

Burnout and salutogenic functioning of nurses

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Abstract

The aim of this research was to determine the nature of the relationship between burnout and salutogenic functioning, specifically sense of coherence, hardiness and learned resourcefulness. The measurement was done with the Maslach Burnout Inventory and the Antonovsky, Kobasa and Rosenbaum questionnaires, administered on a sample of 105 registered general nurses. Correlations, exploratory and confirmatory factor analysis are reported. The results indicate a significant negative correlation and a model of good fit, confirming a structural relationship between burnout and salutogenic functioning in its conceptualisation and its measurement. The nature of these relationships are discussed and recommendations are formulated towards more effective individual, group and organisational coping with and preventing of burnout.

Opsomming

Die doel van hierdie navorsing was om die aard van die verband tussen uitbranding en salutogeniese funksionering te bepaal, meer spesifiek die konstrakte sin vir koherensie, gehardheid en aangeleerde vindingrykheid. Die meting is gedoen met die Maslach uitbrandingskaal, en die Antonovsky, Kobasa en Rosenbaum vraelyste, geadmistrateer op 'n steekproef van 105 geregistreerde algemene verpleegkundiges. Korrelasies, ondersoekende en bevestigende faktoranalise word gerapporteer. Die resultate dui op 'n beduidende negatiewe korrelasie en 'n goeie passingsmodel, wat 'n strukturele verband bevestig tussen uitbranding en salutogeniese funksionering in die konseptualisering sowel as die meting daarvan. Die aard van hierdie verbande word bespreek en aanbevelings word geformuleer ten opsigte van meer effektiewe individuele, groeps en organisasie-hantering en voorkoming van uitbranding.

Introduction

Since burnout has been popularised as a behavioural phenomenon by Freudenberg (1974; 1975; 1982; 1983; 1985), Maslach (1976; 1978) and Pines (1993; Pines & Aronson, 1981; 1988), extensive research has been done on the construct amongst different careers (Cordes & Dougherty, 1993; Dubrin, 1990). More specifically burnout is studied in the so-called "people work" careers because of the prevalence of intense feelings of tension, anxiety, embarrassment, fear and hostility (Cherniss, 1995; Maslach, 1982). Although this includes social workers, police officers and managers (Maslach & Schaufeli, 1993), most burnout research is done on nurses with the focus on the potentially serious consequences for themselves, colleagues, patients and the larger institutions in which they operate (Maslach & Schaufeli, 1993). Golembiewski, Boudreau, Munzenrider and Luo (1996) found that internationally at least 20% of nurses are categorised with severe burnout. The general causes, symptoms and effects of burnout amongst nurses are researched extensively (Kempe, 1978; Maslach & Jackson, 1982b; Mitchell & Bray, 1990; Muldary, 1983; Pines & Aronson, 1988). Research found burnout to correlate with illness and injury (Antoni, 1985; Belcastro & Hayes, 1983; Weiman, 1977), stress (Handy, 1990; Hinshaw, Smeltzer & Atwood, 1987), psychosomatic illness (Pettegrew, Costello, Wolf, Lennox & Thomas, 1980), occupational stress (McGrath, Reid & Boore, 1989), job, interpersonal and organisational climate stress (Bedian, Armenakis & Curran, 1981), role ambiguity, role conflict and job dissatisfaction (Norbeck, 1985). Poor coping strategies has also been linked with burnout internationally (Ceslowitz, 1989) as well as in South African studies (Badenhorst, 1997; Govender, 1995; Mazinbuko, 1989; Nixon, 1996; Van Der Merwe, 1994).

Vines (1991) recommended that research in nursing should not only focus on coping and coping methods to control burnout. Additionally, it should search for mediating variables such as self-esteem, motivation and personality. Since the 1980's the focus in the social sciences has in fact moved away from studying stress and general coping behaviour (Badenhorst, 1997; Ngwezi, 1998) from an abnormal behavioural paradigm, towards studying specific personality coping constructs from the positive psychology (Frederickson, 2001; Seligman & Csikszentmihalyi, 2000; Sheldon & King, 2001) and salutogenesis paradigms (Antonovsky, 1979; Breed, 1997), including psycho-fortology as a field of study (Coetzee & Cilliers, 2001). Recently burnout is studied in terms of various so-called salutogenic coping constructs such as sense of coherence, internationally (Palsson, Hallberg, Norberg & Bjorvell, 1996) as well as locally (Levert, Lucas & Ortlepp, 2000). The most popular construct used in studying burnout in nursing, is hardiness (see Boyle, Grap, Younger & Thornby, 1991; Collins, 1996; De Pew, Gordon, Yoder & Goodwin, 1999; Marsh, Beard & Adams, 1999; Simoni & Paterson, 1997; Sims, 2000; Topf, 1989). A limiting factor in all of the above studies is that only one salutogenic construct is used to explain coping with burnout. According to Antonovsky (1979) and Strümpfer (1990; 1995) there are many such behavioural constructs acting as mediating variables explaining coping behaviour (such as self-efficacy, locus of control, resilience and happiness). Only one research project (De Wet, 1999 - a qualitative study, N=23) could be traced using a combination of salutogenic constructs, namely sense of coherence, hardiness and learned resourcefulness. This choice was based on the suggestion by Rich (1991) and Sullivan (1989) that these three constructs may be

the most relevant in the nursing field.

From the above it seems that individual salutogenic constructs are relevant in understanding coping with burnout amongst nurses. What is not clear is how a combination of these constructs relate statistically to burnout and what the underlying factor structure of these measures are.

Burnout

Burnout (BO) is described as a persistent, negative, work-related state of mind (or syndrome) developing gradually over time in originally highly motivated, striving, achieving and non-compromising individuals with good intentions and high expectations (which are sometimes out of touch with reality), who stretch themselves beyond the normal work boundaries for a long period of time in their quest for meaning. The individual then develops an array of physical, psychological and attitudinal symptoms, primarily emotional exhaustion, accompanied by distress, depersonalisation, a sense of reduced effectiveness, decreased motivation and the development of dysfunctional personal and societal attitudes and behaviours at work (Cherniss, 1995; Golembiewski & Munzenrider, 1998; Jackson, 1982; Maslach, 1976; 1982; 1993; Maslach & Jackson, 1982b; 1984; Pines & Aronson, 1981; 1988; Schaufeli & Enzmann, 1998). BO is not the same as depression (Maslach & Schaufeli, 1993) or stress (Pines, 1993; Schaufeli & Enzmann, 1998).

The symptoms of BO can be categorised as follows (Cherniss, 1980; 1995; Golembiewski & Munzenrider, 1998; Jackson, 1982; Maslach, 1976; 1982; Maslach & Jackson, 1982b; 1984; Pines & Aronson, 1981; 1988; Schaufeli & Enzmann, 1998).

- Physical. (1) Indefinite distress complaints such as headaches, nausea, dizziness, restlessness, muscle pain, hyperventilation, sexual problems, sleep disturbances, sudden loss or gain of weight and chronic fatigue. (2) Physiological reactions such as increased heart and respiration rate, hypertension and high levels of serum cholesterol. (3) Psychosomatic disorders such as ulcers, gastric-intestinal disorders, coronary heart disease, prolonged colds and flu, and susceptibility to viral infections.
- Cognitive. Poor concentration, forgetfulness, making of mistakes in complex and multiple tasks, rigid thinking, the intellectualisation of problems and poor decision making.
- Affective. Helplessness, hopelessness, powerlessness, a tearful and depressed mood, low spirits, exhausted emotional resources because too much energy has been used for too long, decreased emotional control leading to undefined fears, emotional detachment, anxiety and nervous tension, irritability, oversensitivity, coldness, bursts of anger, daydreaming, fantasising, low frustration tolerance leading to aggressiveness and a negative self-concept.

Table 1 Descriptive statistics

VARIABLE	N	MEAN	STANDARD DEVIATION
BO Emotional exhaustion	105	18,63	8,25
BO Depersonalisation	105	9,21	4,47
BO Personal accomplishment	105	32,81	5,02
SOC Total	105	141,28	16,44
SOC Comprehension	105	49,26	7,54
SOC Meaningfulness	105	50,96	8,18
SOC Manageability	105	46,17	5,08
HAR Total	105	136,37	15,95
HAR Commitment	105	40,26	5,61
HAR Control	105	39,10	5,82
HAR Challenge	105	35,26	5,34
LR Learned resourcefulness	105	120,47	13,80

- Motivational. Lessened intrinsic motivation, initiative, enthusiasm, interest and idealism, increased disillusionment, disappointment and resignation.
- Behavioural. Hyperactivity without knowing what to do about it, forgetfulness, impulsiveness without carefully considering alternatives, procrastination, doubt, decisiveness, excessive consumption of stimulants such as coffee, tobacco, alcohol, tranquillisers, barbiturates, drugs, under and over eating and an accident proneness.

emotional exhaustion; males higher on depersonalisation possibly because of gender role stereotypes), marital status (higher amongst unmarried men), less education, less work experience and work load (due to reality shock, an identity crises due to unsuccessful occupational socialisation or a selection or survival bias).

3. BO correlates with personality constructs such as type-A behaviour, neuroticism, high and unrealistic expectations and external control, and work related constructs such as overload, role conflict, role ambiguity, poor collegial support, lack of feedback in decision making and autonomy.

Table 2 Correlations between burnout and salutogenic functioning

VARIABLE	BO Emotional exhaustion	BO Depersonalisation	BO Personal accomplishment
SOC Total	-0,21**	-0,25**	0,35***
SOC Comprehension	-0,25**	-0,23**	0,27**
SOC Meaningfulness	-0,32**	-0,33***	0,19*
SOC Manageability	-0,18*	-0,24**	0,31***
HAR Total	-0,25**	-0,23**	0,33***
HAR Commitment	-0,18*	-0,20*	0,24*
HAR Control	-0,22**	-0,24**	0,27**
HAR Challenge	-0,20*	-0,19*	0,29***
LR Learned resourcefulness	-0,26**	-0,23**	0,25**

*p < .05, ** p < .01, *** p < .001

- Interpersonal. Decreased empathy and involvement with and interest in others, isolation, withdrawal, negativism, irritability, hostility, suspicion, indifference, discouragement, stereotyping, hostility and a weakened level of impulse control.
- Work related. Reduced effectiveness, performance, productivity, satisfaction, resistance in going to and doing work, a sense of failure and meaninglessness.

Research on the behavioural dynamics of BO indicated the following (Cherniss, 1980; 1995; Kempe, 1978; Künzel & Schulte, 1986; Lysaught, 1970; Maslach & Jackson, 1982a; 1982b; 1986; Mitchell & Bray, 1990; Muldary, 1983; Pines & Aronson, 1988; Schaufeli & Enzmann, 1998):

1. BO is the highest amongst physicians and nurses (compared to five other general occupations), with equal levels of emotional exhaustion, physicians with more depersonalisation and nurses lower on personal accomplishment.
2. BO correlates with young age, gender (females higher on

4. BO has consequences for the individual nurse, the patient as well as for the larger institution. It leads to deterioration in the quality of service rendered, personal dysfunction and leads to personnel issues such as staff turnover, absenteeism and low morale. Dubrin (1990) even suggested that the burnt-out manager spreads it to subordinates.

5. In American hospitals, up to 70 percent of staff nurses resign from their jobs during a typical year because of BO symptoms.

6. BO can be countered by a confronting coping style, high self-esteem and extroversion.

7. Coping with BO lies in the individual's predisposition (Semmer, 1996) described as having positive beliefs about the world, realising that he/she has possibilities in dealing with it, to perceive events and circumstances as stressful and to have ways of coping with them and to deal with failure in coping.

BO is discussed in the literature as impacting on the individual, interpersonal and organisational levels.

1. The individual has the responsibility to recognise the signs and symptoms of BO (Muldary, 1983; Pines, 1993). Individual coping is described as an intrapersonal and action-oriented effort to manage the environmental and internal demands and conflicts, through awareness, understanding and taking responsibility for action (Lazarus, 1974; Lazarus & Launier, 1978; Pines & Aronson, 1981).

2. Interpersonal coping strategies refer to having and using social support systems defined as networks of occupational relationships, which could comprise one or more of the following: emotional support (admiration, respect, liking), affirmation or appraisal (acknowledgment of the appropriate behaviour of another), and aid (direct giving of materials, information or service) (Morano, 1993; Pines & Aronson, 1988).

3. Organisational coping strategies refer to different organisational development (OD) inputs to promote organisational health and optimal performance (Cox, 1985; Muldary, 1983; Pines & Aronson, 1988; Schaufeli, Enzmann & Girault, 1993).

Salutogenic functioning

The salutogenic paradigm (Antonovsky, 1979) focusses on the origins of health and well-ness (Latin *salus* = health / Greek *genesis* = origins), the location and development of personal and social resources and adaptive tendencies which relate to the individual's disposition, allowing him/her to select appropriate strategies to deal with confronting stressors. For the purpose of this research, the salutogenic constructs sense of coherence, hardiness and learned resourcefulness were chosen.

1. Sense of coherence (SOC). Antonovsky (1984; 1987) defines SOC as a global orientation that expresses the extent to which the individual has a pervasive, enduring, though dynamic feeling of coherence, that the stimuli deriving from his/her internal and external environments in the course of living are structured, predictable, and explicable, that the resources are avail-

Table 3: The 2-factor exploratory factor analysis model

DIMENSIONS	F 1	F 2
BO Emotional exhaustion	0,199	0,650
BO Depersonalisation	0,324	0,643
BO Personal accomplishment	0,387	0,606
SOC Total	0,827	0,296
SOC Comprehension	0,804	03,43
SOC Meaningfulness	0,843	03,05
SOC Manageability	0,866	0,241
HAR Total	0,620	0,405
HAR Commitment	0,631	0,449
HAR Control	0,532	0,465
HAR Challenge	0,620	0,269
LR Learned resourcefulness	0,753	0,414

BOLD indicates significance

The literature suggests that coping with BO is the responsibility of the individual nurse. Although institutional inputs could be helpful, his/her own inner strength forms the basis to overcome the symptoms effectively. This strength is next conceptualised from the salutogenic paradigm.

able to meet the demands posed by these stimuli, and that these demands are challenges worthy of investment and engagement. The SOC predicts the extent to which the individual feels that there is a probability that things will work out well (Antonovsky, 1979). It consists of three core personality char-

acteristics, namely (1) comprehensibility (making sense of the stimuli in the environment), (2) meaningfulness (an emotional identification with events in the environment) and (3) manageability (coping with the stimuli in view of the available resources). The strength of the SOC is connected to a variety of coping mechanisms, called generalised resistance resources (GRR's) (Antonovsky, 1979), defined as any characteristic of the person, the group, or the environment that can facilitate effective tension management. According to Antonovsky (1987), work has a significant role to play in the shaping of the SOC. A work environment which is predictable, manageable, where the employee can participate in decision making and has a voice in regulating his/her work, enhances the SOC because work is experienced as meaningful.

2. Hardiness (HAR). Kobasa (1982) defines HAR as a constellation of interlocking personality characteristics that function as a resistance resource in the encounter with stress. It consists of three personality dispositions namely (1) commitment (the ability to believe in the truth, importance, and interest value of who one is and what one is doing) versus alienation, (2) control (a proclivity to make the individual feel and act as if he/she is influential in the face of the varied contingencies of

self-control skills by which the individual self-regulates internal responses that interfere with the smooth execution of an ongoing behaviour. It consists of specific behavioural skills namely the ability to choose and implement effective problem solving skills, the ability to use cognitive skills such as self talk to control internal processes, the ability to delay the gratification of needs and the tendency to evaluate the self as efficient and effective in situations (Rosenbaum, 1988).

The salutogenic personality profile incorporates the following behaviour (Viviers & Cilliers, 1999): On the cognitive level, the individual is able to view stimuli from the environment in a positive and constructive manner, and to use the information towards effective decision making. On the affective level, the individual functions with self-awareness, is confident, self-fulfilled, views stimuli as meaningful and feels committed towards life in a mature manner. On the motivational level, the individual is driven from within, perceives stimuli as a challenge which directs his/her energy to cope, solve problems and achieve results. The interpersonal characteristics entail the capacity to form meaningful relationships with others within a support system at work and in society.

Table 4 Parameter estimates and structural relationships for the two-factor model

FACTORS	PAR EST	STAND ERROR	T STAT	PROB LEVEL
BO 1 Emotional exhaustion	0,568	0,039	14,666	0,000
BO 2 Depersonalisation	0,781	0,038	20,407	0,000
BO 3 Personal accomplishment	0,712	0,037	19,355	0,000
SOC Total	0,786	0,037	21,526	0,000
SOC 1 Comprehension	0,442	0,041	10,862	0,000
SOC 2 Meaningfulness	0,523	0,036	14,618	0,000
SOC 3 Manageability	0,559	0,044	12,725	0,000
HAR Total	0,728	0,021	17,878	0,000
HAR 1 Commitment	0,312	0,020	15,551	0,000
HAR 2 Control	0,247	0,017	14,911	0,000
HAR 3 Challenge	0,190	0,021	90,490	0,000
LR Learned resourcefulness	0,264	0,032	83,010	0,000

life, rather than being helpless) versus powerlessness and (3) challenge (the belief that change, rather than stability, is the normative mode of life and the anticipation of changes as interesting incentives to growth rather than threats to security) versus threat to security. The hardy personality uses an optimistic and cognitive appraisal of events which will determine the subsequent actions directed towards those events (Manning, Williams & Wolfe, 1988).

3. Learned resourcefulness (LR). Rosenbaum (1983; Rosenbaum & Ben-Ari, 1985) defines LR as an acquired personality repertoire existing of a set of behaviours and mostly cognitive

Salutogenic constructs in nursing research

SOC was found to be a major contributing factor in coping with anxiety (Hart, Hittner & Paras, 1991), work-related stress and BO (Stechmiller & Yarandi, 1992), prolonged caring for chronically ill older persons (Coe, Romeis, Tang & Wolinsky, 1990), general coping in hospitals (Flannery & Flannery, 1990; Jones, 1991; Kalimo & Vuori, 1991; Ryland & Greenfeld, 1991) and coping with BO, work load and role conflict amongst South African psychiatric nurses (Levert, Lucas & Ortlepp, 2000).

HAR (Kobasa, 1982; Lambert & Lambert, 1987) is seen as an inherent health promoting factor with a direct relevance to nursing practice where HAR can be taught to help nurses increase their tolerance to stress, to screen nurses who might be exposed to high stress in the work environment, and to aid in preventing stress-related illnesses. This finding has been confirmed for ICU nurses (Consolvo, Brownwell & Distefano, 1989; Manning, Williams & Wolfe, 1988; Rummel, 1991; Taylor & Cooper, 1989). According to Rosenberg (1990) HAR predicts 34% of the variance in nurses' lifestyle. Commitment as a

Method

The sample

An sample of convenience (Anastasi, 1990) was used, consisting of 105 registered general nurses from various large hospitals in Gauteng Province. Each had a three year nursing diploma and at least 5 years nursing experience. Only females were included with ages ranging between 28 and 57 years. There were 73 white and 32 black nurses. All were involved in general nursing and worked full-time.

Table 5 Steiger-Lind RMSEA index of fit for each of the questionnaires

QUESTIONNAIRE	RMSEA	GOODNESS OF FIT
Burnout	0,08	Good fit
Sense of coherence	0,05	Very good fit
Hardiness	0,06	Very good fit
Learned resourcefulness	0,07	Good fit

dimension and years employed have the largest beta weights and are the most predictive of a healthy lifestyle (Boyle et al, 1991; Dermatis, 1989; Gillmore, 1990).

Although no research results on LR in coping with BO in nursing could be traced, this construct was confirmed in general as a moderator of BO (Clanton, Rude & Taylor, 1992; Gintner, West & Zarski, 1989; Naisberg-Fennig, Fennig, Keinan & Elizur, 1991; Rosenbaum, 1989; Rosenbaum & Ben-Ari, 1985).

Theoretical statement and research question

The central theoretical statement of this research can be formulated as follows: The individual nurse who functions on high levels of BO (with its mentioned symptoms) will function on low levels of salutogenic functioning (SOC, HAR and LR) and vice versa. The research question being investigated is whether a meaningful negative relationship between BO and salutogenic functioning as measured by these three constructs, exist. This knowledge could help in formulating future individual, group and organisational coping strategies for nurses.

Aim and research design

The aim of this research was to determine whether a meaningful relationship exist between BO and salutogenic functioning, and to ascertain the nature thereof. A survey design with quantitative measurement of and statistical analyses on the four constructs (SOC, HAR and LR) was used.

Measurement instruments

The following four measuring instruments were chosen because of their (1) conceptual congruence to the above definitions of the constructs and (2) acceptable psychometric characteristics provided in the literature.

1. The Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981; 1982a; 1986), measures (BO) in three sub-scales namely emotional exhaustion (a reduction in emotional resources, feeling drained, used up and physically fatigued), depersonalisation (an increase in negative, cynical and insensitive attitudes towards colleagues, clients and/or patients) and personal accomplishment (a feeling of being unable to meet the other's needs and to satisfy essential elements of job performance). Maslach and Jackson (1986) as well as Schaufeli and Janczur (1994) offer factor-analytical support for the usage of the sub-scales separately. Maslach and Jackson (1981; 1986) as well as Lahoz and Mason (1989) report Cronbach alpha test-retest reliability coefficients from 0.54 to 0.60 and 0.60 to 0.82 after one year. Validity is confirmed by Maslach and Jackson (1984).

2. The Orientation to Life Questionnaire (Antonovsky, 1987), measures SOC in a total score as well as in three sub scores namely comprehension, meaningfulness and manageability (Antonovsky, 1993) as defined above. Radmacher and Sheridan (1989) report test-retest reliability coefficients of 0.91 after six weeks, 0.76 after twelve months and 0.41 after two years, Sage and Antonovsky (1990) report 0.54 after one year and 0.55 after two years, and Fiorentino (1986) reports 0.78 after one year. Internal consistency was reported by Antonovsky (1987) as being between 0.84 and 0.93 and Kalimo and Vuori (1990) reported 0.93. Antonovsky (1987) reported on the favourable

face and content validity, Dana, Hoffman, Armstrong and Wilson (1985) on concurrent validity and Payne (1982) on its construct validity.

3. The Personal Views Survey (Kobasa, 1979) measures HAR in a total score as well as in three sub scores namely commitment, control and challenge, as defined above. Parkes and Randall (1988) report a reliability coefficient of 0.78, Manning et al (1988) report a range between 0.75 and 0.90 and Funk (1992) a test-retest coefficient of 0.60 after two weeks. Internal consistency ranged from 0.68 to 0.89 in several studies reported by Maddi and Khoshaba (1994). Concurrent validity is reported by Bartone (1989), Campbell, Amerikaner, Swank and Vincent (1989) and Parkes and Randall (1988). Maddi and Khoshaba (1994) report that factor analysis confirmed the three constructs of HAR as clearly identifiable factors.

4. The Self-control Schedule (Rosenbaum, 1980) measures LR in a single score as defined above. Rosenbaum (1980), Leon and Rosenthal (1984) report test-retest reliability of 0.86 after four weeks and 0.77 after eleven months. Redden, Tucker and Young (1983) report the internal consistency to be 0.82 and Rosenbaum (1988) between 0.78 and 0.91. Leon and Rosenthal (1984) and Rosenbaum and Ben Ari (1985) report on the favourable convergent and discriminant validity. Rosenbaum (1988) reports that factor analysis confirmed three factors namely problem-focussed coping, mood / pain control and externality.

Data gathering

The staff offices of the various hospitals were contacted and informed about the research and its objective, and asked to have access to interested staff members. After appointments were made, the sample attended the psychometric sessions in groups of up to 15, lasting about 90 minutes, with the four measuring instruments administered in sequence. In terms of ethical considerations, the following can be stated: all nurses participated voluntarily, their results were treated confidentially and individual feedback was promised and given to those individuals who were interested in receiving it. This was done by the author (a psychologist) who took special care to ensure that no-one was hurt or left the research situation with unfinished emotional business.

Data processing

The data was analysed by means of the Statistica (1999) Statsoft package and the following statistics (Nunnally & Bernstein, 1994) are reported:

- **Descriptive statistics.**

Reliability of the instruments - Cronbach alpha coefficients. Clark and Watson (1995) suggested that a Cronbach alpha of between 0.5 and 0.6 is satisfactory for research purposes.

Inter-correlations - Pearson-product moment correlation coefficients.

- **Exploiratory factor analysis.**

The research measured 12 observed variables through the four measuring instruments. As a basis for establishing (close up) a

model in this research, the data representing the variables were factor analysed. The orthogonal transformation matrix rotated factor pattern method was used to determine the factor structure of the variables. The retention of the factors is based on certain rule of thumb principles. For principal-components analysis, it can be argued that the Kaiser criterion of retaining factors, with eigenvalues greater than one, appears to be the most appropriate (Ford, MacCallum & Tait, 1986). Because not all statisticians agree (for example Floyd & Widaman, 1995), a commonly used rule for specifying factors was used, namely that only variables with loadings greater than 0.40 on a factor should be considered significant and used in defining a factor (Comrey, 1978).

- **Confirmatory factor analysis.**

Because exploratory factor analysis has limited value for the specification and testing of an hypothesis relating to model structure, confirmatory factor analysis was done, allowing the researcher to specify the hypotheses and providing information to determine whether the observed data confirm the hypothesised model structure. SEPATH in Statistica (1999) was used to specify and analyse such models and thereby validate the data. It measures the fit of the hypothetical model to the data (goodness-of-fit statistics), measures and tests specific elements of the model, such as structural parameters (Hughes, Price & Marrs, 1986; MacCallum, 1998).

The following two statistical hypotheses are tested:

H1 A meaningful relationship exist between BO (negative for emotional exhaustion and depersonalisation, and positive for personal accomplishment) and salutogenic functioning with its nine dimensions

H2 A good fit exists between the theoretical structure of the two constructs and the empirical data

Results

Descriptive statistics

The descriptive statistics are reported in Table 1.

Reliability of instruments

The Cronbach alphas and total dimensions of the four instruments were as follows, suggesting that the data were reliable in that respondents tended to answer in a consistent manner: BO: 0.75 / 3 dimensions; SOC: 0.85 / 3 dimensions and the total score; HAR: 0.85 / 3 dimensions and the total score; LR: 0.80 one dimension.

Inter-correlations

An overall significant negative correlation exists between BO and salutogenic functioning ($r = -0.35, p < 0.001$). The significant correlations between the various dimensions of BO and salutogenic functioning are shown in Table 2. Emotional exhaustion and depersonalisation both correlate negatively with all the salutogenic dimensions of SOC, HAR and LR. Personal accomplishment correlates positively to all the salutogenic dimensions.

Exploratory factor analysis

Table 3 shows the 2-factor exploratory factor analysis model (in bold). The model explains the relationship between the dimensions. It separates the BO construct from the salutogenic functioning construct. Thus, a 2-factor model is established namely Factor 1 - Salutogenic functioning and Factor 2 - Burnout.

Confirmatory factor analysis

Table 4 shows the parameter estimates and structural relationships for the 2-factor model. All of the parameter estimates are significant. The model shows a reasonable fit with a Steiger-Lind RMSEA index of 0.15. According to MacCallum (1998), a good fit = < 0.10.

Table 5 shows the Steiger-Lind RMSEA index of fit for each of the measuring instruments. The findings indicate that the instruments are valid for the purpose of which they are being used. Thus, the empirical data fit the theoretical model.

Discussion

The results are discussed in terms of the two hypothesis.

Hypothesis 1

This hypothesis could not be rejected because of the overall and dimensional negatively significant relationships between the constructs BO and salutogenic functioning. This supports previous research findings in terms of SOC (Basson & Rothmann, 2001 with pharmacists; Levert, Lucas & Ortlepp, 2000 with nurses), and HAR (Bonalumi & Fisher, 1999; Boyle et al, 1991; Constantini, Solano, Di-Napoli & Bosco, 1997; Kennedy, 1999; Marsh et al, 1999; Sims, 2000). Similar results are reported for HAR when BO was measured by the Pines Burnout Scale (Collins, 1996; Simoni & Paterson, 1997).

BO as a behavioural phenomenon can be seen as the opposite of or in contrast to salutogenic functioning in the following manner:

1. On the physical level, the BO symptoms of distress, illness, extreme physical and psychosomatic reactions, are contrasted by the salutogenic functioning individual's strong resistance resources, including a healthy immune system to fight off illness.

2. On the cognitive level, the poor performance, concentration, decision making and the making of mistakes, are contrasted by the salutogenic functioning individual's strength in understanding of and making sense out of the demands of his/her environment in a positive, realistic, constructive and truthful way. This leads to effective decision making, problem solving and achievement of results.

3. On the affective level, the emotional exhaustion and lack of energy is contrasted by an emotional identification with meaningful stimuli and life events. The negative self-concept and feelings of helpless- / hopeless- / powerlessness, depersonalisation and the lack of individual distinctiveness, are contrasted by a mature and realistic sense of self, characterised by self and emotional awareness, fulfilment and confidence, feeling in charge, influential and optimistic with a strong belief in own

worth.

4. On the motivational level, the external locus of control is contrasted by an internal locus. The lack of initiative, enthusiasm and interest is contrasted by a commitment towards demands and challenges which are experienced as manageable. The low frustration tolerance and impulse control are contrasted by the capacity to delay own need gratification - the individual experiences his/her own sphere of influence vividly and feels in control of inner responses, experiences and choices.

5. On the behavioural level, the impulsiveness, procrastination, doubt and lack of focus is contrasted by stress resistance resources. The individual experiences life as coherent ("together"), predictable, explicable and see change as a challenge and a growth enriching opportunity. The dependency on stimulants from outside is contrasted by internal balance and tension management.

6. On the interpersonal level, the disinterest, isolation, withdrawal, indifference, hostility and suspicion are contrasted by establishing, working hard on and being committed to meaningful relationships with significant others, within a support system.

7. In terms of work, the resistance to get involved, the reduced performance, effectiveness, productivity and job satisfaction, is contrasted by an experience of strength, trying to make the job and its tasks predictable and manageable, the individual is willing to participate fully and has a sense of accomplishment.

Hypothesis 2

This hypothesis could not be rejected because of the established model linking the constructs through confirmatory factor analysis. This means that the operationalisation of the constructs in the four used instruments, corresponds with the conceptualisation of the constructs in the literature of BO and salutogenic functioning. This result confirms that these instruments can be used effectively in nursing research to measure BO, SOC, HAR and LR as well as to address the effects of BO from a salutogenic perspective.

Conclusion and recommendations

Firstly, this study confirmed that the measurement of the constructs fits the theoretical models of BO and salutogenic functioning.

Secondly, this study confirmed that BO represents the opposite of salutogenic functioning. The individual nurse who functions on high levels of BO (with its mentioned symptoms) will function on low levels of salutogenic functioning (SOC, HAR and LR) and the individual nurse functioning on high levels of the salutogenic constructs, will be able to counter the effects of BO.

It is recommended that BO symptoms are addressed on three levels of the individual, the group and the organization:

- Muldary (1983) and Pines (1993) suggest that the individual takes responsibility to recognise the signs and symptoms of BO through awareness, understanding and action. According to Rosenbaum (1988) this refers to the implementa-

tion of effective problem solving skills, using cognitive skills, such as self talk, to control internal processes, to delay the gratification of needs and to evaluate the self as efficient and effective. This may be difficult for the individual who's general resistance resources are already lessened by prolonged BO and it may even be impossible for the individual who denies these symptoms. It is hypothesised here that the individual will only succeed with support from others giving feedback and support, providing opportunities to become aware of own issues.

- The above activities must rather be implemented by the individual in interaction with significant others, acting as a social support system. "Self talk with others" (Hawkins & Welsh, 1999) or a facilitated growth group experience (Cilliers & Terblanche, 2000) is suggested consisting of emotional support, affirmation and behavioural feedback. This climate of unconditional acceptance seems to be the best way to combat BO.

- Hospital administration officers in co-operation with Industrial Psychologists should regularly identify BO amongst its staff - quantitatively by means of questionnaires and qualitatively by means of focus groups, being observant and showing interest. This data should be used to plan and present organisational development inputs designed specifically for countering BO from a salutogenic perspective.

Lastly, it is recommended that future research on BO from a salutogenic perspective, includes more constructs in combination, as described in the positive psychology paradigm (see Snyder & Lopez, 2002). Examples of these are resilience, emotional intelligence and happiness.

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