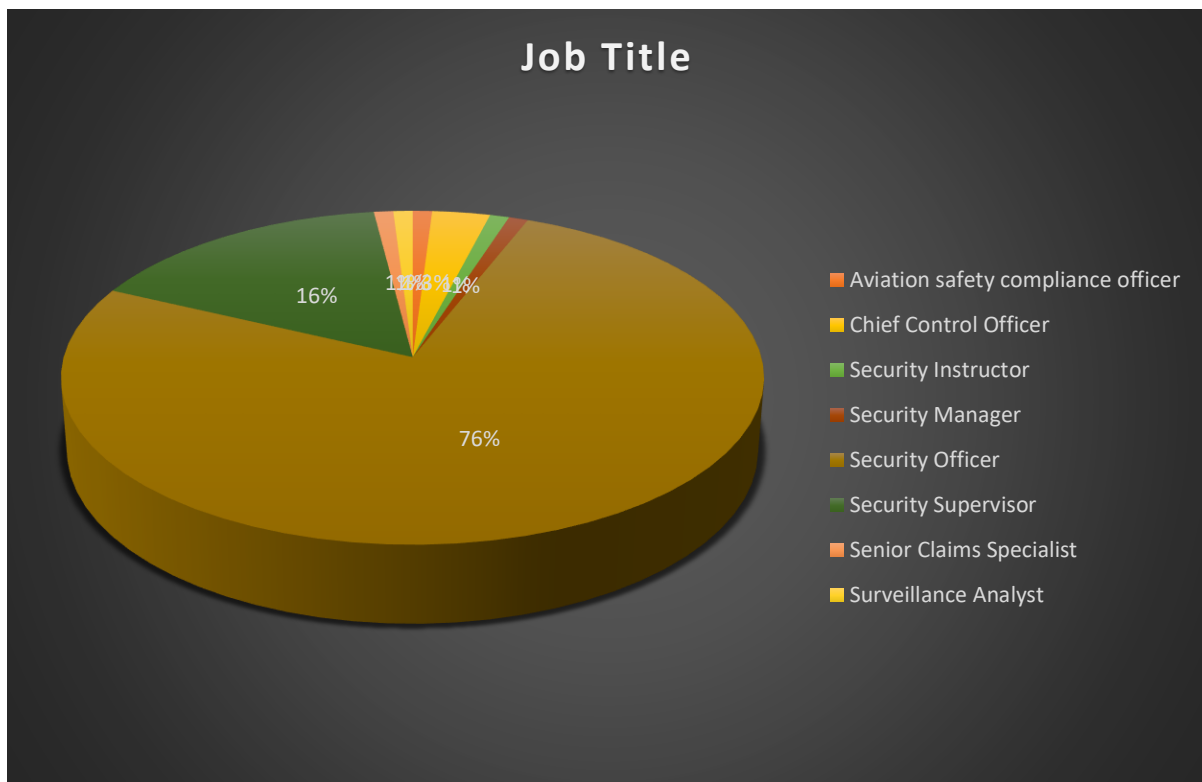
The research participants were asked to share details of their marital status and dependents. Most participants shared that they were unmarried by either indicating that they are not married (n=58; 58%) or divorced/separated (n=2; 2%). The remaining participants identified themselves as married (n=40; 40%). However, all participants had at least one child (dependent). Insider risk is an ongoing vulnerability in civil aviation. Airport employees such as contract workers, government employees, maintenance and cleaning staff, vendors, and security employees are at risk of being vulnerable to blackmail. This is especially true when employees with families and close dependents are targeted. For example, in Kansas (USA), an employee with detailed security intelligence planned to ignite a vehicle full of explosives on the airport's tarmac. Moreover, in Louisiana (USA), a drug smuggling syndicate was exposed involving airline employees (International Civil Aviation Organisation, 2015:1).

4.2.6 Professional profile of participants

As the study is based on the safety and security of ORTIA, it was important to establish the research participants' professional profiles. This section is categorised into job title, level of education, years of experience and remuneration.

4.2.6.1 Job title

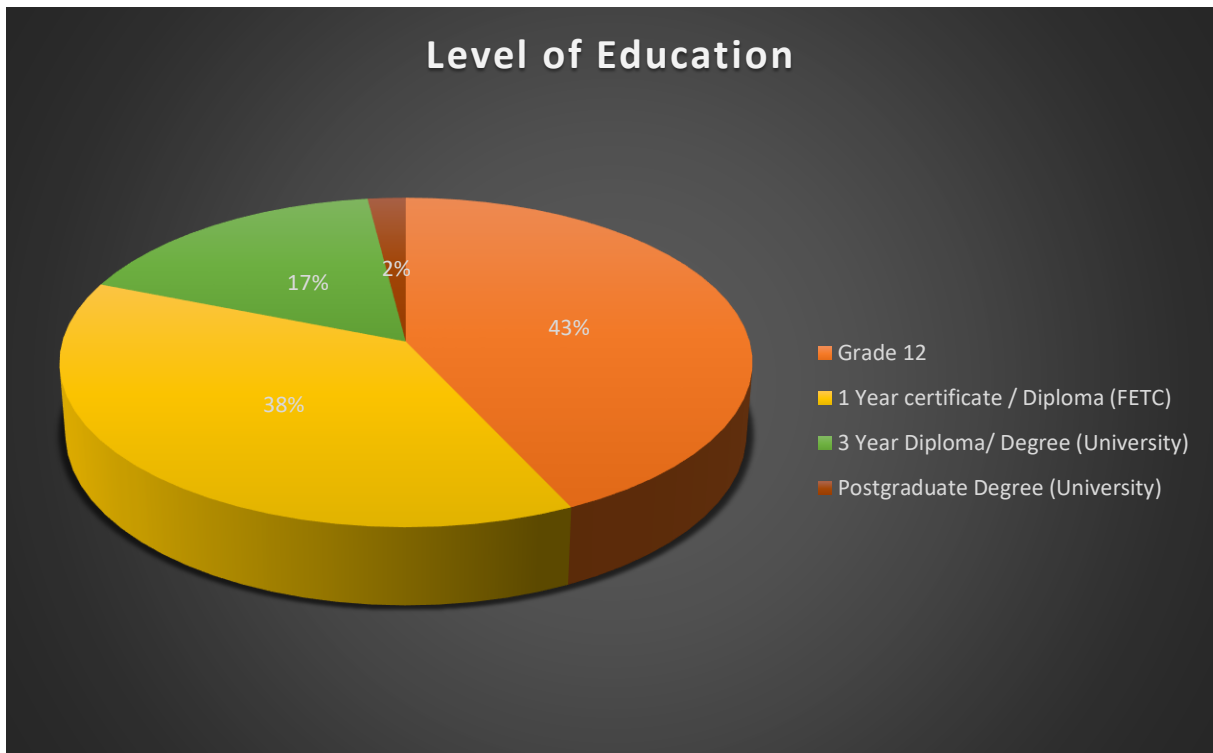
Figure 4.4 Job title



Most participants (n=76; 76%) identified themselves as security officers and 16% (n=16) as security managers. Participants also identified themselves as an aviation security compliance officer, chief control officer, security instructor, security supervisor, senior claims specialist and surveillance analyst. From the chart above, it is evident that the participants were well-informed and suitable to participate in the study.

4.2.6.2 Level of education

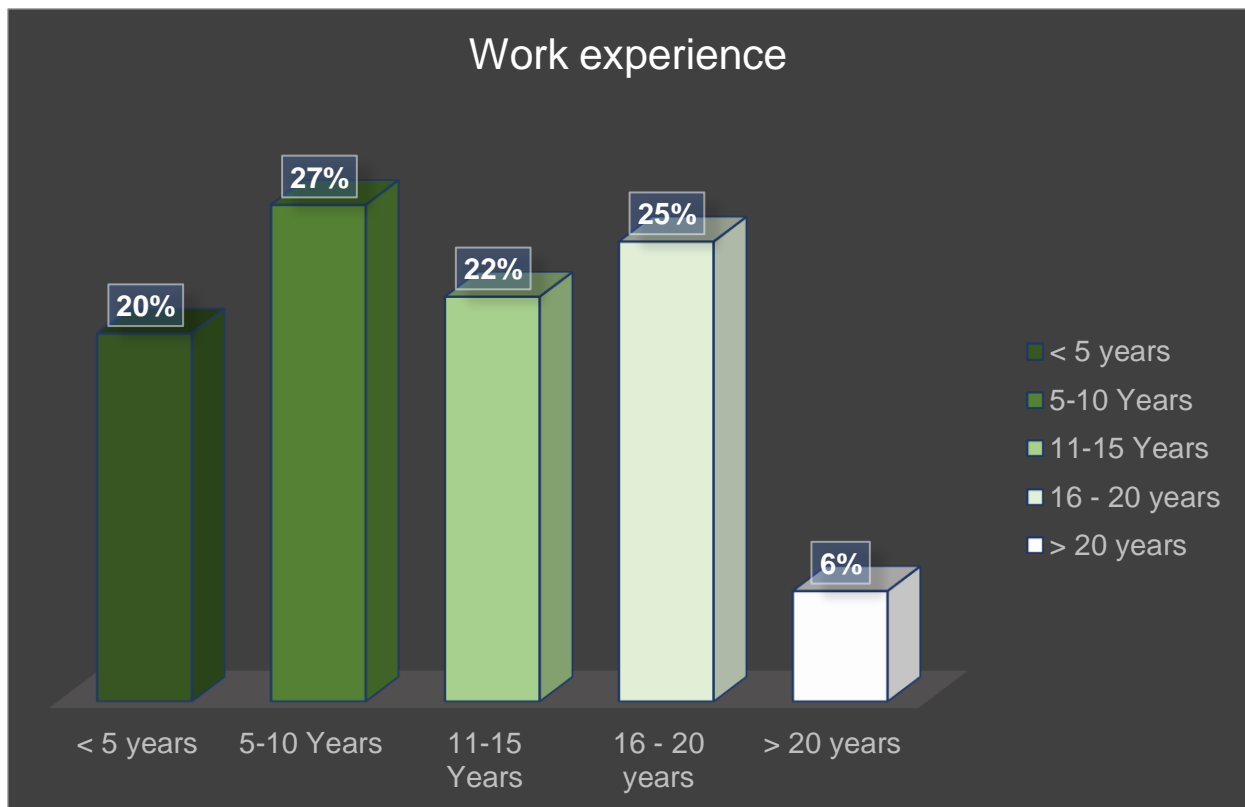
Figure 4.5 Level of education



Participants were asked to identify their highest level of education. The minimum qualification represented by the participants was Grade 12 (Matric Certificate). Most participants (n=43; 43%) possess matric certificates, followed by one-year certificates or diplomas (n=38; 38%), three-year diplomas or degrees (n=17; 17%) and postgraduate degrees (n=2; 2%). The above level of education not only shows that the participants are qualified to do their jobs and their ability to navigate an online questionnaire is enhanced and the credibility of their responses is reinforced.

4.2.6.3 Years of work experience

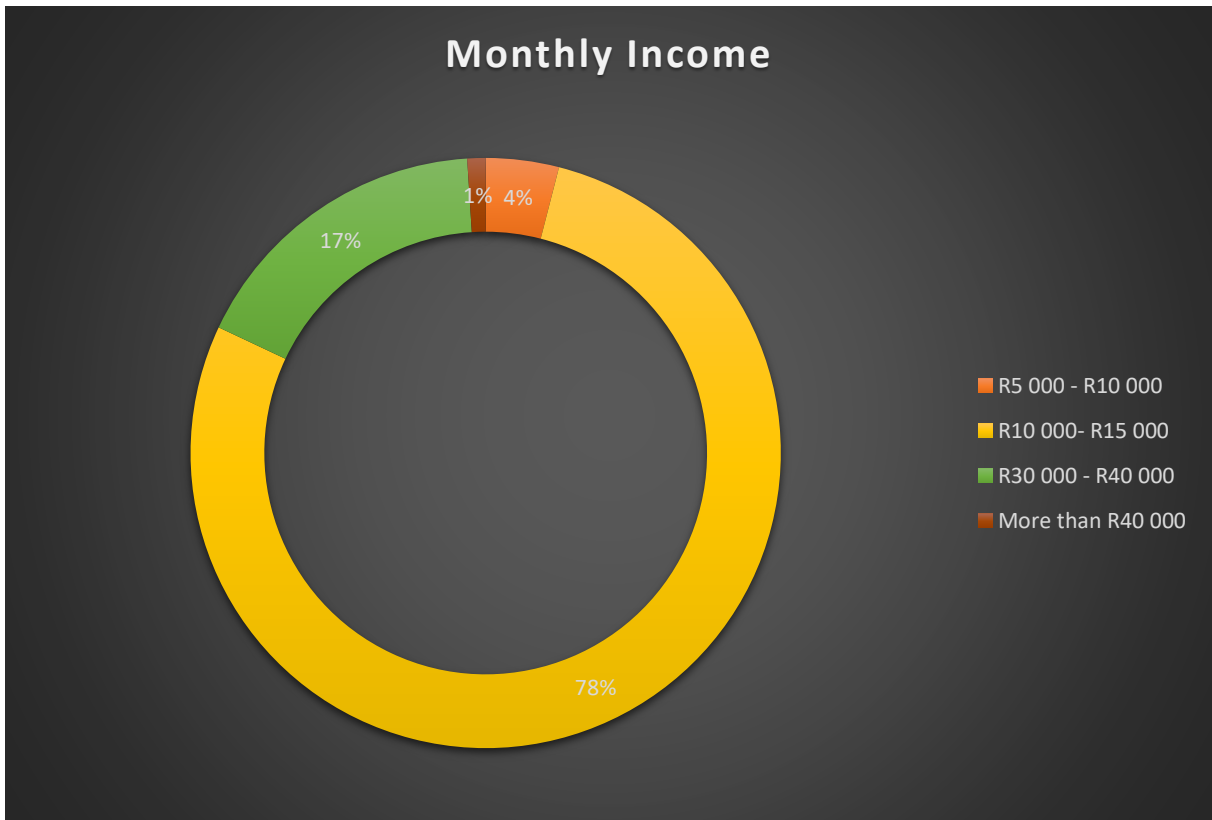
Figure 4.6 Years of work experience



The participants were asked to detail the number of years of work experience they had. Most of the participants (n=27; 27%) reported 5-10 years of work experience followed by 16-20 years (n=25; 25%) and 11-15 years (n=22; 22%). The lowest number of participants (n=6; 6%) reported having work experience of more than 20 years. These findings correspond with the participants' ages (see section 4.2.3). Thus, the participants are further informed to add value to the study as most participants (n=80; 80%) have more than five years of work experience.

4.2.6.4 Remuneration

Figure 4.7 Remuneration

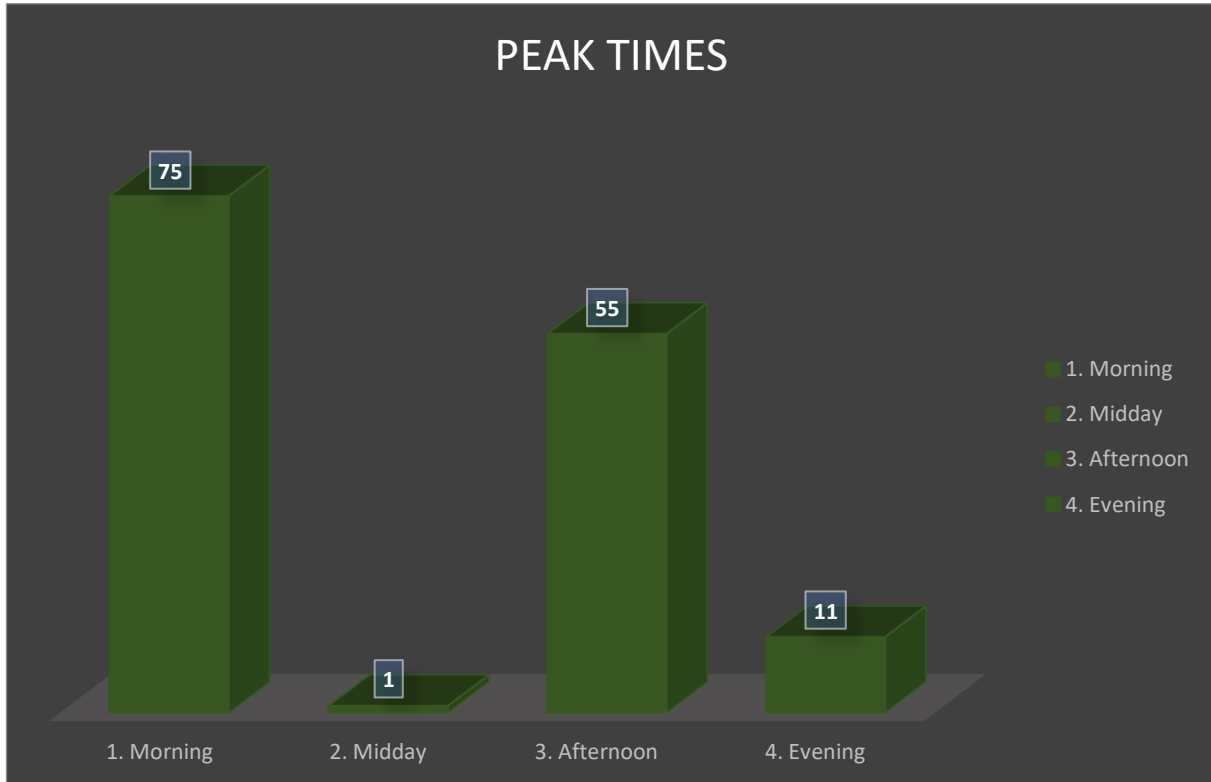


Most of the participants (n=78; 78%) indicated that they earned between R10,000 and R15,000. The second highest income earners comprised 17% (n=17) of the research participants who reported earning between R30,000 and R40,000. A minority of the participants earned between R5,000 and R10,000 (n=4; 4%) and more than R40,000 (n=1; 1%). Most participants (n=76; 76%) identified themselves as security officers (see section 4.2.6.1). In South Africa, security officers earn between R4,860 and R14,300 a month. The average salary is R9,340 (Salary Explorer, 2021:np). Thus, the findings reveal that employees working in the security department at ORTIA are earning above average salaries in the security industry.

4.3 GENERAL INFORMATION ABOUT ORTIA

4.3.1 Peak times at the airport

Figure 4.8 Peak times

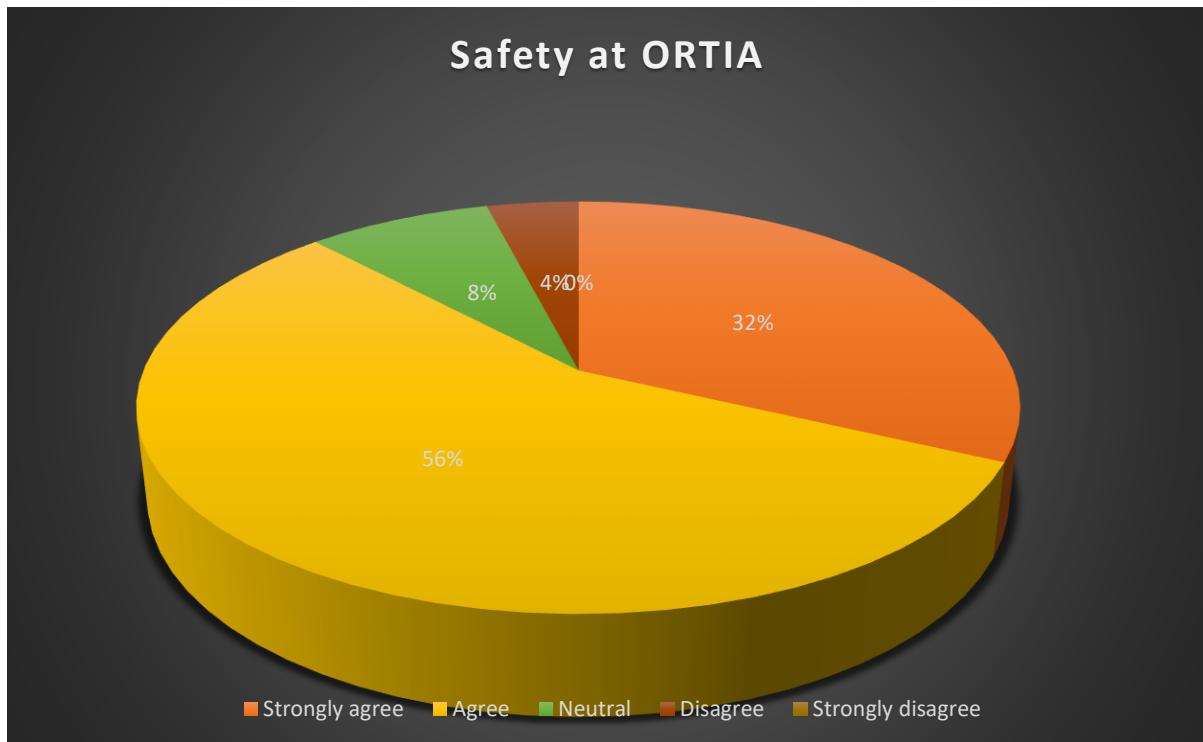


A significant majority of the research participants reported the morning and the afternoon as the busiest time at ORTIA. Participants were allowed to choose more than one option owing to the recognition that there could be more than one peak time at the airport. Peak times and off-peak times at the airport influence safety and security.

4.3.2 Safety at the airport

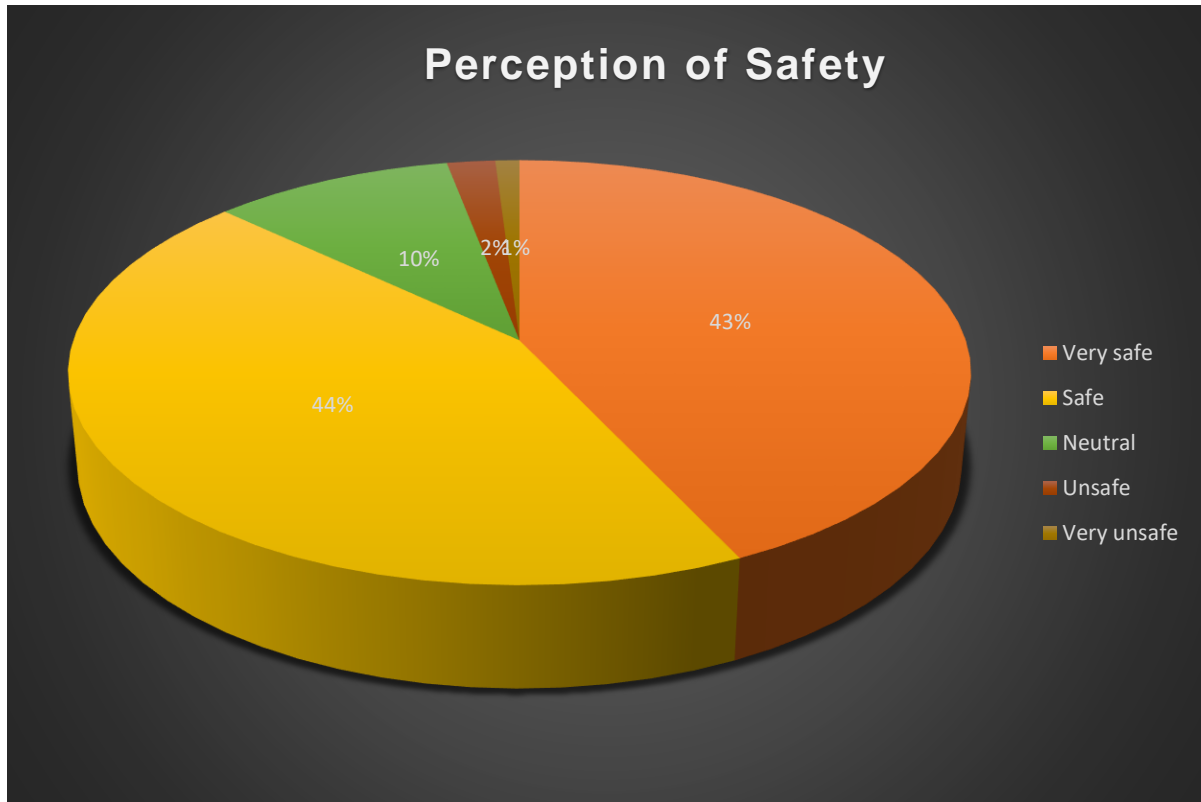
The researcher was interested in the research participants' perceptions of safety at ORTIA.

Figure 4.9a Perception of safety at ORTIA



Most participants (n=56; 56%) agreed and strongly agreed (n=32; 32%) that ORTIA is a safe place to work in. Only 4% of participants perceived ORTIA to be an unsafe workplace. These perceptions reinforce a healthy working environment for the personnel and provide insight into the overall safety of ORTIA. Rae and Provan (2019:121) differentiate between “safety work” and the “safety of work”. “Safety work” consists of activities performed in an organisation where the primary mandate is to manage and ensure safety. Whereas the “safety of work” is directly related to the safety employees feel within an organisation. Security personnel are responsible for and impacted by both types of safety, thus their responses in line with safety at the airport are significant for the effective functioning of ORTIA.

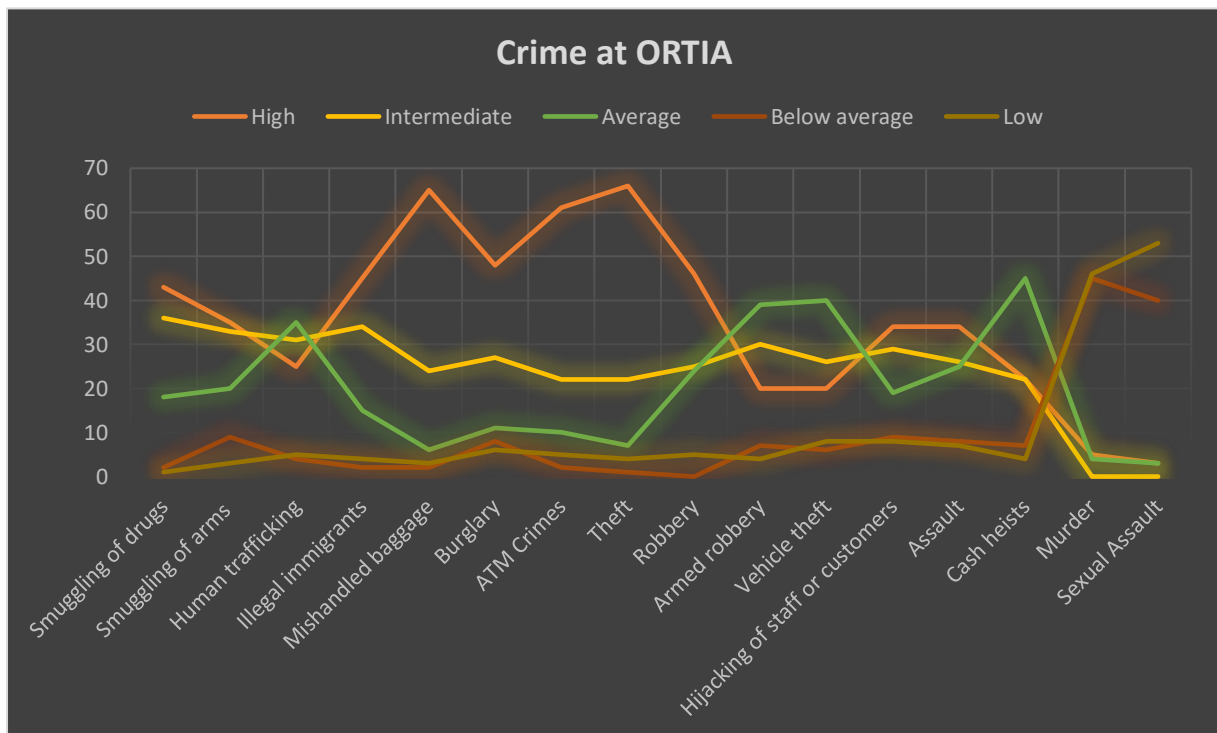
Figure 4.9b Safety at ORTIA



When prompted on how safe participants felt at work, the majority (n=44; 44%) indicated that they felt safe and very safe (n=43; 43%). The minority of participants reported feeling neutral (n=10; 10%), unsafe (n=2; 2%) and very unsafe (n=1; 1%). When security personnel feel safe at work, which most in this study do, it illustrates a safe environment. However, some employees (n=13; 13%) feel unsafe at work. These perceptions can influence their work performance and overall functionality. In a study conducted by Mora, Suharyanto and Yahya (2020:758), it was found that work safety and work environment are directly correlated to an employee's productivity.

4.3.3 Crime problems at the airport

Figure 4.10 Crime at ORTIA



The participants were asked: “What are the main crime problems experienced at ORTIA?” They were asked to prioritise the crime problems from 1 to 5, with 1 being the biggest problem and 5 being the smallest problem. Participants were allowed to select more than one answer. The above line chart illustrates the data received by categorising the crime problems at ORTIA as high, intermediate, average, below average and low. The most problematic crimes were reported to be theft, mishandled baggage, ATM crimes, burglary, robbery, illegal immigrants and smuggling of drugs. Mishandled luggage is categorised as a crime in this context because it involves the pilfering of luggage (Law Insider, 2021:np). These are common crimes that take place in airports across the globe (Marteache, 2018; McDonald, 2020; Mota, Scala, Murrieta-Mendoza, Orozco & Di Bernardi, 2021) (see section 2.5.1).

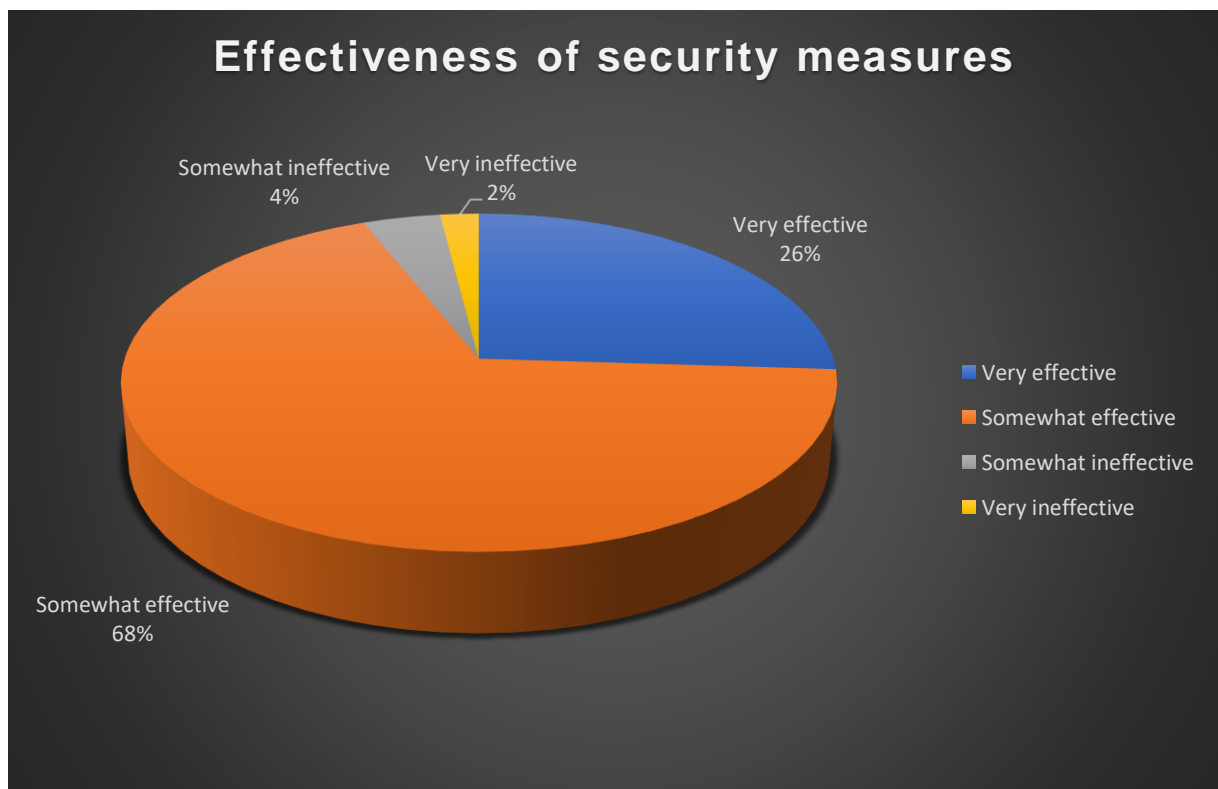
4.4 SECURITY MEASURES AT ORTIA

The participants were asked to share details on the security measures at ORTIA.

4.4.1 Security measures awareness

A large majority of participants (n=92; 92%) indicated that they were informed about the security measures in the airport whereas 8% (n=8) reported that they were not informed. Although only 8% indicated they were unaware, this is still worrying as the participants are responsible for security at ORTIA.

Figure 4.11 Effectiveness of security measures



The participants were asked about the overall effectiveness of the ORTIA security measures. The majority (n=68; 68%) reported the security measures to be somewhat effective and 26% (n=26) deemed the airport's security measures very effective. The airport's security measures were explored in Chapter 2 (see section 2.5.2). This finding

reveals that the security measures at ORTIA can be improved.

4.4.2 Security plan

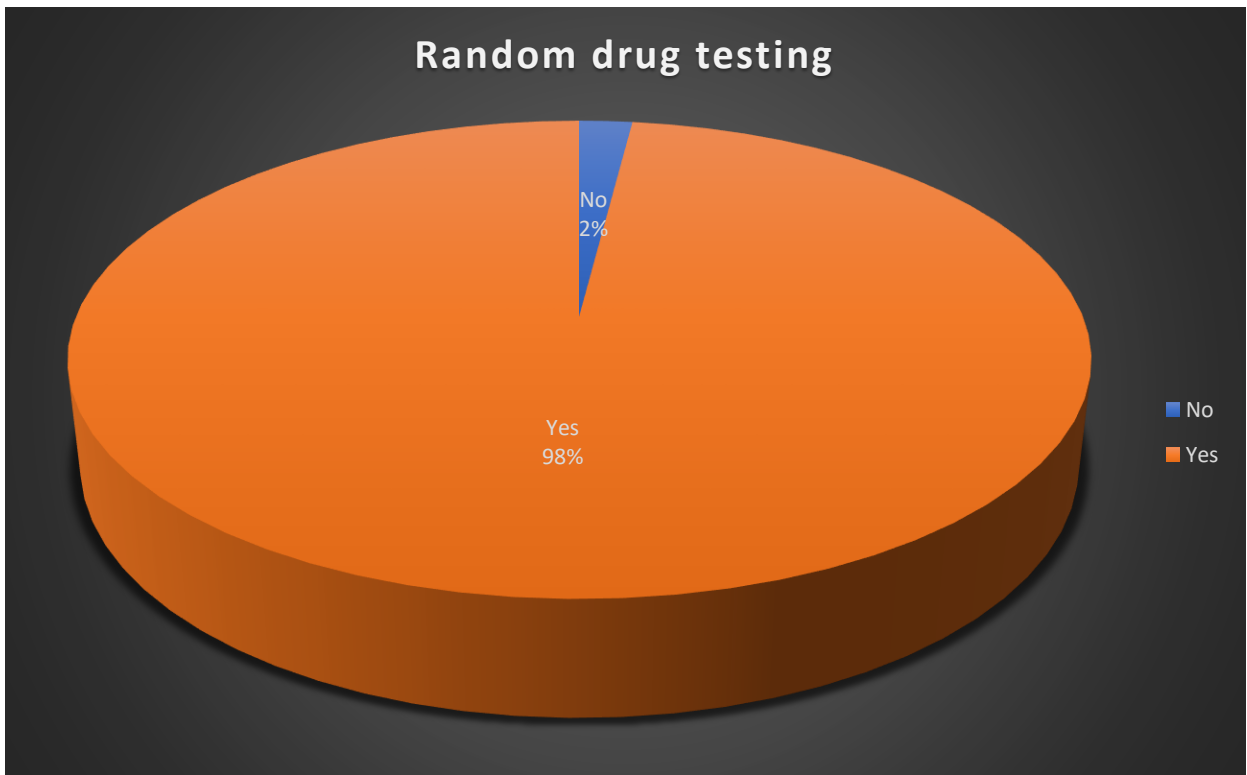
Most participants (n=96; 96%) indicated that the airport has a security plan. Those who indicated that the airport has a security plan were asked if they were familiar with it and had read it. Most of the participants (n=94; 94%) responded that they were aware while 6% (n=6) said they were not aware. However, the remaining participants (n=2; 2%) indicated that the airport does not have a written security plan or was unsure (n=2; 2%). Furthermore, 90% (n=90) of the participants confirmed that the security plan was prominently displayed on the airport premises. The rest of the participants (n=10; 10%) were not aware of these visual displays. Lynch (2022:np) motivates that all organisations should have a security plan as it minimises exposure to risk on issues relating to safety and security.

4.4.3 Access control and CCTV surveillance

All the participants (n=100; 100%) confirmed that access to various sections of the airport is controlled through access control. Access is controlled through turnstiles, normal gates, access cards and biometric recognition. In addition, the research participants (n=99; 99%) confirmed that there is CCTV surveillance at the airport. Rapid advancements in technology are producing smart airports that are geared to revolutionise the airport industry. Features of smart airports include smart check-in, self-boarding, self-baggage tagging, advanced biometric services, airport applications and integrated and smart access control systems (see section 2.5.2) (Rajapaksha & Jayasuriya, 2020:3).

4.4.4 Drug testing

Figure 4.12 Random drug testing



A large majority (n=98; 98%) of participants maintained that random drug testing occurred at the airport. In a recent study, it was determined that randomised security checks reduce crime at airports. However, the authors postulate that randomised security checks could create opportunities for criminals to engage in crime (Stotz, Bearth, Ghelfi & Siegrist, 2021:13). In South Africa, most seizures of drugs and precursors occur at OR Tambo and Cape Town International Airports (Department of Social Development, 2019:33). Mnguni (2020:28) identifies variables, such as behavioural, ticket, luggage and general characteristics, when identifying possible drug mules (see section 2.5.3.2).

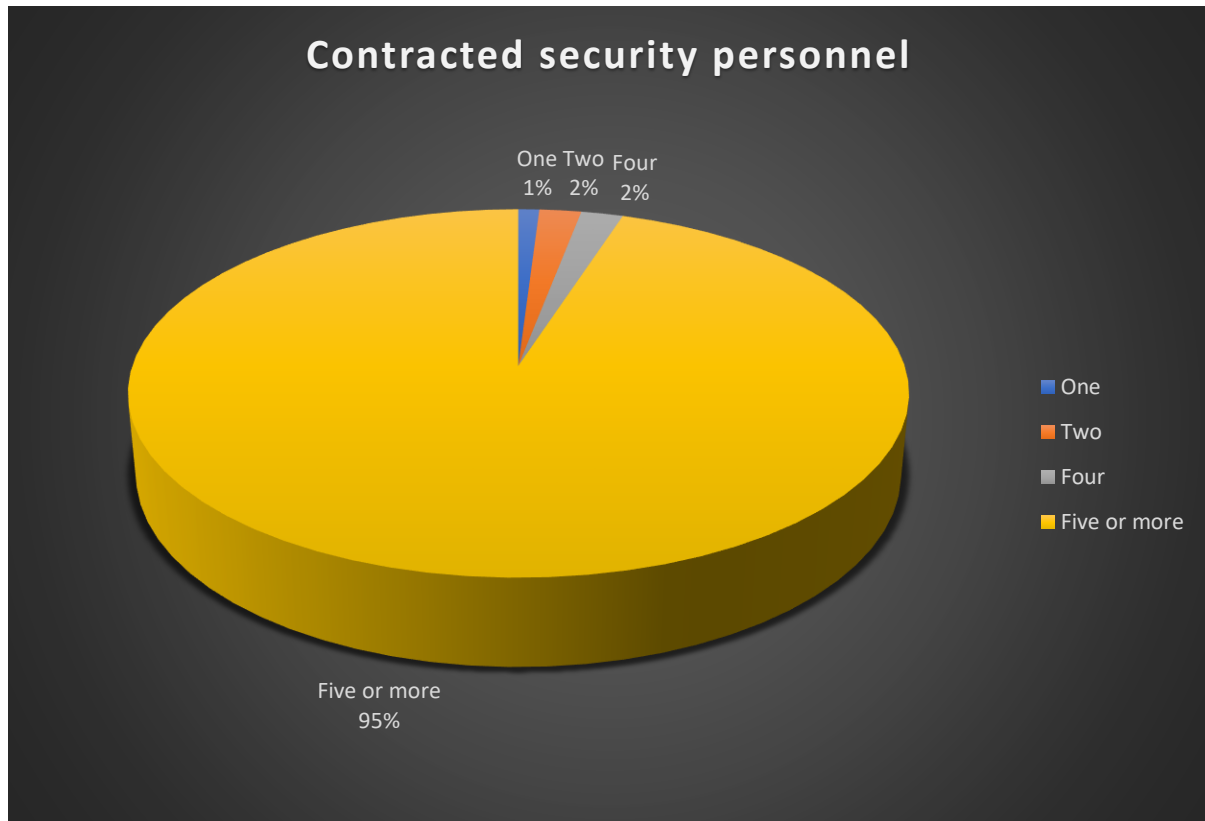
4.4.5 Weapon control

Most participants (n=98; 98%) agreed that weapon searches are conducted at the airport. These searches take place on a daily basis according to 96% (n=96) of the

participants. This is corroborated with literature on ORTIA and weapon searches (see section 2.2; 2.5.2; 2.6.2).

4.4.6 Contract security

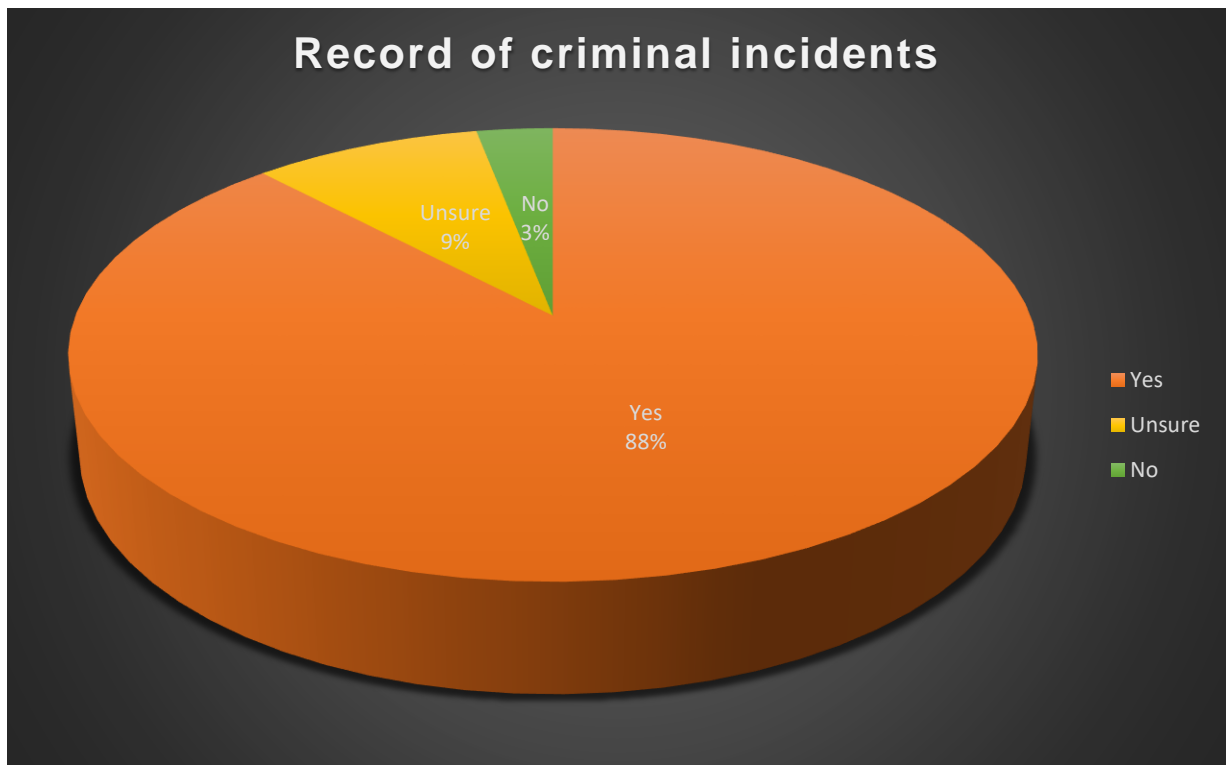
Figure 4.13 Contracted security personnel



The majority of participants (n=99; 99%) confirmed that there are contract security workers employed at the airport. Most of the participants (n=95; 95%) reported that there are five or more contract security personnel working at the airport. Gwara (2021:6) differentiates between contract and in-house security services. Contract security involves the independent responsibility of all security matters for client organisations whereas in-house security occurs within the organisation. Thus, the security responsibilities are controlled by the organisation. ORTIA makes use of both in-house and contract security services. Challenges with contract security include divided loyalty, absenteeism and legal costs (Gwara, 2021:50).

4.4.7 Incident record keeping

Figure 4.14 Record of criminal incidents

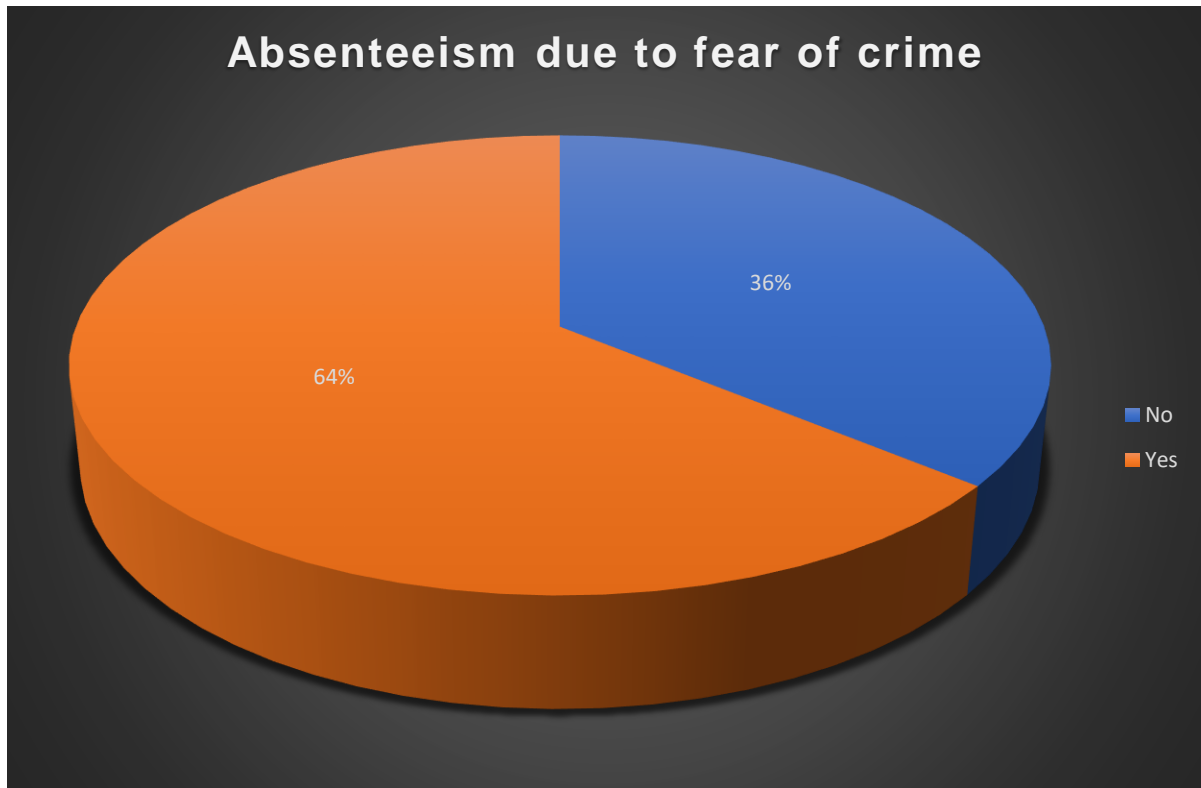


The participants were asked if the airport keeps a record of criminal incidents. Most of the participants (n=88; 88%) reported that the airport did keep such records. Twelve per cent (n=12) either reported that they were not sure (n=9; 9%) or that they were unaware (n=3; 3%) that the airport kept such records. This information corroborates the literature on incident reporting (see section 2.6).

4.4.8 Fear of crime and absenteeism

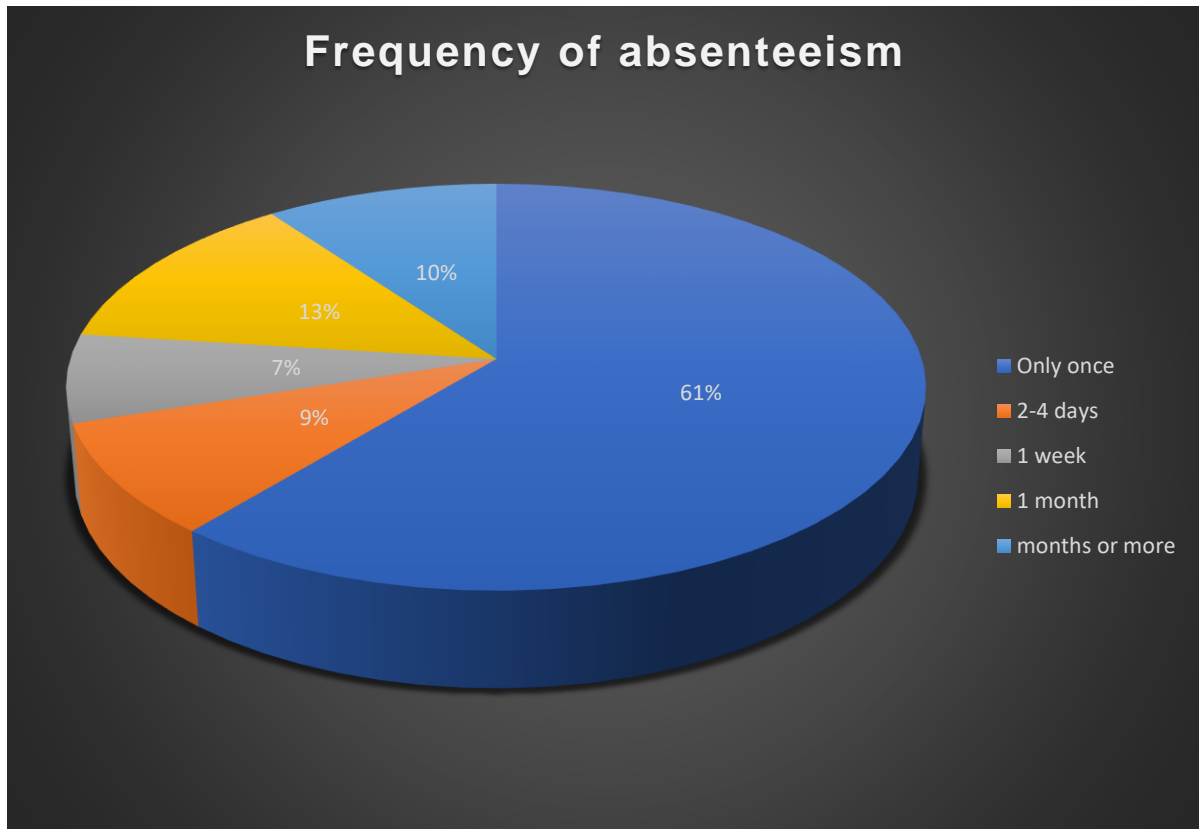
The participants were asked if they had ever stayed away from work because of fear of crime at the airport.

Figure 4.15a Absenteeism due to fear of crime



Interestingly, 64% (n=64) reported that they had stayed away because of fear of crime while the rest (n=36; 36 %) responded that they did not. This perception of fear interferes with the performance of the security personnel. Ceccato and Nalla (2020:261) maintain that a safe environment depends on how safe it is perceived to be. Absenteeism in any organisation can yield negative implications. These include but are not limited to decreased productivity, implications for team performance and financial losses on the business (Sayed, 2022:np).

Figure 4.15b Frequency of absenteeism



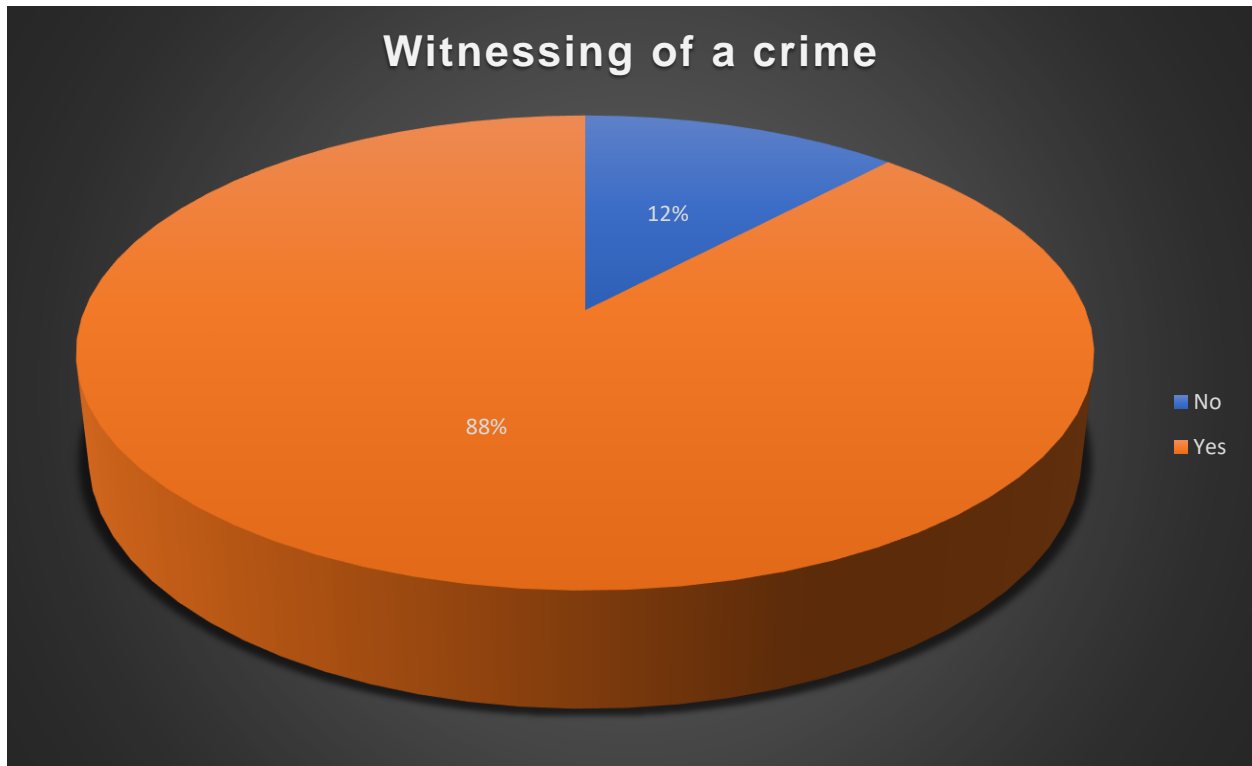
The frequencies of absenteeism mostly (n=61; 61%) reported only being absent once. Araujo, Rezende, Guimarães, Araujo and de Campos Souza (2019:11) motivate a hybrid intelligence system as a tool to predict absenteeism in organisations.

4.5 CRIME AT ORTIA

The study determined various aspects of crime at ORTIA as informed and experienced by the participants.

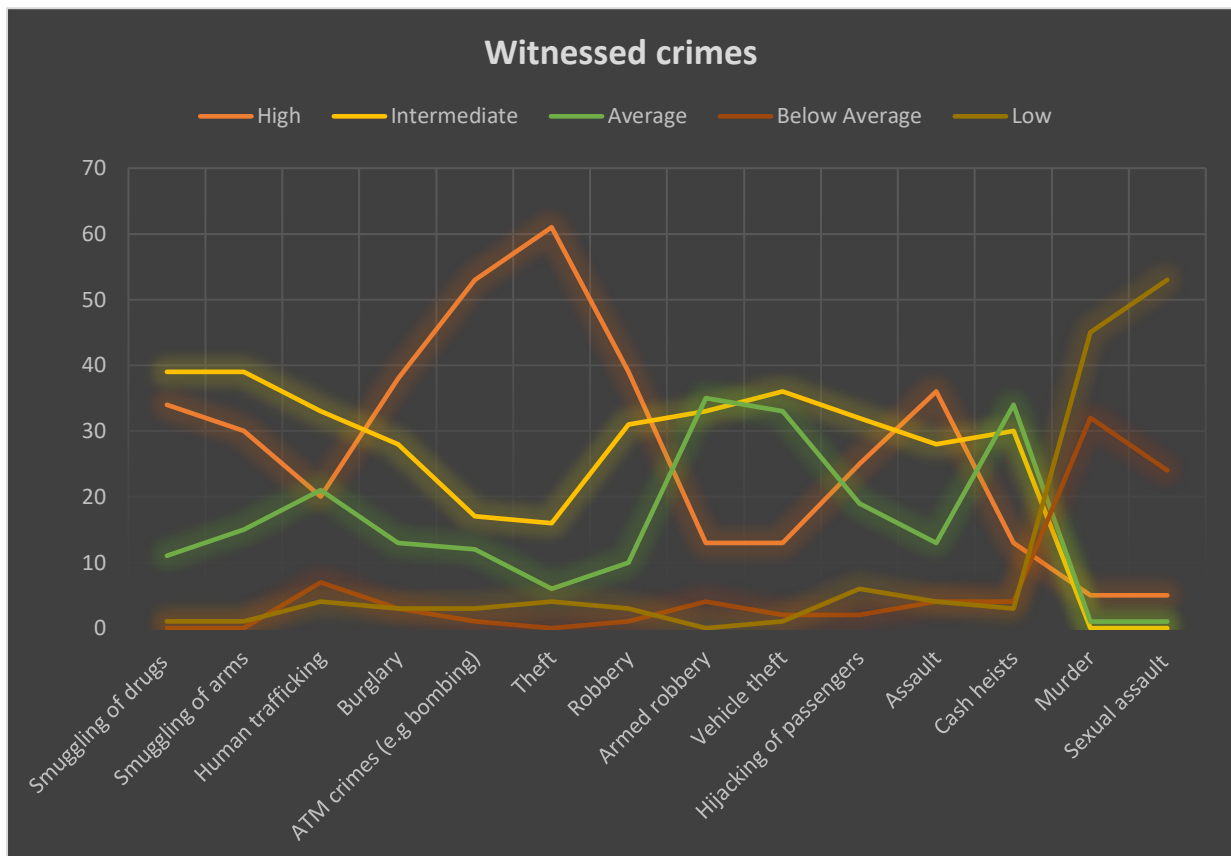
4.5.1 Witnessing of a crime

Figure 4.16a Witnessing of a crime



Eighty-eight per cent (n=88) of the participants had witnessed a crime at ORTIA while 12% (n=12) had not. This indicates the high prevalence of crime that takes place at the airport if 88% of the participants had witnessed a crime (see section 2.5.1). Although there are no official statistics of crimes that have taken place at ORTIA, numerous newspaper articles detail various crimes at the airport (see Adonis, 2022; Maphanga, 2022; Ntshidi, 2020; Rall, 2021).

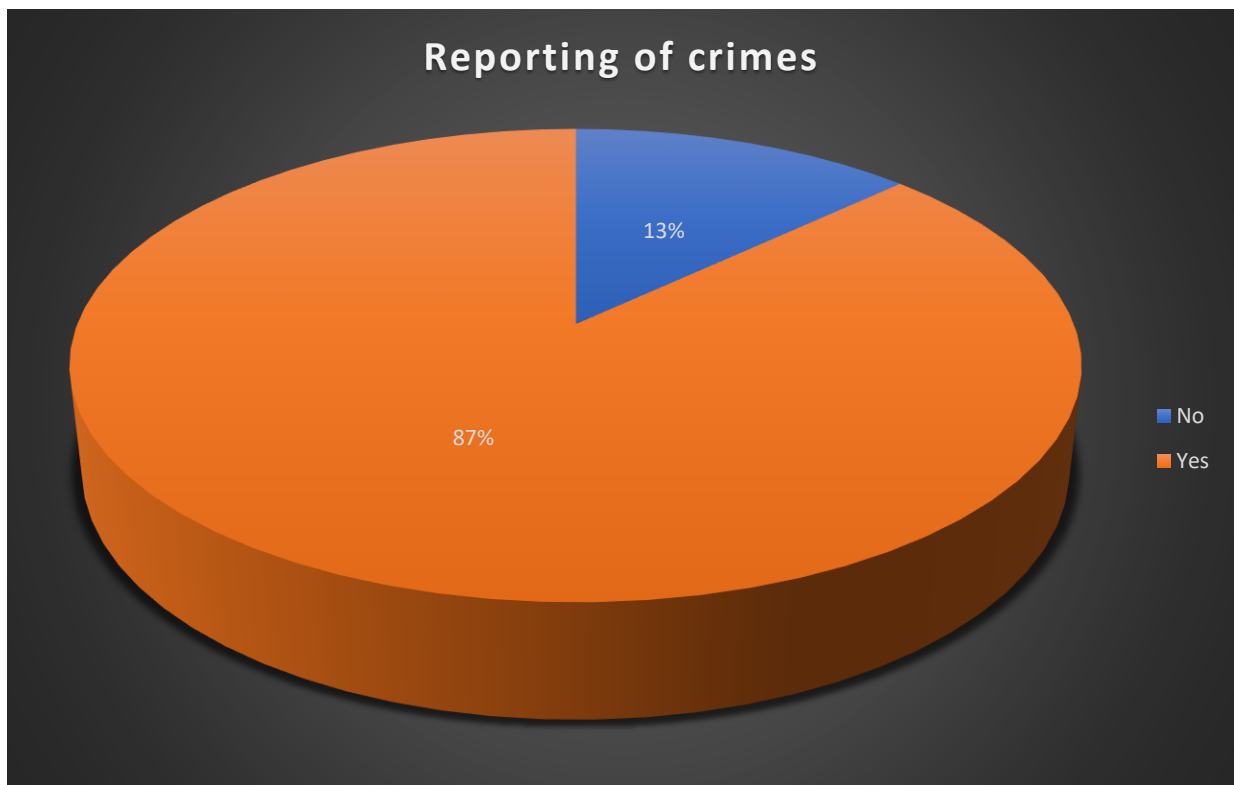
Figure 4.16b Witnessed crimes



The participants said they witnessed crime at ORTIA and were asked what types of crimes they had witnessed. Theft, ATM crimes and robbery were listed as the majority of crimes witnessed (see section 2.5.1). The participants, who were witnesses of crime, also experienced secondary victimisation (Corteen, 2016:np) that negatively affected the employees who witnessed such crimes.

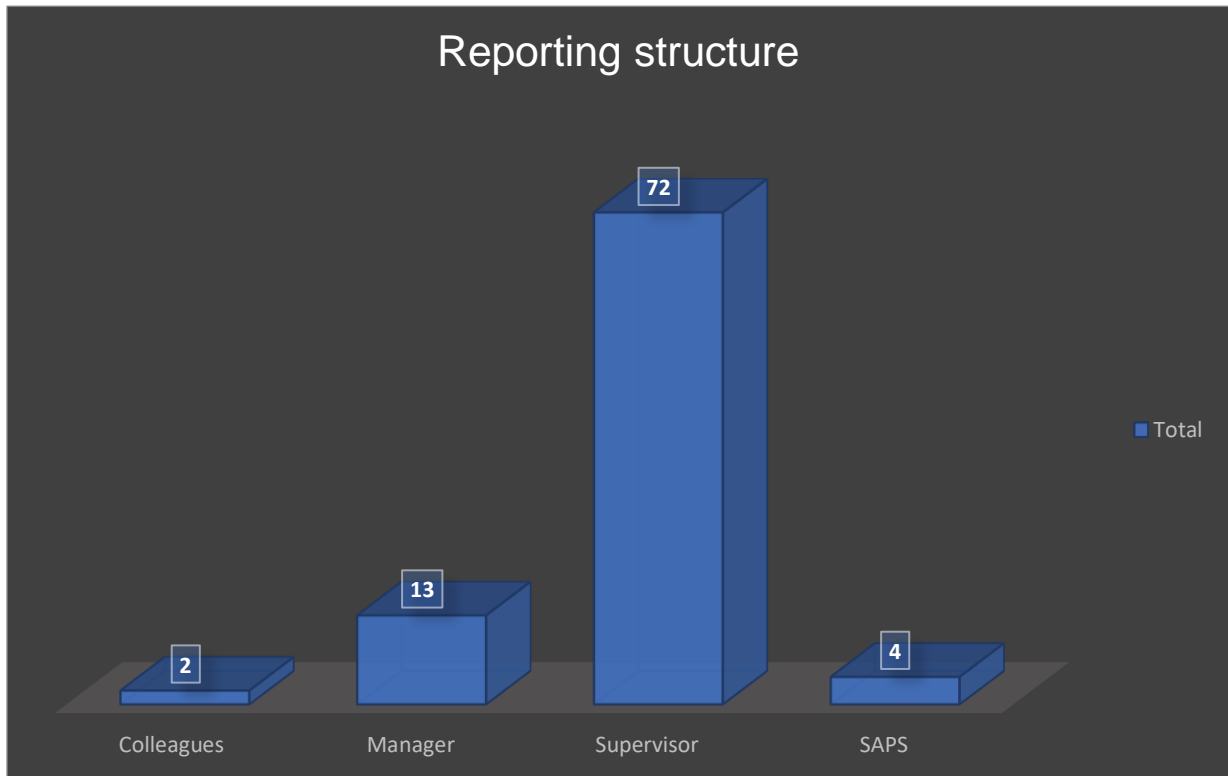
4.5.2 Reporting of crimes

Figure 4.17a Reporting of crimes



The participants were asked if they reported the crimes they witnessed. Most of the participants (n=87; 87%) responded that they did report the crime(s) while 13% (n=13) said that they did not. This shows that most of the participants adhere to reporting policies to curb crime. However, non-compliance with reporting crime at ORTIA contributes to underreported crime, and inaccurate statistics and can ultimately undermine prevention and intervention strategies.

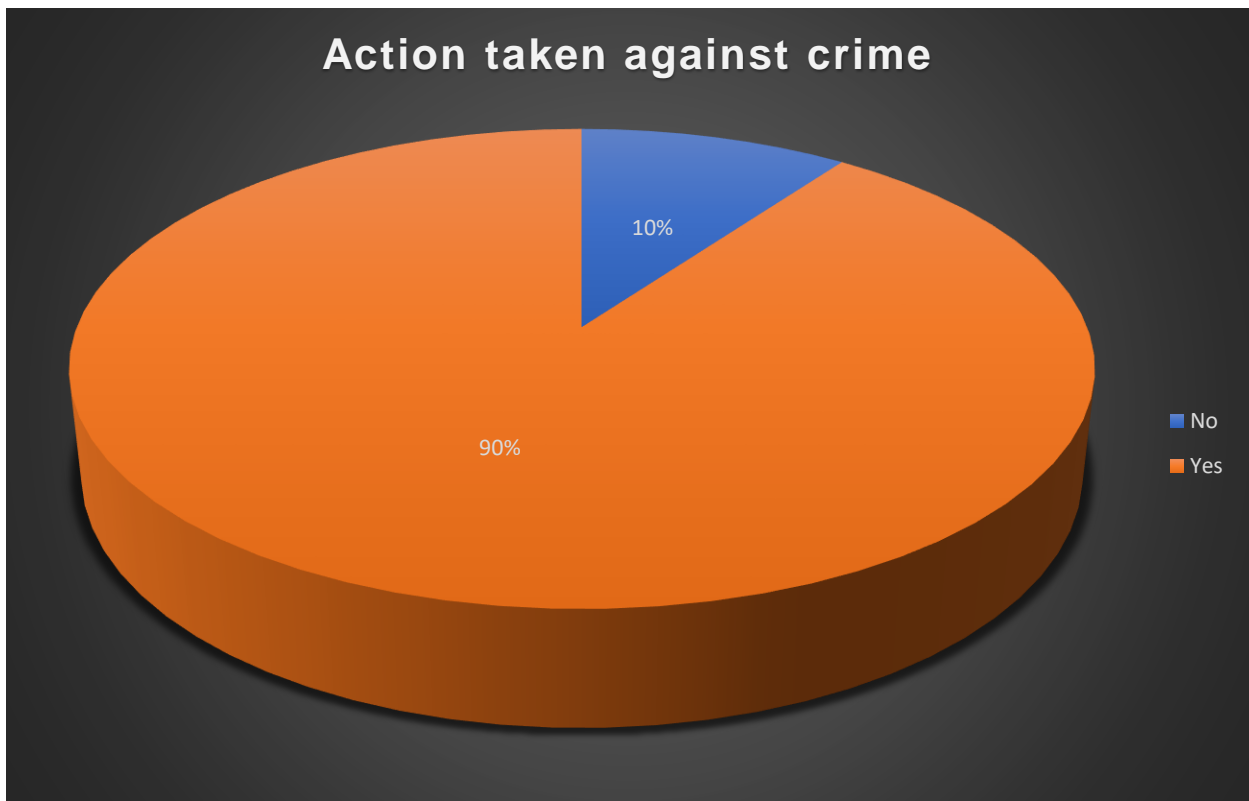
Figure 4.17b Reporting structure



The participants were asked to whom they reported the crimes. Most participants (n=72; 72%) reported the crime to their supervisors, followed by their managers (n=13; 13%), SAPS (n=4; 4%) and colleagues (n=2; 2%). Not only do these reporting structures allow for structure but they also increase vigilance and crime awareness.

4.5.3 Action taken against crime

Figure 4.18 Action taken against crime

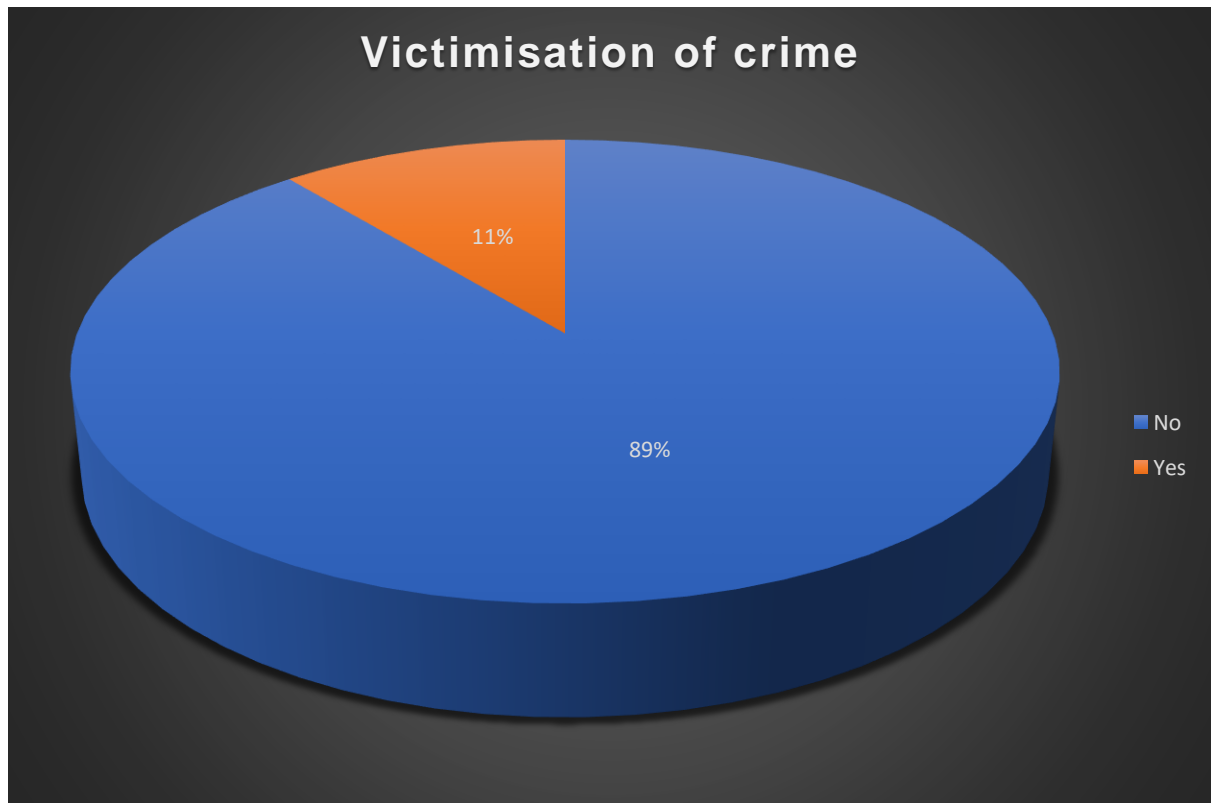


Most participants (n=90; 90%) confirmed that action was taken against the crimes reported while 10% (n=10) reported no action. Actions ranged from arrests, cases being opened with SAPS and an investigation pursued. Through the participants' responses, a chain of reporting was established. Crimes were reported to the manager/supervisor, airport management and SAPS.

4.5.4 Crime victimisation

Participants were cautioned against the sensitive nature of the questions regarding crime victimisation. Anonymity was emphasised and reiterated before the participants were asked questions pertaining to sections 4.5.4, 4.5.5, 4.5.6, 4.5.7 and 4.5.8 (see sections 4.5.5, 4.5.5, 4.5.6, 4.5.7 and 4.5.8).

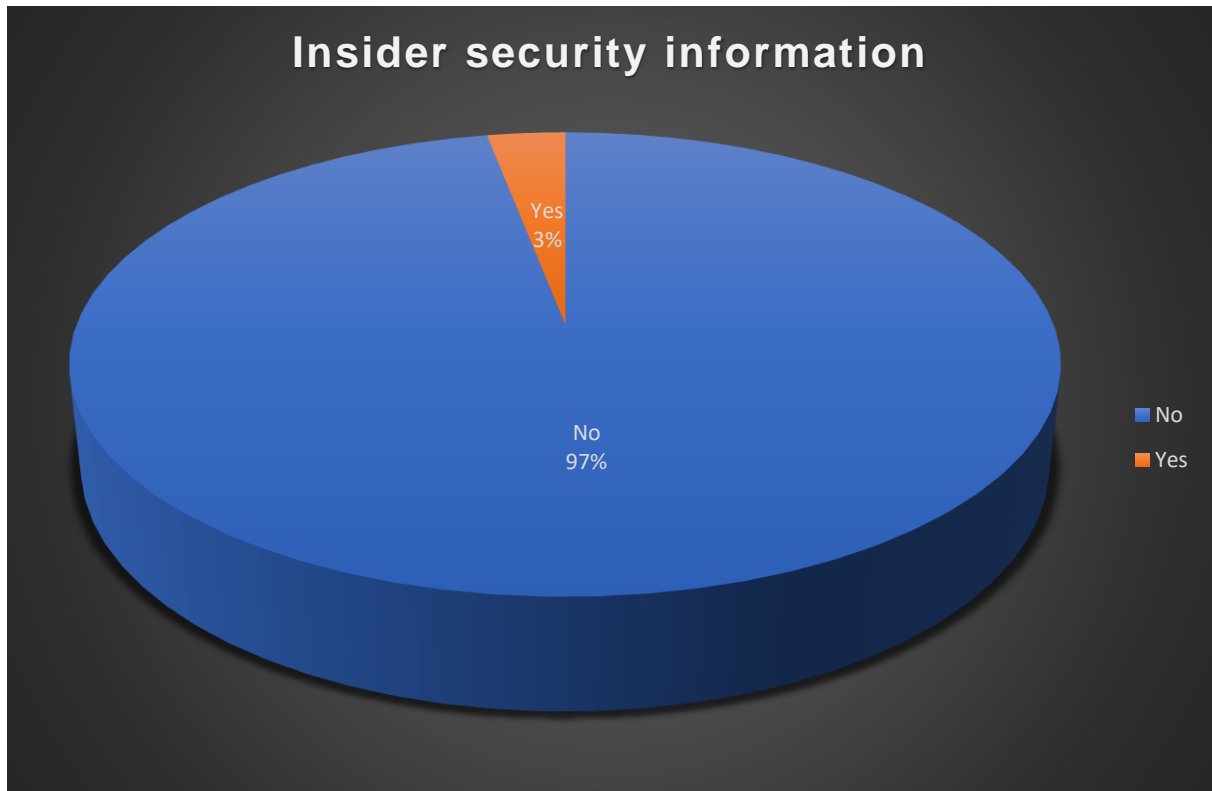
Figure 4.19 Crime victimisation



The vast minority of participants (n=11; 11 %) experienced victimisation of crime at the airport while 89% (n=89) did not experience victimisation. Those who experienced crime victimisation at work reported incidents of theft including the theft of baggage, cell phones, laptops, wallets, and money (see section 2.5.1).

4.5.5 Insider security information

Figure 4.20 Insider security information



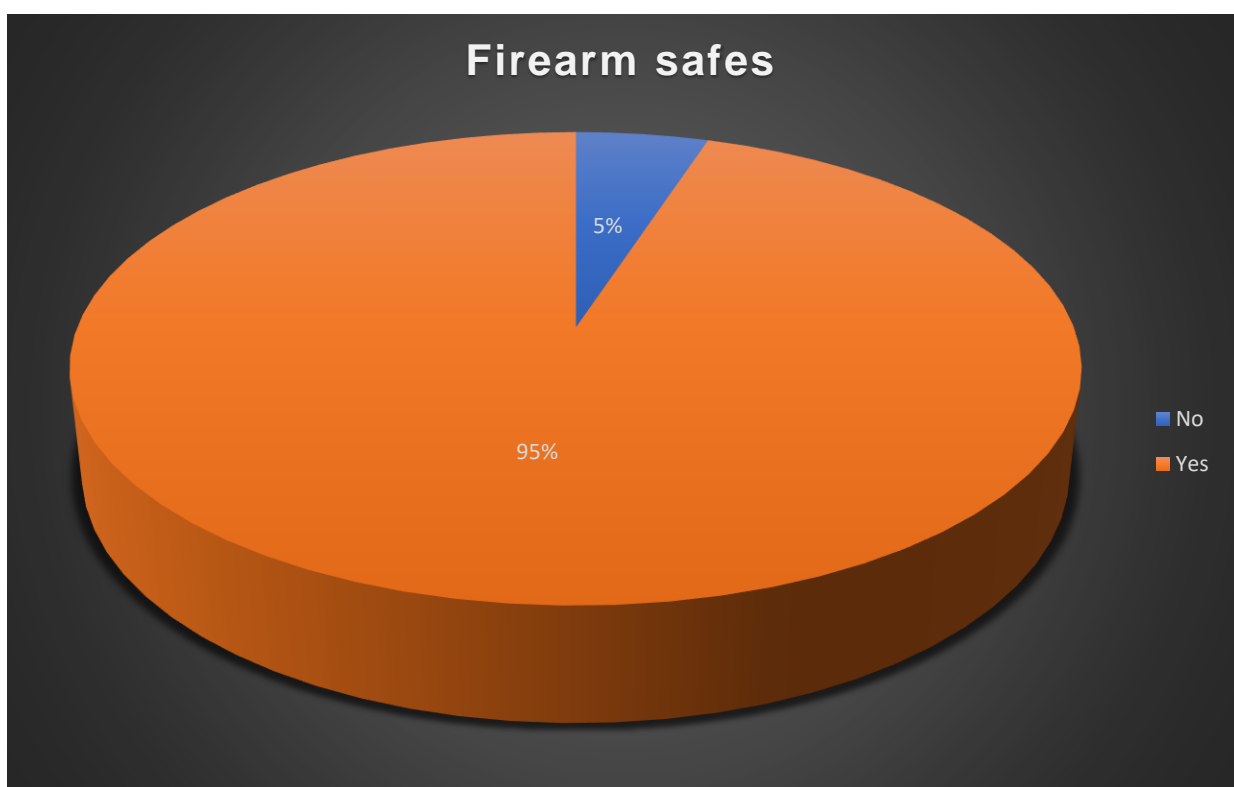
Participants were asked if they had ever been approached to divulge insider security information about the airport. Only 3% (n=3) reported that they had been approached for such information. These participants revealed that the nature of the information requested included: smuggling foreigners into the country; the effectiveness of CCTV systems; the methods used to search people; and the effectiveness of the airport's security measures. All participants (n=100; 100%) said they did not agree to supply the information and thus were not paid. This finding exposes the vulnerability of security personnel as targets to be used for exploitative and criminal activities. Jeong and Zo (2021:1) confirm that insider threats jeopardise safety and security (see section 2.5.1). PricewaterhouseCoopers (PwC) conducted a security survey and found that employees are the main source of security breaches followed by ex-employees (PwC, 2018:np). Moreover, insiders were likely to share sensitive organisational information for financial incentives or as an act of retaliation (Jeong & Zo, 2021:2). Based on the

participants' respondents, they did not provide any assistance to the potential perpetrators. However, the findings also reveal vulnerabilities in terms of insider information.

4.5.6 Firearm safes

Participants were asked whether they had ever brought a firearm into a restricted area in the airport. Only one participant (n=1; 1%) revealed that they had.

Figure 4.21 Firearm safes



Most participants (n=95; 95%) reported that there are firearm safes at ORTIA for safekeeping of official firearms. Five per cent (n=5) said that there are no safes for the safeguarding of firearms at the airport. All personnel should be aware of the firearm safes at the airport.

4.5.7 Vandalism

Participants were asked if they had ever damaged any airport property. Most participants said no (n=98; 98%) while 2% (n=2) declared that they had. Vandalism affects the airport's brand image as the physical appearance of an airport influences factors such as ambience and safety (Dabas, 2022:np).

4.5.8 Arrest and conviction

Participants were asked about arrest and conviction. Ninety nine participants (99%) said that they had not been arrested or convicted while one participant (1%) reported that they had been arrested and convicted. Although further details were requested, the participant did not disclose any more information. To maintain PSIRA membership, an individual must have no criminal record for at least ten years. Grades are not renewed but membership for security officials must be renewed every 24 months (PSIRA, 2021:np) (see section 2.5.2.1).

4.6 TRAINING

The continuous training of employees is beneficial to any organisation. The benefits include increased productivity and quality of work as well as staff cohesion. Furthermore, it updates and informs staff members on policy changes, laws and cutting-edge technologies (Andriotis, 2016:np). Gwara (2021:116) motivates the continuous training of security personnel through accredited training institutions. Trainings are divided into the following sub-categories:

4.6.1 Training opportunities

The researcher was interested in the training opportunities provided to the participants. Their responses are divided into the following sub-categories:

- PSIRA training

All participants (n=100; 100%) were registered PSIRA members. Thus, these employees were PSIRA compliant.

- Security awareness programmes

Ninety-four per cent (n=94) of the participants affirmed that there are security awareness programmes in the airport while 6% (n=6) were unsure. In a study measuring the implications of psychology on security education, training, and awareness (SETA) effectiveness, self-efficiency, and security compliance, the authors argue that when a challenge or incident arises, feedback, autonomy, immersion, and social interaction induce flow. Subsequently, SETA effectiveness, self-efficiency and security compliance are achieved (Yoo, Sanders & Cerveny, 2018:114).

- Life skills training

Ninety-three per cent (n=93) of the participants affirmed that there are life skills training programmes in the airport while 5% (n=5) said there were no such programmes and 2% (n=2) were unsure. These figures indicate the likelihood of life skills training for security personnel.

- Anger management training

Fifty-two per cent (n=52) of the participants affirmed that there are anger management programmes in the airport while 36% (n=36) said there were no such programmes and 12% (n=12) were unsure. Twenty-six participants (26%) said that they had attended anger management facilitated by the airport. In a study conducted on 690 private security guards, it was found that the participants struggled to cope with stress and thus their anger was easily triggered. Anger management training increased stress-coping practices and decreased anger (Ercetin, Acilkalin, Potas, Neyisci & Cevik, 2021:917).

4.7 CRIME PREVENTION AND INTERVENTION

The following section presents the information received by the participants on crime prevention and intervention strategies at ORTIA. The information is explored in further detail as part of the recommendations of the study (see section 5.4).

4.7.1 Crime prevention

Participants were asked their opinions on what should be done at ORTIA to prevent crime. The below verbatim responses represent most of the participants' responses:

“Airport Security Management and South African Police Services must work together in order to fight crime activities at OR Tambo International Airport.”

“Continuous review and implementation of security measures which includes overt and covert testing.”

“Having tactical task force patrolling at the most vulnerable areas.”

“Implementation of the background check for the security officers before the airport employs them.”

“More security visibility and security technology systems effectively and efficiently.”

“To address social, political, environmental, economic factors.”

“Put more X-ray machines at the airport and good access control.”

4.7.2 Improvement of safety and security

Participants were requested to give suggestions on how safety and security can be improved at ORTIA. Their open-ended responses were categorised into the following categories:

- Crime awareness
- Access control
- Increased manpower
- Improved security technology
- Maintenance of security technology
- Specialised training
- Continuous training

One participant indicated that training should focus more on safety and security and less on customer care as customer care is not the security personnel’s core function.

4.7.3 Procedures

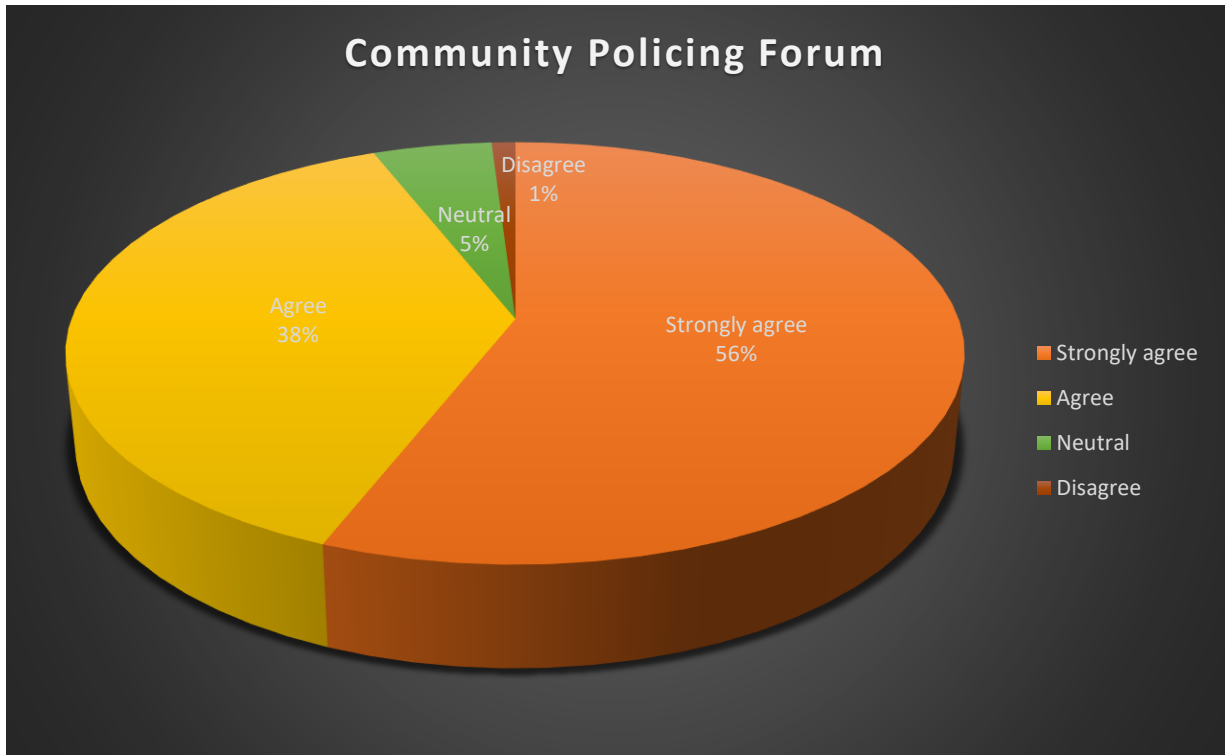
Participants were requested to list any procedures they think should be changed to improve safety and security at the airport. Suggestions for improvement included improved access control, effective and cutting-edge security technology systems, increased X-ray machines and increased cooperation and understanding between airport security and SAPS. In addition, participants proposed continuous training, regular refresher courses and increased security awareness (big screens and notice boards) as well as increased security and police visibility. The participants also mentioned the use of undercover security and SAPS personnel. Increased remuneration and incentives for security staff were also suggested.

4.7.4 Adherence to security practices

The participants were asked whether airport employees adhered to basic security practices. Most participants (n=90; 90%) reported that airport employees do adhere to basic security practices. However, the rest of the participants (n=10; 10%) reported that either they were unsure, employees did not adhere to basic security practices or not as much as they should.

4.7.5 Crime and community policing

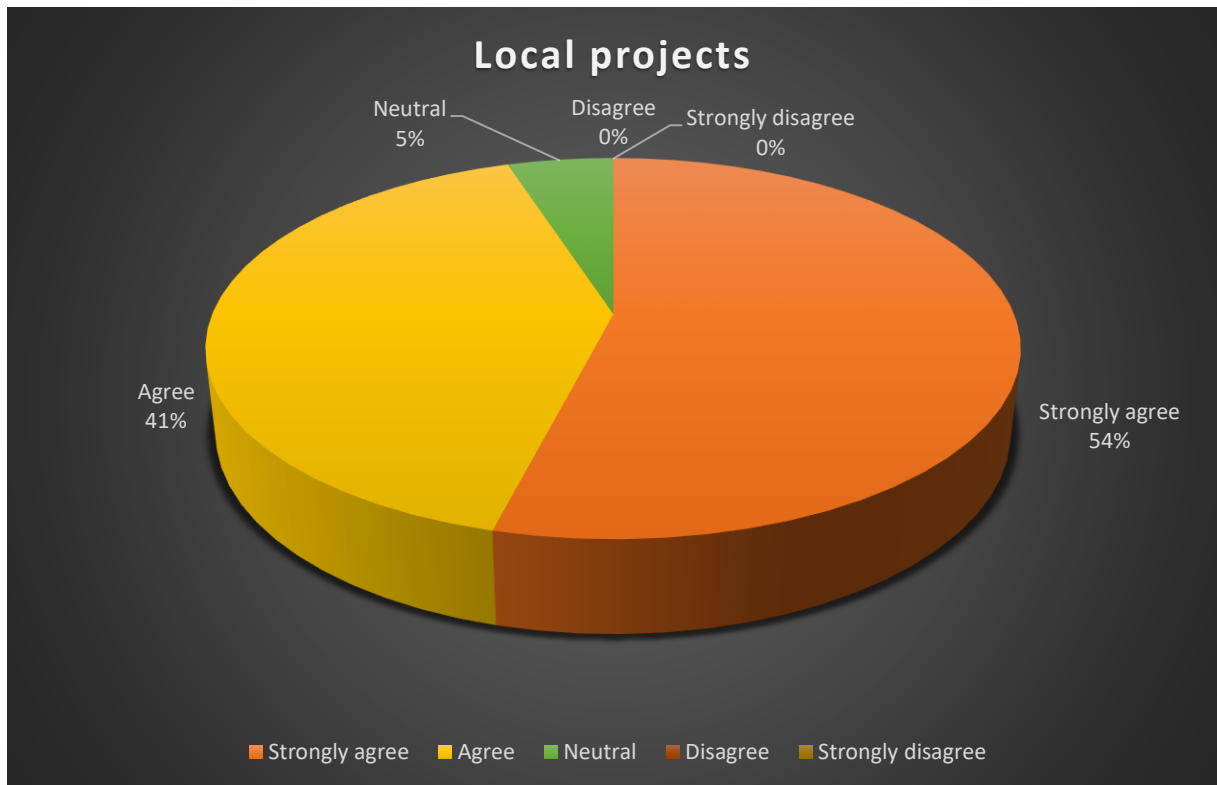
Figure 4.22 Community Policing Forum



The research participants strongly agreed (n=56; 56%) and agreed (n=38; 38%) that crime at the airport can be reduced when the airport security management partner with the local community policing forum. Demirkol and Nalla (2017) studied community policing in a sample of 1,970 police officers working in patrol, civilian clothes, and airports in Turkey. The findings noted that community policing was vital to safety and security. Social cohesion and loyalty were positively correlated in support of community policing (Demirkol & Nalla, 2017:703). Govender (2019:379) maintains that community policing is centred on service, partnership, problem-solving, empowerment and accountability.

4.7.6 Crime and local projects

Figure 4.23 Local projects



The research participants strongly agreed (n=54; 54%) and agreed (n=41; 41%) that participation in local projects by airport management reduces crime. None of the participants disagreed in any way with this statement. The remaining participants (n=5; 5%) were neutral. This finding reinforces the value of local projects in crime prevention and reinforces the significance of community policing (see section 4.7.9).

4.8 SUMMARY OF FINDINGS

The following represents a summary of the study's empirical findings:

- One hundred participants from the ORTIA security department made up the study's sample. The male to female ratio was 51:49 (51% and 49%) respectively and Black people made up the largest majority (75%).
- Most participants (76%) are security officers and the minimum qualification obtained is a matric certificate.
- All participants (100%) are PSIRA registered.
- Most of the participants (27%) reported 5–10 years of work experience followed

by 16–20 years (25%).

- Most of the participants (78%) indicated that they earned between R10,000 and R15,000 a month.
- Most of the research participants reported the morning and the afternoon as the busiest time at ORTIA.
- Most participants (56%) agreed and strongly agreed (32%) that ORTIA is a safe place to work in.
- The most problematic crimes taking place at ORTIA were reported to be theft, mishandled baggage, ATM crimes, burglary, robbery, illegal immigrants and smuggling of drugs.
- Most participants (92%) indicated that they were informed about the security measures at the airport.
- Most participants (68%) reported the security measures to be somewhat effective and 26% deemed the airport's security measures to be very effective.
- Most of the participants (96%) indicated that the airport has a security plan however 10% were not aware of these visual displays of the plan.
- All the participants (100%) confirmed that access to various sections of the airport is controlled through access control.
- The majority (98%) of participants maintained that random drug testing was taking place at the airport.
- Most participants (98%) validated that weapon searches are conducted at the airport.
- Most participants (99%) confirmed that there are contract security workers employed at the airport and five or more contract security personnel.
- Most of the participants (88%) reported that the airport keeps a record of criminal incidences.
- Most participants (68%) reported that they were absent at work due to the fear of crime.
- Eighty-eight per cent (n=88) of the participants had witnessed a crime at ORTIA.

Theft, ATM crimes and robbery were listed as the main crimes witnessed. Most of the participants (87%) responded that they reported the crime(s) to their supervisors. Most participants (90%) confirmed that action was taken to prevent the crimes.

- Not many participants (11 %) experienced victimisation of crime at the airport.
- Three per cent reported that they had been approached for insider information.
- Only one participant admitted to bringing a firearm into the airport.
- Two participants declared that they had engaged in vandalism at the airport.
- One participant admitted to being arrested and convicted of a crime.
- Ninety-four per cent of the participants affirmed that there are security awareness programmes in the airport.
- Ninety-three per cent of the participants affirmed that there are life skills training programmes in the airport.
- Fifty-two per cent of the participants affirmed that there are anger management programmes.
- The participants proposed crime prevention and intervention strategies.

4.9 CONCLUSION

The chapter provided an analysis and interpretation of the empirical findings of the study. Based on 100 participants' responses, the effectiveness of safety and security measures at ORTIA in preventing crime was analysed. The study's findings were analysed under six main themes: profile of participants; general information about ORTIA; security measures and crime at ORTIA; training; crime prevention; and intervention. The chapter concludes with a summary of the findings for ease of reference. Next, the study's achievement of aim, objectives and recommendations are outlined.

CHAPTER 5

ACHIEVEMENT OF AIM AND OBJECTIVES, RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

This chapter aims to explain how the study's aim and objectives were accomplished and to provide recommendations based on its findings. The purpose of this investigation was to explore safety and security at ORTIA. To achieve this purpose, the security personnel working at ORTIA were enlisted to provide their informed and professional experience. This study applied a standardised process to gather numerical data by using quantitative research. Thus, descriptive statistical methods were used to analyse and draw conclusions from the data.

The chapter is organised as follows: a research overview is presented, and the achievement of the aim and objectives are discussed. Next, the recommendations of the study are delineated, and the limitations are revealed. The chapter concludes with future recommendations for studies on aviation security.

5.2 RESEARCH OVERVIEW

The study commenced with an exposition of the problem statement concerning the topic under investigation. The importance of aviation security at ORTIA was established. However, evidence of vulnerabilities and security risks and breaches was exposed (see section 1.2). Thus, the study's significance was achieved, and the researcher endeavoured to explore safety and security at ORTIA.

The literature review provided the background and foundation the study needed before empirical research was conducted (see Chapter 2). The research study was deemed explorative and descriptive (see section 3.2) while a quantitative research approach was used to collect data (see section 3.3). Moreover, the study used a non-experimental research design (see section 3.4.1) and a randomised cross-sectional design when constructing the study (see section 3.4.2). In terms of sampling, probability and random sampling techniques were used to enhance the study's accuracy and credibility (see section 3.5). Data were collected using 100 online self-administered questionnaires (see section 3.5). The sample size of the study was

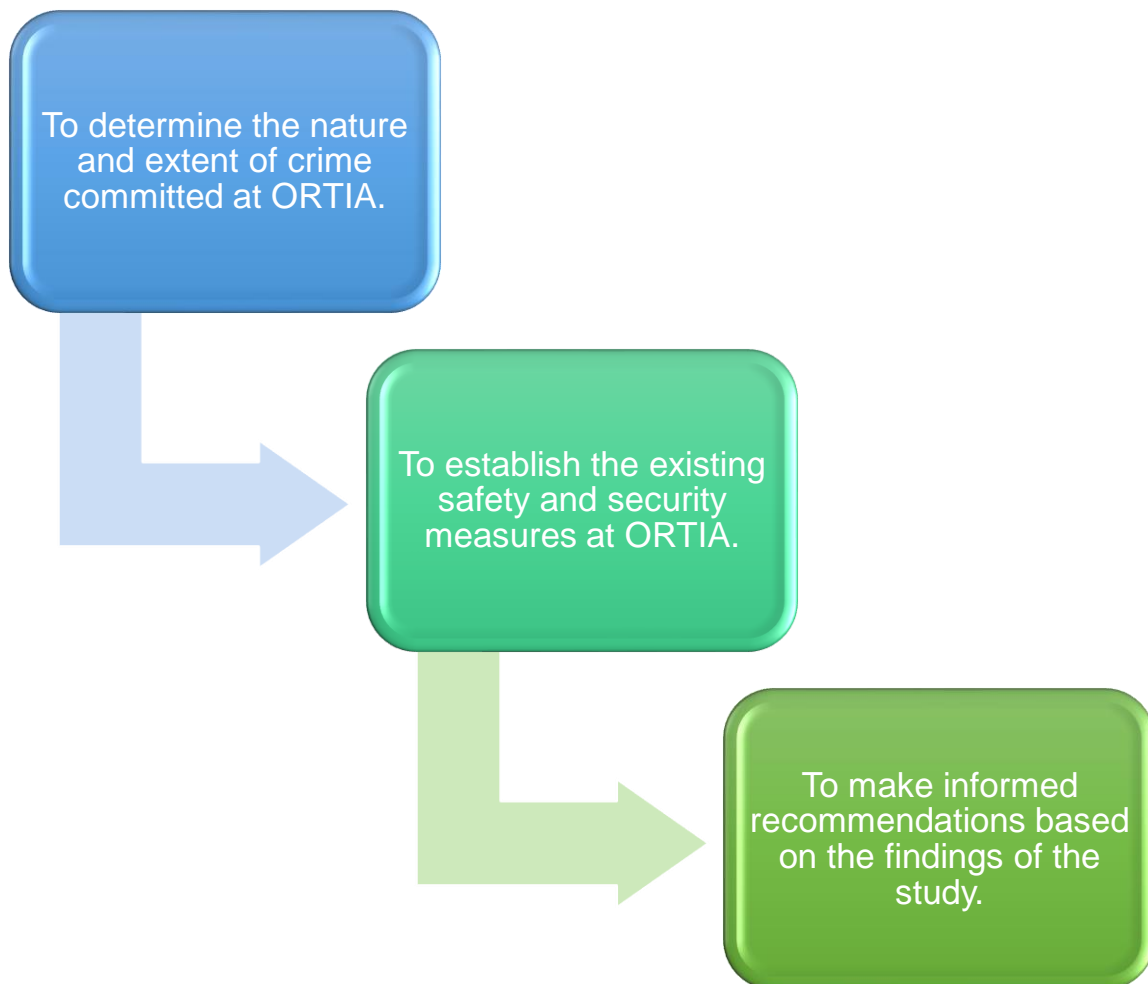
recorded as 36% although the literature indicates a sample size of 32% is acceptable (see section 5.5.1). Data were analysed descriptively as outlined in Chapter 3 (see section 3.8.1) and presented in Chapter 4. Thus, the study was premised on theoretical and empirical research on safety and security at ORTIA.

The following section describes how the study achieved its aim and objectives.

5.3 ACHIEVEMENT OF AIM AND OBJECTIVES

The aim describes the primary outcome that the study accomplished, and the objectives refer to the actions taken to achieve the aim (Fouché & Geyer, 2021:81). The aim of the study was to explore the effectiveness of existing safety and security systems at ORTIA in crime prevention. The aim equals to the sum of its objectives. Thus, the objectives need to be achieved in order to achieve the aim as illustrated below:

Figure 5.1 Objectives of the study



(Author's illustration)

5.3.1 Objective 1: To determine the nature and extent of crime committed at ORTIA

To determine the nature and extent of crime committed at ORTIA, the study began with identifying and describing the occurrence of such crimes. To achieve this first objective, the study was guided by the following research question, "What is the nature and extent of crime committed at ORTIA?" (see section 1.4.2). To answer this research question, a literature review was conducted. Thereafter, empirical data were collected.

The literature review commenced with an overview of aviation security, globally and

locally (see sections 2.2, 2.3 and 2.4) that was explored in-depth to provide background to the nature and extent of crime committed at ORTIA. Key definitions as well as standards and procedures that have taken place abroad and in South Africa were outlined. Thereafter, safety and security at ORTIA were explored (see section 2.3) as well as the security risk factors and vulnerabilities (see section 2.5.3). Thus, through the literature review, it was established that there are vulnerabilities at ORTIA and subsequently crime is occurring (see Chapter 2).

Through the 100 participants' responses from the online self-administered questionnaires (see section 3.6.1), information regarding crime at ORTIA was disclosed (see Chapter 4). Through the profile of the research participants (see section 4.2), it was determined that the research participants were qualified and well-informed to provide informed insight into the study. Questions regarding the perceptions of safety at ORTIA (see section 4.3.2) were posed. Most participants felt safe at work and perceived their level of safety as "very safe" and "safe". However, some participants indicated that they did not feel safe at work, confirming vulnerabilities at the airport. The most problematic crimes were theft, mishandled baggage, ATM crimes, burglary, robbery, illegal immigrants and smuggling of drugs (see section 4.3.3). Moreover, the participants witnessed these crimes (see section 4.5.1). Thereafter, the reporting structure (see section 4.5.2) and consequences of crime (see sections 4.5.2 and 4.5.3) were documented as stated by the participants. The participants also shed light on their own victimisation (see section 4.5.4) and inside security information (see section 4.5.5).

Based on the above analysis, informed by Chapters 1 to 4, the objective was achieved to determine the nature and extent of crime committed at ORTIA.

5.3.2 Objective 2: To establish the existing safety and security measures at ORTIA

To achieve the second objective, the researcher established the existing safety and security measures at ORTIA guided by the research question, "what are the existing safety and security measures at ORTIA?" (see section 1.4.2). To answer this question, the study relied on theoretical (see Chapter 2) and empirical data (see Chapter 4).

The existing safety and security measures at ORTIA were explored (see section 2.5.2). These measures include but were not limited to policies, infrastructure, security technologies (such as CCTV and X-ray machines) and access control. Moreover, the security management structure at ORTIA was explored (see section 2.5.2.1). In order to further explain the safety and security measures at ORTIA, theoretical perspectives were explored (see section 2.7). These theoretical explanations were CPTED (see section 2.7.1) and Situational Crime Prevention (see section 2.7.2). These perspectives were used to explain how security measures at the airport can be enhanced.

Based on the quantitative responses from the online self-administered questionnaires (see section 3.6.1), the existing safety measures at ORTIA were further interrogated (see section 4.4). The participants shared that these measures were implemented through security measures awareness (see section 4.4.1), the security plan (see section 4.4.2), access control and CCTV surveillance (see section 4.4.3), drug testing (see section 4.4.4) and weapon control (see section 4.4.5). Moreover, vulnerabilities surrounding contract security (see sections 4.4.6), incident record keeping (see sections 4.4.7), fear of crime and absenteeism (see sections 4.4.8) were investigated.

Considering the above explanation, the objective to establish the existing safety and security measures at ORTIA, was achieved, as informed by Chapters 1 to 4.

5.3.3 Objective 3: To make informed recommendations based on the findings of the study

The study endeavoured to use its findings to make informed recommendations guided by the following research question, “what informed recommendations can be made based on the findings of the study?” (see section 1.4.2). To answer this question, the study relied on the holistic information presented in Chapters 1 to 4 as well as the recommendations detailed in section 5.4. By means of the recommendations below, the objective of making informed recommendations based on the findings of the study is achieved.

5.4 RECOMMENDATIONS

Recommendations denote a structured and informed proposal designed to advise on the best course of action (Cambridge Dictionary, 2022:np). The recommendations of this study are based on the theoretical and empirical findings of the study and are designed to assist stakeholders and role-players affiliated with ORTIA. The recommendations are linked to the value of the research outlined in Chapter 1 (see section 1.6) and affect the following sub-themes and key role players:

5.4.1 Security management at ORTIA

In terms of recommendations specifically for security management at ORTIA, a customised security plan needs to be reviewed and well-known and implemented by the security personnel working at the airport. The importance of developing and implementing a security plan will assist in recognising and mitigating risks and vulnerabilities. As risks are threats that have not yet materialised, two main processes must be adhered to. First, risks need to be identified and then the procedures and resources must be established (Lynch, 2022:np; Meyer, Mikes & Kaplan, 2021:np). Even though most of the participants indicated that the airport has a security plan, 10 per cent indicated that they were not aware of the visual displays (see section 4.4.2). This can be linked to the implementation and awareness of the security plan. A security plan should include the following key aspects:

- Mapping out the security standard

A security plan begins with an outline of the status of infrastructure that is to be secured which includes a critical assessment of the current plan and the following important aspects: threat management, site security, technical operations and support. Moreover, relevant role-players' perspectives must be incorporated to understand better the organisation's culture (Lynch, 2022:np). Organisational culture affects the satisfaction of employee performance (Paais & Pattiruhu, 2020:577). During this stage, the security's mission, vision and outcomes should be established (Lynch, 2022:np).

- Understanding the threat landscape

The threat landscape is demarcated by the organisation's operations, environment, service delivery and clientele. Once this threat landscape is determined, an intelligence programme can be compiled inclusive of social media and various surveillance systems as well as the collaboration of SAPS and intelligence departments (Lynch, 2022:np).

- Monitoring of threats of key assets

There should be continuous surveillance of key assets as the world changes. In this way, the security plan reflects relevant and ever-changing threats (Lynch, 2022:np). Furthermore, Wood and Raj (2021:278) believe that airports must focus their security strategies on legislative and policy mandates.

- Continuous review of the business continuity plan

Business continuity is vital in a security plan. Thus, a security plan should consider all possible crisis events or disasters that may take place. Subsequently, a business continuity plan should be comprehensively compiled for any event (Lynch, 2022:np). In light of the COVID-19 pandemic, Serrano and Kazda (2020:56) emphasise the importance of a business continuity plan specifically for pandemics.

- Execution

Plans are futile unless they are correctly executed. The execution of the security plan should be done in line with the budget. This stage involves ongoing training of security personnel, keeping them informed about the security plan, and equipping them with the skills to implement it (Lynch, 2022:np). Moussaid, Tkiouat and Hlyal (2020:1) argue that continuous training impacts the overall performance of an organisation.

5.4.2 OR Tambo International Airport

Research indicates junior-level employees often know about and encounter an organisation's biggest risks and vulnerabilities (Meyer et al., 2021:np). Thus, the participants' views on ORTIA can minimise criminal threats. In Chapter 4 of the present study, participants were asked what can be done to maximise crime

prevention at ORTIA (see section 4.7). Their contributions were used to inform the study's recommendations on crime prevention and interventions.

- Crime prevention

The participants emphasised the importance of physical security in prevention of crime which included increasing the number of X-ray machines and improving access control and the visibility of advanced security technology systems. Bongiovanni and Newton (2018:1281) found in their organisational vulnerability assessment of international airports that physical security proved to be a weakness in the safety and security of airports which highlights the need for continuous review and implementation of security measures.

The participants raised the significance of collaboration between airport security management and SAPS to reduce criminal activities at ORTIA. Geldenhuys (2018:20) emphasises the value of a partnership between the private security industry and SAPS as they share similar goals inclusive of upholding law and order, crime prevention and safety and security. This partnership can be realised through the sharing of information, resources and operational activities.

Regarding security personnel, a specialised tactical unit is proposed for high-risk areas. In addition, background checks should be carried out for security officers before being employed. Security personnel employed at ORTIA must be PSIRA registered even though risky and deviant behaviour could be committed after registration. Thus, thorough background checks and rigorous vetting is encouraged.

- Improvement of safety and security

The participants provided an array of responses with regards to improvement of safety and security at ORTIA (see section 4.7.2). These responses were divided into the following:

Crime awareness. Awareness of crime and reporting of crime incidences acts as a deterrent in crime prevention (see sections 2.4.1, 4.4.1, 4.5.2 and 4.6.1). A solution-centric crime awareness online application can serve as a tool for raising crime awareness. This application should include the following features: a centralised chat

box; awareness related information; ease of reporting a crime; and frequently asked questions (Srivastava, Srivastava & Arora, 2020:30). Such an application will assist in raising crime awareness and reporting of crime.

Access control and improved security technology: Access control should include activity-centric control. Gupta and Sandhu (2021:155) argue that safety and efficiency are improved when intelligent, integrated cyber-physical systems are implemented. Systems are interlinked as devices are dependent on each other to ensure efficiency. Thus, access control systems and security technology initiatives should be reviewed, and the holistic technology services should be implemented.

Increased manpower: Insufficient manpower within the security department has negative implications. Factors to consider when increasing manpower are past breaches, frequency and visibility, crime types and patterns, size and the number of security personnel versus passengers and staff members (Conway, Emery, Pompeii & Vellani, 2019:78).

- Training

The importance of training was emphasised throughout the dissertation (see sections 2.2, 2.4.1, 4.6). Continuous training should be implemented throughout security staff members' employment. Training should also benefit other staff members regarding issues surrounding safety and security. The benefits of continuous training include accommodating change in the aviation industry, legislation and policy. These changes must be included in training initiatives so that staff members are updated. As technology evolves, these advancements should be part of security personnel training. Furthermore, continuous training creates a working culture in that training is a norm and not an exception (Andriotis, 2016:np). As mentioned in Chapter 4 (see section 4.4.8), fear of crime at ORTIA has implications for absenteeism.

Insider information is also a vulnerability (see section 4.5.5). Training should be centred on these issues as experienced by the participants. Training should also include aviation security, security awareness, life skills training, anger management, conflict resolution, safety management, security technology and response to security incidences.

- Crime and community policing

It has been established that crime can be reduced through community policing (see section 4.7.5). The involvement of community policing at ORTIA can assist in the prevention of crime. If South African communities are invested in keeping the airport safe, they will be proactive in the safety and security process and assist in identifying and responding to potential criminal activities. Community policing can assist in problem resolution as community members together with SAPS and ORTIA's security personnel can identify crime-related problems and provide solutions to them. Working together with authorities, communities can strengthen mutual trust and decrease their fear of crime (Geoghegan, 2019:68). In this way, communities are also empowered to reduce crime.

- Crime and local projects

Participation in local projects can reduce crime (see section 4.7.6). Local projects should be included in the safety and security activities at the airport. These include but are not limited to awareness campaigns, road shows, media and talk shows and the distribution of safety tips through print and social media (City of Tshwane, 2015:np).

No research study is exempt from limitations. The following limitations of the study were experienced.

5.5 LIMITATIONS OF THE STUDY

Limitations are inevitable in any research study and thus should be recorded and disclosed (Fouché & Geyer, 2021:84). When identifying limitations, the validity and reliability of all data collection instruments should be reviewed. Additionally, limitations that include the generalisability of the sample to the population, ethical problems and the ability to control extraneous factors in the environment and participants should be detailed.

5.5.1 Change of title

The original title of the study was "An evaluation of safety and security at the OR Tambo International Airport". This title was approved by the Higher Degrees

Committee and used in the UNISA Claw Ethics Review Committee. However, as the researcher was finalising the dissertation, he realised that the title needed to be changed. Upon consultation with his supervisor, they agreed upon the amendment, and the Higher Degrees Committee subsequently approved it. The dissertation title is “An exploration of safety and security at the OR Tambo International Airport”.

5.5.2 Sample size

The issue of sample size is continuously raised in literature. The general guideline is that the larger the population, the smaller the sample of that population needs to be. Moreover, the smaller the population, the larger the sample of that population needs to be. Larger population samples allow the researcher to gain representative and truthful conclusions (Strydom, 2021:229). As explained in Chapter 3 (see section 3.5.2.1), the researcher received a list of 276 names of security personnel working at ORTIA. Out of the list, 138 participants were invited to take part in the study. Through randomised sampling, the researcher received 100 completed online questionnaires. This yields a sample size of 36%. Although the researcher expected a bigger response rate, the online questionnaire was voluntary and thus participants could not be forced to participate in the research study. Strydom (2021:230) outlines guidelines for quantitative sampling. If the population comprises 200 individuals, then a sample size of 32% is acceptable. The researcher probed and reminded potential participants about completing the questionnaire during the six months of data collection. However, when 100 questionnaires were received, it was established that a greater sample size than recommended was achieved and thus the researcher stopped the data collection process.

5.5.3 Logistics

Questionnaires were prepared for the airport security personnel employed at ORTIA. Given the consequences of the COVID-19 pandemic, many restrictions were placed on travel in the country. Thus, the researcher had to amend his data collection instrument. Initially, the researcher planned to facilitate the questionnaires himself with security personnel at ORTIA. The researcher thus decided to facilitate the questionnaires through an online platform to avoid face-to-face research. The

researcher applied for an amendment of his ethical clearance which was subsequently approved (see Annexure B).

5.5.4 Time constraints

Gaining access to ORTIA to conduct the research took several months to finalise. This situation strained the researcher's time limit to complete the research study. In practical terms, the researcher had limited time to conduct the field research amongst the other research study activities and processes.

5.6 RECOMMENDATIONS FOR FUTURE RESEARCH

This study has implications for aviation security and thus widens the scope for future research studies. For aviation security to expand, more research needs to be conducted. The following recommendations are made for future research:

- A qualitative inquiry into safety and security at ORTIA from a senior management perspective will provide an in-depth understanding of safety and security at ORTIA.
- A quantitative inquiry into the levels of safety and security as experienced by the passengers travelling through ORTIA. This study will give an indication of the levels of fear, safety and security experienced by the participants.
- A qualitative study on victims of crime at ORTIA. This study will expose the nature and extent of victimisation at ORTIA as experienced by the victims.
- A qualitative study on convicted perpetrators of crime that took place at ORTIA. Such a study will assist ORTIA in the prevention of crime strategies.
- A comparative study on aviation security at various airports in South Africa. This study will provide a broad perspective of aviation security in South Africa.

5.7 CONCLUSION

The chapter provided a holistic understanding of how Chapters 1 to 4 accomplished the study's aim and objectives to explore the effectiveness of existing safety and security systems at ORTIA in crime prevention. Thereafter, the recommendations of the study were delineated in terms of how they can assist ORTIA security

management department to provide effective safety and security measures. Thus, it can be concluded that safety and security were explored to inform crime prevention at ORTIA.

LIST OF REFERENCES

- Abeyratne, R. 2011. Civil unrest and airport and aviation security. *Journal of Transportation Security*, 4:285-294. Available at: <https://www.researchgate.net/publication/251272666> (accessed 05 March 2022).
- Abeyratne, R. 2015. *Aviation and international cooperation: Human and public policy issues*. Cham: Springer.
- Adonis, V. 2022. Man arrested at OR Tambo trying to smuggle 26kg of rhino horn in his passenger luggage out of SA. Available at: <https://www.iol.co.za/news/south-africa/gauteng/man-arrested-at-or-tambo-trying-to-smuggle-26kg-of-rhino-horn-in-his-passenger-luggage-out-of-sa-571597ec-129b-49ca-920d-c79795ab904b> (accessed on 29 September 2022).
- Afrika, M.W. 2016. SA High commissioner's past as a drug smuggler exposed. Available at: <https://www.timeslive.co.za/sunday-times/news/2016-10-02-sa-high-commissioners-past-as-drug-smuggler-exposed/> (accessed on 9 February 2023).
- Aidley, D. 2019. *Introducing quantitative methods: A practical guide*. London: Bloomsbury Academic Publishers.
- Airports Company South Africa (ACSA). 2021. *O.R. Tambo International Airport: Welcome to the gateway of the African continent*. Available at: <https://www.airports.co.za/airports/or-tambo-international-airport/the-airport/about-or-tambo> (accessed 5 February 2021).
- Airports Company South Africa (ACSA). 2022. *Security*. Available at: <https://www.airports.co.za/airports/or-tambo-international-airport/At-the-airport/security> (accessed 9 September 2022).
- Amundrud, O., Aven, T. & Flage, R. 2017. How the definition of security risk can be made compatible with safety definitions. *Journal of Risk and Reliability*, 231(3):286-294.

- Andriotis, N. 2016. *The winning philosophy's perks: The benefits of continuous training*. Available at: <https://www.efrontlearning.com/blog/2016/05/advantages-employee-continuous-training.html> (accessed on 6 December 2021).
- Araujo, V.S., Rezende, T.S., Guimarães, A.J., Araujo, V.J.S. & De Campos Souza, P.V. 2019. A hybrid approach of intelligent systems to help predict absenteeism at work in companies. *SN Applied Sciences*, 1(536):1-13.
- Atonko, M. 2019. Aviation safety and security under the Nigerian Civil Aviation Act 2006: A critique. *International Journal of Comparative Law and Legal Philosophy (IJOCLLEP)*, 1(2):123-132.
- Bartholomew, E. 2010. *Airport and aviation security: U.S. policy and strategy in the age of global terrorism*. Boca Raton, FL: CRC Press.
- Bartley, A. & Hashemi, L. 2021. Quantitative data analysis and interpretation. In C.B. Fouché, H. Strydom & W.J.H. Roestenburg (Eds.), *Research at grass roots: For the social sciences and human service professions* (5th edition, pp. 249 - 286). Pretoria: Van Schaik.
- Bateman, B. 2017. OR Tambo Airport heist not an isolated incident. *Eye Witness News*, 10 April. Available at: <http://ewn.co.za/2017/03/09/or-tambo-airport-heist-not-an-isolated-incident> (accessed 10 August 2022).
- Bertram, C. & Christiansen, I. 2015. *Understanding research: An introduction to reading research*. Pretoria: Van Schaik.
- Block, M.M. 2016. *Applying situational crime prevention to terrorism against airports and aircrafts*. Unpublished PhD dissertation, University of Louisville, Louisville, KY.
- Bongiovanni, I. & Newton, C. 2018. Toward an epidemiology of safety and security risks: An organizational vulnerability assessment in international airports. *Risk Analysis*, 39(6):1281-1297.
- Bordens, K.S. & Abbott, B.B. 2018. *Research design and methods: A process*

approach (10th ed.). New York: McGraw Hill Education.

Brophy, S. 2016. Alert: Travellers warned about making cash transactions at OR Tambo. *News24*, 10 April. Available at: <https://www.news24.com/News24/alert-travellers-warned-about-making-cash-transactions-at-or-tambo-20161121> (accessed 05 March 2022).

Bryman, A. & Bell, E. 2019. *Social research methods* (5th ed.). Oxford: Oxford University Press.

Cambridge Dictionary. 2022. Sv. 'Airport'. Available at: <https://dictionary.cambridge.org/dictionary/english/airport> (accessed on 29 September 2022).

Cannella, G.S. & Lincoln, Y.S. 2018. Ethics, research regulations and critical social science. In N.K. Denzin & Y.S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (5th ed., pp. 172-194). Thousand Oaks, CA: Sage.

Ceccato, V. & Nalla, M.K. 2020. Crime and fear in public places: An introduction to the special issue. *International Journal of Comparative and Applied Criminal Justice*, 44(4):261-264.

City of Tshwane. 2015. Social crime prevention projects. Available at: <https://www.tshwane.gov.za/sites/Departments/Metro-Police/Strategic-Policing-Interventions/Social-Crime-Prevention/Pages/Social-Crime-Prevention-Projects.aspx> (accessed on 3 December 2021).

Clark, R.V.G. 1983. Situational crime prevention: Its theoretical basis and practical scope. In Tonry, M. and Morris, N. (Eds.), *Crime and Justice: An annual review of research* (Vol. 4). Chicago, IL: University of Chicago Press.

Conway, S.H., Emery, R.J., Pompeii, L.A. & Vellani, K.H. 2019. A refined model for estimating the industry-average number of security staff for hospitals. *Journal of Healthcare Protection Management*, 35(1):77-87.

Corteen, K. 2016. Primary, secondary and tertiary victims and victimisation. In K. Corteen, S. Morley, P. Taylor & J. Turner (Eds.), *A companion to crime, harm*

and victimisation. Cambridge: Polity Press. Available at: <https://www.perlego.com/book/1657716/a-companion-to-crime-harm-and-victimisation-pdf>.

Creswell, J.W. & Creswell, J.D. 2018. *Research design: Qualitative, Quantitative and Mixed Methods Approach* (5th ed.). Thousand Oaks, CA: Sage.

Dabas, A. 2022. Airport security and brand image: Eight measures for a ground-up approach to prevent bad press. *Airport Review*. Available at: <http://www.shorturl.at/iu358> (accessed on 27 September 2022).

Debyser, A. 2022. *Air Transport: Civil Aviation Security*. Available at: https://www.europarl.europa.eu/ftu/pdf/en/FTU_3.4.7.pdf (accessed on 29 September 2022).

Demir, M. & Guler, A. 2020. The effects of the 9/11 terrorist attacks on suicide terrorism. *Behavioural Sciences of Terrorism and Political Aggression*, 1-18. DOI:[10.1080/19434472.2020.1866052](https://doi.org/10.1080/19434472.2020.1866052)

Demirkol, I.C. & Nalla, M.K. (2017). How does police culture shape officers' support for community policing? *Policing and Society*, 29(6):692-705.

Department of Social Development. (2019). National drug master plan: 2019-2024. (4th ed.) Available at: https://www.gov.za/sites/default/files/gcis_document/202006/drug-master-plan.pdf (accessed on 3 December 2021).

Du Plessis, E., Saayman, M. & Van der Merwe, A. 2017. Explore changes in the aspects fundamental to the competitiveness of South Africa as a preferred tourist destination. *South African Journal of Economic and Management Sciences*, 20(1):a1519. Available at: <https://doi.org/10.4102/sajems.v20i1.1519> (accessed 10 March 2022).

Dube, K. 2021. Implications of COVID-19 induced lockdown on the South African tourism industry and prospects for recovery. *African Journal of Hospitality, Tourism and Leisure*, 10(1):270-287. Available at:

<https://doi.org/10.46222/ajhtl.19770720-99> (accessed 13 February 2022).

- Dunlop, M.A. 2018. *Narcotics and crime: A challenge to South African National Security (2006-2018)*. Master's thesis in Security Studies, Department of Political Science, University of Pretoria, Pretoria.
- Edna, N.O. 2020. *Multi-Agency cooperation in combating terrorism in the aviation industry in Kenya*. Master's Thesis. School of Humanities and Social Sciences, Strathmore University. Nairobi, Kenya. <http://hdl.handle.net/11071/12094>.
- Ercetin, S.S., Acilkalin, S.N., Potas, N., Neyisci, N. & Cevik, M.S. 2021. Estimating the training effect through the levels of trait anger, anger expression, and coping with the stress of private security guards. *Work*, 70(3):917-928. DOI:[10.3233/wor-213611](https://doi.org/10.3233/wor-213611)
- Erickson, F. 2018. A history of qualitative inquiry in social and educational research. In N.K. Denzin & Y.S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (5th ed., pp.87-141). Thousand Oaks, CA: Sage.
- Fay, J.J. 2011. *Contemporary Security Management*. (3rd ed.). Oxford: Butterworth-Heinemann.
- Feijoo-Fernández, M.C., Halty, L. & Sotoca-Plaza, A. 2020. Like a cat on hot bricks: The detection of anomalous behavior in airports. *Journal of Police Criminal Psychology*. <https://doi.org/10.1007/s11896-020-09371-5>
- Fouché, C.B. 2021. Introduction to the research process. In C.B. Fouché, H. Strydom & W.J.H. Roestenburg (Eds.), *Research at grass roots: For the social sciences and human service professions* (5th ed., pp. 57-72). Pretoria: Van Schaik.
- Fouché, C.B. & Chubb, L.A. 2021. Research dissemination and impact. In C.B. Fouché, H. Strydom & W.J.H. Roestenburg (Eds.), *Research at grass roots: For the social sciences and human service professions* (5th ed., pp. 137- 154). Pretoria: Van Schaik.
- Fouché, C.B. & Geyer, L.S. 2021. Developing the research proposal. In C.B. Fouché, H. Strydom & W.J.H. Roestenburg (Eds.), *Research at grass roots: For the*

- social sciences and human service professions* (5th ed., pp. 73–89). Pretoria: Van Schaik.
- Fouché, C.B. & Roestenburg, W.J.H. 2021. Quantitative research designs. In C.B. Fouché, H. Strydom & W.J.H. Roestenburg (Eds.), *Research at grass roots: For the social sciences and human service professions* (5th ed., pp. 157-180). Pretoria: Van Schaik.
- Fowler, A. 2021. *Crime at UK airports – the most dangerous airports*. Available at: <https://www.airport-parking-shop.co.uk/blog/airport-crime-dangerous-airports/> (accessed on 25 September 2021).
- Garcia, M.L. 2013. *Effective physical security* (4th ed.). Oxford: Butterworth-Heinemann.
- Geldenhuys, K. 2018. Police and private security companies: Partners against crime. *Servamus Community Magazine*, 111(8): 18-21.
- Geoghegan, T.M. 2019. *Promoting public participation in community policing forums: The case of the Stellenbosch Local Municipality*. Unpublished Master's dissertation, North-West University, Potchefstroom.
- Govender, D. 2019. Police and society: Emerging dimensions in South Africa. *International Journal of Criminal Justice Sciences*, 14:376-391.
- Gupta, M. & Sandhu, R. 2021. Towards activity-centric access control for smart collaborative ecosystems. In *Proceedings of the 26th ACM Symposium on Access Control Models and Technologies* (pp. 155-164).
- Gwara, N. 2021. *An evaluation of contract and in-house security: A South African case study*. Unpublished MTech dissertation, University of South Africa, Pretoria.
- Hinton, T. & Friedman, K. 2016. *Women in security: Changing the narrative*. Available at: <http://www.ifpo.org/news/women-security-changing-narrative/> (accessed on 19 November 2021).
- Information Commissioner's Office. 2022. *Security breaches*. Available at:

<https://ico.org.uk/for-organisations/guide-to-pecr/communications-networks-and-services/security-breaches/> (accessed on 10 February 2023).

International Civil Aviation Organisation. 2015. Insider risk in civil aviation. Available at: https://www.icao.int/SAM/Documents/2015-RAAC14/RAAC14_WP24%20REV%20USA%20Insider%20Risk.pdf (accessed on 17 December 2021).

Jansen van Rensburg, S.K. 2017. *The human element in information security: An analysis of social engineering attacks in the greater Tshwane area of Gauteng, South Africa*. Unpublished PhD thesis, The University of South Africa, Pretoria.

Jansen van Rensburg, S.K. 2021. Doing gender well: Women's perceptions on gender equality and career progression in the South African security industry. *SA Journal of Industrial Psychology*, 47(0):1-9.

Jensen, E.A. & Laurie, C. 2016. *Doing real research: A practical guide to social research*. Thousand Oaks, CA: Sage.

Jeong, M. & Zo, H. 2021. Preventing insider threats to enhance organizational security: The role of opportunity-reducing techniques. *Telematics and Informatics*, 63. <https://doi.org/10.1016/j.tele.2021.101670>.

Kumar, R. 2019. *Research methodology: A step-by-step guide for beginners* (5th ed.). Thousand Oaks, CA: Sage.

Law Insider. 2021. *Mishandled baggage definition*. Available at: <https://www.lawinsider.com/dictionary/mishandled-baggage> (accessed on 13 November 2021).

Leedy, P.D. & Ormrod, J.E. 2021. *Practical research: Planning and design* (12th ed.). London: Pearson.

Lekota, F. & Coetzee, M. 2020. *An Aviation Sector CSIRT for Sub-Saharan Africa*. Information and Cyber Security, Proceedings of 18th International Conference, Johannesburg, South Africa, August 15 (pp. 28-42). Available at: <https://www.researchgate.net/publication/339772673> (accessed on 20

February 2022).

Louw-Vaudran, L. 2015. *African women are increasingly part of the military and police, but these remain strongly male-dominated institutions*. Available at: <https://www.issafrica.org/iss-today/women-in-africas-top-brass-its-not-just-about-the-numbers> (accessed on 19 November 2021).

Love, T. & Cozens, P. 2015. A review and current status of Crime Prevention through Environmental Design (CPTED). *Journal of Planning Literature*, 30(4):393-412.

Lubbe, B. & Vermooten, J. 2021. *Final Report: The Impact of COVID19 on the tourism transport interface in South Africa*. Pretoria: University of Pretoria.

Lynch, BOW. 2022. *Top 10 keys for security, planning and execution*. Available at: <https://www.securityinfowatch.com/security-executives/article/21257847/top-10-keys-for-security-planning-and-execution> (accessed on 29 September 2022).

Maboa, R. The roles and responsibilities of the safety and security industry during protest action in Tshwane, Gauteng. Unpublished MTech dissertation, University of South Africa, Pretoria.

Manana, WEAR. 2020. 152 *Integrated of Unmanned Aircraft System into Civil Aviation a Study of the U.S., South Africa*. University of South Africa. Available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fuir.unisa.ac.za%2Fbitstream%2Fhandle%2F10500%2F27124%2Fthesis_rodgers_mwe.pdf%3Fsequence%3D3&clen=2643993 (accessed on 16 February 2022).

Maphanga, C. 2022. Airport home affairs official arrested in connection with R110K per person smuggling scam. *News24*. Available at: <https://www.news24.com/news24/southafrica/news/airport-home-affairs-official-arrested-in-connection-with-r110k-per-person-smuggling-scam-20220414> (accessed on 29 September 2022).

- Marteache, N. 2018. Please refrain from locking your bags: Theft from passengers' checked-in luggage at US airports. *Security Journal*, 31:163-189.
- Masemola, K.M. 2018. The airport geography of power as site and limit of NEPAD's Transnational African Assemblage. *Africa Development*, 43(3).
- McDonald, J. 2020. *Jetway robbery? Homeland security and cash seizures at airports*. Institute for Justice. Available at: <https://dataspace.princeton.edu/bitstream/88435/dsp011j92qb618/1/Jetway-Robbery-July-2020-WEB-FINAL.pdf> (accessed on 19 November 2021).
- McFarlane, P. 2020. Linking aviation security failures to human-mediated error: A review of the related literatures with directions for policy research. *Journal of Transportation Security*, 13:33-51.
- Meyer, K., Mikes, A. & Kaplan, R.S. 2021. *When every employee is a risk manager*. Available at: <https://hbr.org/2021/01/when-every-employee-is-a-risk-manager> (accessed on 10 October 2022).
- Mihinjac, M. & Saville, G. 2019. Third-Generation Crime Prevention Through Environmental Design (CPTED). *Social Sciences*, 8(6): 1-20.
- Mnguni, N.Z. 2020. *A criminological exploration of female drug mules incarcerated in Kgoši Mampuru II and Johannesburg Female Correctional Centres*. Master's thesis, University of South Africa, Pretoria.
- Mora, Z., Suharyanto, A. & Yahya, M. 2020. Effect of work safety and work healthy towards employee's productivity in P.T. Sisirau Aceh Tamiang. *Budapest International Research and Critics Institute (BIRCI-Journal)*, 3(2):753-760.
- Mota, M.M., Scala, P., Murrieta-Mendoza, A., Orozco, A. & Di Bernardi, D. 2021. Analysis of security lines policies for improving capacity in airports: Mexico City Case. *Case Studies on Transport Policy*, 9(4):1476-1494. doi.org/10.1016/j.cstp.2021.07.005
- Motseki, M.M. & Mofokeng, J.T. 2022. An analysis of the causes and contributing factors to human trafficking: A South African perspective. *Cogent Social*

- Sciences, 8(1). Available at: <https://doi.org/10.1080/23311886.2022.2047259> (accessed on 19 February 2022).
- Moussaid, A., Tkiouat, M. & Hlyal, M. 2020. Review of literature on existing models about the impact of continuous training on business performance. *IOP Conference Series: Materials Science and Engineering*, 827(1):012052).
- National Institute of Standards and Technology. 2023. *Cybersecurity*. Available at: <https://csrc.nist.gov/glossary/term/cybersecurity> (accessed on 11 February 2023).
- Nevo, E.M.D. 2015. *The impact of the application of International Air Cargo Security Regulations in South Africa*. Magister Technologiae in Security Management, University of South Africa, Pretoria.
- Newburn, T. 2017. *Criminology* (3rd ed.). London: Routledge.
- News24. 2012. *Sicelo Shiceka's family shocked*. Available at: <https://www.news24.com/news24/sicelo-shicekas-family-shocked-20120430> (accessed on 20 November 2021).
- Ntshidi, E. 2020. *Mbalula welcomes arrest of suspects in ORTIA attempted robbery*. Available at: <https://ewn.co.za/2020/07/19/mbalula-welcomes-arrest-of-suspects-in-ortia-attempted-robbery> (accessed on 29 September 2022).
- Overseas Security Advisory Council (OSAC). 2020. *South Africa 2020 Crime and Safety Report*. Available at: <https://www.osac.gov/Content/Report/63e37d80-c040-462d-a868-181c51cf7188> (accessed on 21 December 2020).
- Paais, M. & Pattiruhu, J.R. 2020. Effect of motivation, leadership, and organizational culture on satisfaction and employee performance. *The Journal of Asian Finance, Economics and Business*, 7(8):577-588.
- Padgett, D.K. 2017. *Qualitative methods in social work research* (3rd ed.). Thousand Oaks, CA: Sage.
- PricewaterhouseCoopers (PwC). 2018. *The Global State of Information Security*

- Survey 2018. Available at: <https://www.pwc.com/sg/en/publications/global-state-of-information-security-survey-2018-sg.html> (accessed on 29 September 2022).
- Private Security industry Regulatory Authority (PSiRA). 2021. Welcome to PSiRA. Available at: <https://www.psiira.co.za/> (accessed on 13 November 2021).
- Private Security industry Regulatory Authority (PSiRA). 2022. Strategic overview. Available at: <https://www.psiira.co.za/search-joomla/organizational-overview.html> (accessed on 10 January 2022).
- Quilty, S.M. 2019. *National Academies of Sciences, Engineering, and Medicine 2019: Airport Incident Reporting Practices*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25465>
- Rachel, A. 2016. 34. Crime prevention through environmental design. In: *Environmental Criminology and Crime Analysis*. Crime Science Series (pp. 259-285). Abingdon, UK: Routledge. Available at: <http://eprints.hud.ac.uk/id/eprint/27965/> (accessed on 20 February 2022).
- Rae, A. & Provan, D. 2019. Safety work versus the safety of work. *Safety Science*, 111:119-127.
- Rajapaksha, A. & Jayasuriya, N. 2020. Smart Airport: A review on future of the airport operation. *Global Journal of Management and Business Research*, 20(3):24-34. DOI:[10.34257/GJMBRAVOL20IS3PG25](https://doi.org/10.34257/GJMBRAVOL20IS3PG25)
- Rall, S. 2021. *Three in court over R61m gold bar bust at ORTIA*. Available at: <https://www.iol.co.za/news/south-africa/gauteng/three-in-court-over-r61m-gold-bar-bust-at-ortia-26675454-d15b-4770-ba74-6193cb8f99e1> (accessed on 29 September 2022).
- Republic of South Africa (RSA). 2001. Private Security Industry Regulation Act 56 of 2001. *Government Gazette* (23051). Cape Town: Government Printer.
- Research Randomiser. 2021. *Research randomizer*. Available at: <https://www.randomizer.org/> (accessed on 1 May 2021).

- Roestenburg, W.J.H. 2021. Quantitative data collection methods. In C.B. Fouché, H. Strydom & W.J.H. Roestenburg (Eds.), *Research at grass roots: For the social sciences and human service professions* (5th ed., pp. 199- 226). Pretoria: Van Schaik.
- Rogerson, C.M. 2018. Urban tourism, aerotropolis and local economic planning: Ekurhuleni and O.R. Tambo International Airport, South Africa. *Miscellanea Geographica*, 22(3):123-129.
- Ruane, J.M. 2016. *Introducing social research methods: Essentials for getting the edge*. Oxford: Wiley Blackwell.
- Rubin, A. & Babbie, E.R. 2016. *Essential research methods for social work* (4th ed.). Boston, MA: Cengage Learning.
- Saal, P. 2017. OR Tambo heist: The story that could have kept suspects out of trouble. *Sowetan Live*. Available at: <https://www.sowetanlive.co.za/news/2017-03-20-or-tambo-heist-the-story-that-could-have-kept-suspects-out-of-trouble/> (accessed on 7 January 2020).
- Salary Explorer. 2021. *Security guard average salary in South Africa 2021*. Available at: <http://www.salaryexplorer.com/salary-survey.php?loc=201&loctype=1&job=508&jobtype=3> (accessed on 21 November 2021).
- Santana-Gallego, M. & Fourie, J. 2022. Tourism falls apart: How insecurity affects African tourism. *Tourism Economics*, 28(4):995–1008.
- Sayed, Z. 2022. *Absenteeism in the workplace: Causes, impact on a business, and possible solutions*. Available at: <https://hrforecast.com/absenteeism-in-the-workplace-causes-impact-on-a-business-and-possible-solutions/> (accessed on 27 September 2022).
- Schurink, W.J., Roestenburg, W.J.H., & Fouché, C.B. 2021. The place of literature and theory in research. In C.B. Fouché, H. Strydom & W.J.H. Roestenburg (Eds.), *Research at grass roots: For the social sciences and human service*

professions (5th ed., pp. 93- 116). Pretoria: Van Schaik.

Seabra, H., Dolnicar S., Abrantes, J.L. & Kastenholz, E. 2013. Heterogeneity in risk and safety perceptions of international tourists. *Journal of Tourism Management*, 36:502-510.

Sears, N.A. 2020. Existential security: Towards a security framework for the survival of humanity. *Global Policy*, 11(2):255-266.

Sennewald, C.A. 2015. *Effective security management*. Oxford: Elsevier Inc.

Sennewald, C.A. & Baillie, C. 2021. *Effective security management* (7th ed.). Oxford: Elsevier Inc.

Serfontein, E. & Govender, K. 2020. Embedded resilience properties identified in quality assurance and corporate governance in the South African Aviation Industry. *African Journal of Hospitality, Tourism and Leisure*, 9(3):86-100. Available at: <https://doi.org/10.46222/ajhtl.19770720-6> (accessed on 10 February 2022).

Serrano, F. & Kazda, A. 2020. Business continuity during pandemics: Lessons learned about airport personnel. *Transportation Research Procedia*, 51:56-66.

Sisulu, L.N. 2022. Deputy Minister Lindiwe Sisulu: Tourism Dept Budget Vote 2022/23. Available at: <https://www.gov.za/speeches/deputy-minister-lindiwe-sisulu-tourism-dept-budget-vote-202223-19-may-2022-0000> (accessed on 27 September 2022).

South Africa. Crime and Safety Report. 2016. 02 September. [Online]: Available at: <https://www.osac.gov/pages/Content/ReportDetails.aspx?cid=19814> (accessed on 02 August 2022).

South African Government. 2021. *South Africa's people*. Available at: <https://www.gov.za/about-sa/south-africas-people> (accessed on 19 November 2021).

South African History Online. 2021. *O.R. Tambo International Airport, Johannesburg*.

Available at: <https://www.sahistory.org.za/place/or-tambo-international-airport-johannesburg> (accessed on 23 January 2021).

South African Police Service (SAPS). 2022. Police recorded crime statistics: First Quarter 2022/2023 Crime Stats Presentation. Available at: <https://www.saps.gov.za/services/crimestats.php> (accessed on 28 September 2022).

South African Police Service (SAPS). 2015. *SAPS fights crime at ORTIA*. Available at: <https://www.saps.gov.za/newsroom/selnewsdetails.php?nid=5510> (accessed on 13 October 2020).

Srivastava, S., Srivastava, K. & Arora, N. 2020. Exploration of a Solution-Centric Crime Awareness Tool. *International Journal of Computer Applications*, 975(8887):26-32.

Statistics South Africa (Stats SA). 2018. *SA tourism industry struggles amidst COVID-19 pandemic*. Available at: <https://www.statssa.gov.za/?p=14281#:~:text=In%20South%20Africa%2C%20the%20direct,3%25%20direct%20contribution%20to%20GDP.&text=In%202018%2C%20the%20tourism%20sector,total%20employment%20in%20South%20Africa> (accessed on 13 August 2022).

Stotz, T., Bearth, A., Ghelfi, S.M. & Siegrist, M. 2021. Keep the status quo: randomization-based security checks might reduce crime deterrence at airports. *Journal of Risk Research*, 24(12):1-15.

Strydom, H. 2021. Sampling techniques and pilot studies in quantitative research. In C.B. Fouché, H. Strydom & W.J.H. Roestenburg (Eds.), *Research at grass roots: For the social sciences and human service professions* (5th ed., pp. 227-248). Pretoria: Van Schaik.

Strydom, H. & Roestenburg, W.J.H. 2021. Ethical conduct in research with human participants. In C.B. Fouché, H. Strydom & W.J.H. Roestenburg (Eds.), *Research at grass roots: For the social sciences and human service professions* (5th ed., pp. 117-136). Pretoria: Van Schaik.

- Thobane, M.S. & Jansen van Rensburg, S.K. 2022. Transforming methods for research with indigenous communities: An African social sciences perspective. In P. Ngulube (Ed.), *Handbook of research on mixed methods research in information science* (pp. 190-203). Hershey, PA: IGI Global.
- Thobane, M.S. 2016. Airport follow-home robberies. *Servamus Community based Safety and Security Magazine*, 109(2):34-35.
- Tracy, S.J. 2020. *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact* (2nd ed.). Oxford: Wiley Blackwell.
- Vagi, K.J., Stevens, M.R., Simon, T.R., Basile, K.C., Carter, S.P. & Carter, S.L. 2018. *Crime Prevention Through Environmental Design (CPTED): Characteristics Associated with Violence and Safety in Middle Schools. Journal of School Health*, 88(4):296-305. Available at: https://onlinelibrary.wiley.com/doi/pdf/10.1111/josh.12609?casa_token=jDhu8yTj3XoAAAAA:w7Ytlt5u6kqHhaT6WybyR_0XwXbTg1YnPDz3S6QbgWUO6OIUBHOPPBikaxbg-FtXnqzj_YQFDrdhKw (accessed on 13 March 2022).
- Van Heerden, A. & Minnaar, A. 2016. The use of South African drug mules in the cross-border smuggling of drugs. *Acta Criminologica: Southern African Journal of Criminology*, 29(3) Special Edition: Illicit drugs: Local and International.
- Weiland, L.V., Law, C. & Sunjka, B.P. 2020. Ensuring sustainable and resilient air traffic management systems for South Africa with complexity and whole-of-society theory approaches. *South African Journal of Industrial Engineering*, 31(3) Special Edition:97-109. Available at: <http://dx.doi.org/10.7166/31-3-2424>. (accessed on 01 March 2022).
- Weseka, B. & Rikhotso, S. 2021. 9/11 and Africa: Reflecting on two decades of U.S. – Africa policies and interests. *Foreign Policy Research Institute*. Available at: <https://www.fpri.org/article/2021/09/9-11-and-africa-reflecting-on-two-decades-of-u-s-africa-policies-and-interests/> (accessed on 13 November 2021).
- Wittmer, A., Bieger, T. & Müller R. (Eds.). 2011. *Aviation Systems: Management of the Integrated Aviation Value Chain*. New York: Springer. DOI:[10.1007/978-3-642-](https://doi.org/10.1007/978-3-642-)

[20080-9](#) (accessed on 18 February 2022).

Wood, S. & Gardiner, S. 2019. Policing UK Airports and Schedule 7 of the Terrorism Act 2000: The young passengers' perception of security measures. *Terrorism and Political Violence*, 33(8):1621-1642.

Wood, S. & Raj, R. 2021. The impact of security scanners at airports and ethnic minority travellers' experience. *Security Journal*, 34:278-298.

Yoo, C.W., Sanders, G.L. & Cervený, R.P. 2018. Exploring the influence of flow and psychological ownership on security education, training and awareness effectiveness and security compliance. *Decision Support Systems*, 108:107-118.

ANNEXURE A: ETHICAL CLEARANCE CERTIFICATE



UNISA CLAW ETHICS REVIEW COMMITTEE

Date 20180518

Reference: P15 of 2018

Applicant: M Panyapanya

Dear Mr Panyapanya

**Decision: ETHICS APPROVAL
FROM 18 MAY 2018
TO 17 MAY 2021**

Researcher(s): Michael Panyapanya

Supervisor (s): Dr S Jansen van Rensburg

An evaluation of safety and security at the OR Tambo International Airport

Qualification: MA (Security Management)

Thank you for the application for research ethics clearance by the Unisa CLAW Ethics Review Committee for the above mentioned research. Ethics approval is granted for 3 years.

*The **low risk application** was reviewed by the CLAW Ethics Review Committee on 18 May 2018 in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment. The decision was ratified by the committee.*

The proposed research may now commence with the provisions that:

1. The researcher 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 should be communicated in writing to the CLAW Committee.
3. The researcher will conduct the study according to the methods and procedures set out in the approved application.

4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.
5. 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. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after the expiry date of 17 May 2021. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

The reference number P15 of 2018 should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.

Yours sincerely,



PROF N MOLLEMA

Chair of CLAW ERC

E-mail: mollena@unisa.ac.za

Tel: (012) 429-8384



PROF C TSHOOSE

Executive Dean: CLAW

E-mail: tshooc@unisa.ac.za

Tel: (012) 429-2005

ANNEXURE B: APPROVAL OF AMENDED ETHICAL CLEARANCE



Memorandum

To: Prof T Budhram

From: Mr M Panyapanya

Subject: Amendment of data collection method due to COVID-19 pandemic

Date: 15 December 2020

Good day,

My name is Michael Panyapanya. I am a registered MTech student (36866431) in the Department of Criminology and Security Science at the University of South Africa. The title of my study is "An evaluation of safety and security at OR Tambo International Airport". I received ethical clearance from CLAW ERC (please see attachment) in 2018. The ethical clearance is valid from the 18 May 2018 to 17 May 2021.

Due to the COVID-19 pandemic and after consultation with literature and my supervisor, I have decided to change my data collection tool from self-administered questionnaires to online questionnaires. The questionnaire remains unchanged. The target population is security personnel at OR Tambo International Airport (ORTIA). I have obtained permission from the ORTIA security manager to conduct the online questionnaires with the security personnel.

Kind regards,

A handwritten signature in black ink that reads "M Panyapanya".

Mr M Panyapanya
MTech student



Endorsed by:



Dr SK Jansen van Rensburg
Supervisor

Approved:



Prof T Budhram
Chair of CLAW ERC



ANNEXURE C: PERMISSION LETTER



Dear Mr. Michael Panyapanya,
Granting of institutional permission for research

I, Mahomed Bashir, the senior manger airport security of ACSA grant permission to collect data at O.R Tambo International Airport for your research project.

This is to confirm that, Mr. Michael Panyapanya, a registered MTech student (36866431) in the Department of Criminology and Security Science at the University of South Africa is allowed to conduct research at O.R Tambo International Airport. This permission is subject to online data collection with security personnel at O.R Tambo International Airport.

A handwritten signature in black ink, appearing to read "Mohamed Bashir", is written over a light blue horizontal line.

Yours sincerely

Mohamed Bashir
Senior Manager: Airport Security
02 455 1503

ANNEXURE D: INFORMED CONSENT FORM

PARTICIPANT INFORMATION SHEET

Ethics clearance reference number: P15 of 2018

Title: AN EVALUATION OF SAFETY AND SECURITY AT OR TAMBO INTERNATIONAL AIRPORT

Dear Prospective Participant

My name is Michael Panyapanya. I am the student in the Department of Criminology and Security Science at the University of South Africa. I am doing research with Dr. SK Jansen Van Rensburg, a lecturer in the Department of Criminology and Security Science School of Criminal Justice towards a degree MTech Degree in Security Management at the University of South Africa. I am inviting you to participate in a study entitled "An evaluation of safety and security at OR Tambo International Airport".

WHAT IS THE PURPOSE OF THE STUDY?

The study's purpose is to evaluate safety and security at OR Tambo International Airport. To examine the existing security measures available at OR Tambo International Airport in order to make security risk control recommendations.

WHY AM I BEING INVITED TO PARTICIPATE?

The research will help the airport improve the security measures in order for the passengers, crew, ground personnel and the general public to feel more secure.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY

The study will be carried out in the following way:

Self-administered questionnaires

Informed consent guarantees that the research participants are made adequately aware of the type of information the researcher wants from them. Subsequently, they will be asked to complete a self-administered questionnaire to evaluate the impact and

effective of the existing security measures at ORTIA. The questionnaire will take approximately 30 minutes to complete.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participating in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason. The questionnaires are anonymous thus there is no chance of identifying you. The researcher will ensure the privacy, anonymity and confidentiality of each research participant.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

The research will be of value to academics and security professionals alike in the field of private security and aviation security in South Africa. In this way, the envisioned findings and recommendations presented in this research can benefit the aviation industry and the community.

ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

The researcher will, as far as possible, limit emotional harm that this research project might cause to the research participants, if any. The researcher will avoid biased, judgemental, unskilled, unethical or dishonest application of knowledge and/or treatment of the participants. No information will be collected without the consent of the respondents. The informed consent form (Annexure A) will be obtained from the participants.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

You should exercise and enjoy their right to privacy and the right to decide to what extent your attitudes, beliefs, and behaviour will be revealed. Privacy relates to personal confidentiality. You are assured of anonymity in that data emanating from

this study will not be published in a manner that will reveal your personal identity or that of other people who may be implicated (i.e. family members). The information gathered will be treated with the utmost confidentiality. We will respect the rights, dignity and worthiness of the participants. However, confidentiality will be explained and encouraged in an effort to protect all the participants.

HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?

The hard copies (questionnaires) data will be stored in a locked cabinet. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

There will be no payment made available for taking part in the study. The payment will compromise the credibility of the research study.

HAS THE STUDY RECEIVED ETHICS APPROVAL

This study has received written approval from the Research Ethics Review Committee of the College of Law, Unisa. A copy of the approval letter can be obtained from the researcher if you so wish.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

The findings are accessible to UNISA library. If you would like to be informed of the final research findings, please contact the following people:

Name	Telephone number	E-mail address
Mr Michael Panyapanya	012 433 9506	panyam@unisa.ac.za

Should you have concerns about the way in which the research has been conducted, you may contact the researcher (Mr Michael Panyapanya), my supervisor, Dr SK Jansen van Rensburg (012 433 9533 or sissisk@unisa.ac.za) or the research ethics chairperson, Prof D Govender, (012 433 9482 or govend1@unisa.ac.za) if you have any ethical concerns.

Thank you for taking time to read this information sheet and for participating in this study.

<insert

signature>

<type your name>

ANNEXURE E: SELF-ADMINISTERED QUESTIONNAIRE

SECTION A (Demographic Information)

The following questions are for statistical purposes only:

1. **Gender:** Male Female

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2. Age:

3. Race

Indian		Asian (other than Indian)		Black		Coloured		White		Other Please specify	
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4. Marital Status

Not married		Married		Divorced/Separated		Widow/Widower	
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5. How many dependants do you have?

One		Two		Three		Four		Five		Six or more	
-----	--	-----	--	-------	--	------	--	------	--	-------------	--

6. What is your highest educational qualification?

Std 6/ Grade 8		Std 7/ Grade 9		Std 8/ Grade 10		Std 9/ Grade 11	
----------------	--	----------------	--	-----------------	--	-----------------	--

Std 10/ Grade 12	1-Year certificate / Diploma (FETC)	3 Year Diploma/ Degree (University)	Postgraduate Degree (University)		

7. What is your current work position?

Security Officer	Security Supervisor	Chief Control Officer	Security Manager	Other Please specify
------------------	---------------------	-----------------------	------------------	-------------------------

8. What is your monthly income?

R1 500 - R2 000	R2 000 – R3 000
R7 000 – R10 000	R10 000– R15 000
R30 000 – R40 000	More than R40 000

9. How many years of work experience do you have?

Less than 1 year	1 Year	2 Years	3 Years	4 Years	5 – 15 Years	More than 15 Years
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SECTION B (Airport Information)

[Place an (X) in the correct column].

10. When is the airport's busiest time?

Morning	Midday	Afternoon	Evening	Night	Other (Please specify)

11. The airport is a safe place at which to work.

Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
----------------	--	-------	--	---------	--	----------	--	-------------------	--

12. On a scale of 1 to 5, rate how safe do you feel at the airport?

(1 = feeling very safe at airport and 5 = feeling very unsafe at airport)

1		2		3		4		5	
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13. What are the main problems currently being experienced at your airport?

(Prioritise them from 1 to 5, with 1 being the biggest problem)

	1	2	3	4	5
Smuggling of drugs					
Illegal immigrants					

Mishandled baggage					
Burglary					
ATM Crimes					
Theft					
Robbery					
Armed robbery					
Vehicle theft					
Hijacking of staff or customers					
Assault					
Cash heists					
Murder					
Rape					
And other					

Indicate to what extent you agree or disagree with the following statement:

14. Crime at an airport can be reduced if airport security management is part of a Local Community Policing Forum (CPF)

Strongly agree		Agree		Neutral		Disagree		Strongly Disagree	
----------------	--	-------	--	---------	--	----------	--	-------------------	--

15. Participation in local projects by airport management as part of their social responsibility helps reduce crime at airport.

Strongly agree		Agree		Neutral		Disagree		Strongly Disagree	
----------------	--	-------	--	---------	--	----------	--	-------------------	--

SECTION C (Security Measures)

16. Do you think random drug testing is necessary in airports?

Yes		No	
-----	--	----	--

17. Are you informed about all the security measures that are in place at your airport?

Yes		No	
-----	--	----	--

18. Do you find the security measures in your airport to be effective?

Very effective		Somewhat effective		Somewhat ineffective		Very ineffective	
----------------	--	--------------------	--	----------------------	--	------------------	--

19. Does your airport have a written security plan?

Yes		No		Unsure	
-----	--	----	--	--------	--

20. If yes, are you familiar with the security plan? (i.e have you read the plan)

Yes		No	
-----	--	----	--

21. Is the security plan prominently displayed (posters, manual, signs) on your airport premises?

Yes		No	
-----	--	----	--

22. Do you as an employee have access cards that you have to show before entering the airport restricted area?

Yes		No	
-----	--	----	--

23. If yes, is access granted through turnstiles or normal gates?

Yes		No	
-----	--	----	--

24. If a turnstile gate or normal gate is used, is the access card an electronic access card?

Yes		No	
-----	--	----	--

25. Is there an aviation security officer on duty at access control gates?

Yes		No	
-----	--	----	--

26. Does the airport have proper fencing around the entire premises?

Yes		No	
-----	--	----	--

27. Are weapon searches conducted at your airport?

Yes		No	
-----	--	----	--

28. If yes, how often are the searches conducted?

Daily		Weekly		Monthly		Yearly	Every second year or more	
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29. Do visitors have to sign in before entering the airport gates?

Yes		No		Unsure	
-----	--	----	--	--------	--

30. Do visitors get provided with access cards?

Yes		No		Unsure	
-----	--	----	--	--------	--

31. Do you have any contracted security guards/ personnel working at your airport?

Yes		No	
-----	--	----	--

32. If yes, how many security guards/personnel does the airport has on a contracted basis?

One		Two		Three		Four		Five or more
-----	--	-----	--	-------	--	------	--	--------------

33. Is a CCTV surveillance system covering the entire airport?

Yes		No	
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34. If yes, how many cameras are installed at this airport?

Number of Cameras?	
Unsure	

35. Is camera recording done 24/7 at a central control room?

Yes		No	
-----	--	----	--

36. If yes, for how long are recorded images (data) kept / stored?

Number of days?	
-----------------	--

37. Does your airport keep record of violent and/ or criminal incidents that occur on your airport?

Yes		No		Unsure	
-----	--	----	--	--------	--

37.1 Please elaborate on the process:

38. Do you have any security awareness programme at your airport?

Yes		No		Unsure	
-----	--	----	--	--------	--

38.1 Please elaborate on your answer.

39. Do you have life skills training programme at your airport?

Yes		No		Unsure	
-----	--	----	--	--------	--

39.1 Have you attended such a programme?

Yes		No	
-----	--	----	--

40. Do you have anger management programme at your airport?

Yes		No		Unsure	
-----	--	----	--	--------	--

40.1 Have you attended such a programme?

Yes		No	
-----	--	----	--

SECTION D (Airport Crime)

41. Have you ever stayed away from airport because of fear of crime at the airport?

Yes		No	
-----	--	----	--

45. If yes, how frequently (in total) last year?

Only once		2-4 days		1 week		1 month		2 months or more	
-----------	--	----------	--	--------	--	---------	--	------------------	--

46. How does airport crime get managed in your airport?

By the airport		By the police		By private security companies		Other:(Specify)	
----------------	--	---------------	--	-------------------------------	--	-----------------	--

47. Have you ever witnessed airport crime taking place in your airport?

Yes		No	
-----	--	----	--

48. If yes, please indicate below which types of crime occur at this airport?

	1	2	3	4	5
Burglary					
ATM Crimes (e.g bombing)					
Theft					
Robbery					
Armed robbery					
Vehicle theft					
Hijacking of passengers					
Assault					
Cash heists					
Murder					
Rape					
And other					

49. Please, indicate below frequency of occurrence for each crime.

	3 Months	9 Months	12 Months or more years
Burglary			
ATM Crimes			
Theft			
Robbery			
Armed robbery			
Vehicle theft			
Hijacking of passengers			
Assault			
Cash heists			
Murder			
Rape			
And other			

50. Did you report any of these witnessed / experienced crimes?

Yes		No	
-----	--	----	--

51. If yes, to whom did you report the crimes?

Manager		Supervisor		Colleague		Police		Security company	
---------	--	------------	--	-----------	--	--------	--	------------------	--

52. Was any action taken after the act of crime was committed?

Yes		No	
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53. If yes, please specify what was done.

.....
.....
.....

54. If something was done, by whom was it done (e.g Airport management?)

.....
.....
.....

55. Have you ever been a victim of crime at airport?

Yes		No	
-----	--	----	--

56. If yes, of what crime were you a victim of?

.....
.....

[For the next few questions, please be open and honest as possible. The information you provide will not, and cannot be used against you since the researcher guarantees anonymity of respondents]

57. Have you ever been approached by outside people requesting you to provide them with information about this airport? (e g Security plan)

Yes		No	
-----	--	----	--

58. If yes, state what was the specific information requested?

.....

.....

.....

59. Did you agree to supply the information requested?

Yes		No	
-----	--	----	--

60. Were you paid for this information?

Yes		No	
-----	--	----	--

61. Have you ever brought a firearm (gun) onto airport restricted area?

Yes		No	
-----	--	----	--

63. Are there gun safes at this airport for you to lockup your firearm for safekeeping?

Yes		No	
-----	--	----	--

64. If no, where do you store your firearm while you are at work?

.....
.....
.....

65. Have you ever damaged any airport property (vandalism)?

Yes		No	
-----	--	----	--

66. Have you ever been arrested by the police for an act of crime that you committed?

Yes		No	
-----	--	----	--

67. Have you ever been convicted of an act of crime that you committed?

Yes		No	
-----	--	----	--

68. If yes, please specify for what you were arrested, in court or convicted of.

.....

SECTION E (Recommendations)

69. In your opinion, what should be done to prevent or reduce crime/ violence at airport?

.....

70. What do you think can be done to improve the safety and security at your airport?

.....

71. What processes/ procedures do you think need to be changed at airport to make it safer and more secured?

.....

72. Do you think that airport employees are adhering to and implement basic security practices?

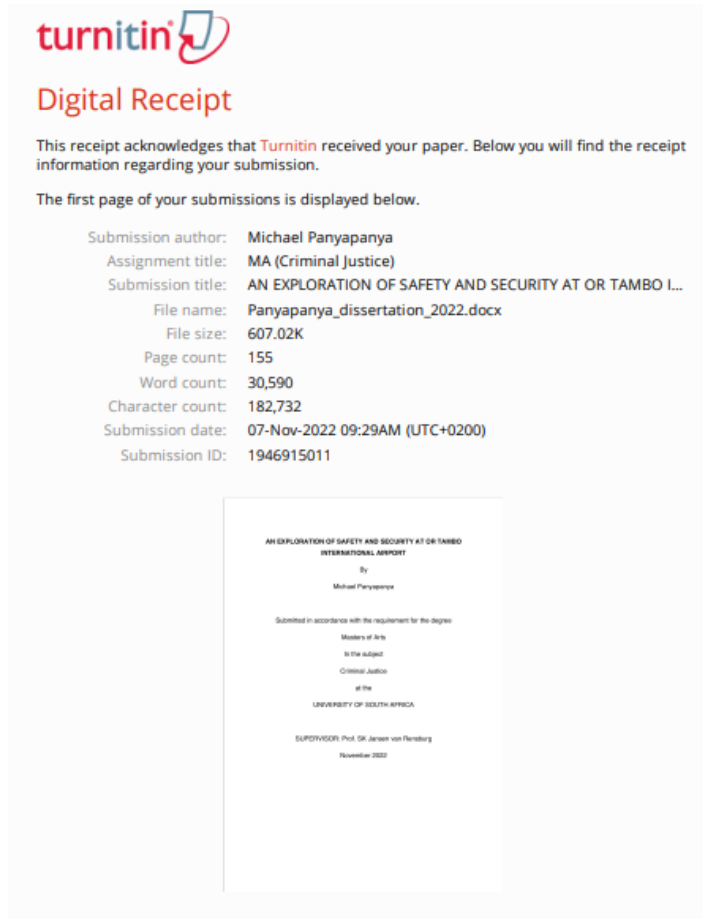
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73. Is there anything else you would like to mention?

Thank you for your participation!

ANNEXURE F: TURNITIN REPORT



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AN EXPLORATION OF SAFETY AND SECURITY AT OR TAMBO
INTERNATIONAL AIRPORT

By
Michael Panyapanya

Submitted in accordance with the requirement for the degree
Masters of Arts
in the subject
Criminal Justice
of the
UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: Prof. Dr. Jansen van Rensburg
November 2022

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Full member of The Professional Editors' Guild

To whom it may concern

This letter serves to inform you that I have done language editing, reference checking and formatting on the thesis

AN EXPLORATION OF SAFETY AND SECURITY AT OR TAMBO INTERNATIONAL AIRPORT

By

Michael Panyapanya



Barbara Shaw

05/11/2022