THE PSYCHOMETRIC PROPERTIES OF THE COPE IN SELECTED OCCUPATIONS IN SOUTH AFRICA

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COMMENTS

The reader should keep in mind:

- The editorial style as well as the references referred to in this mini-dissertation follows the format prescribed by the Publication Manual (4th edition) of the American Psychological Association (APA). This practice is in line with the policy of the Programme in Industrial Psychology of the North-West University, Potchefstroom, to use the APA style in all scientific documents.

- The mini-dissertation is submitted in the form of a research article.

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SUMMARY

Title: The psychometric properties of the COPE in selected occupations in South Africa.

Key terms: Coping, coping strategies, equivalence, validity, reliability.

Coping strategies represent the efforts, both behavioural and cognitive, that people invest in order to deal with stressful encounters. Coping is a basic component for developing adaptation and plays a major role in the relationship between the individual and the environment, especially as a moderating element between stress and sickness. Against this backdrop of the impact that the well-being of employees has on organisations, it is of the essence that organisations need to understand how their members cope with the demands which the organisation places on them. This understanding can assist organisations to evaluate the resources they make available to help employees to cope more positively with the demands placed upon them.

The general objective of this study was to investigate the psychometric properties of the Coping Orientations to the Problems Experienced Questionnaire (COPE) within different occupational groups in South Africa, to examine the construct equivalence and to assess reliability. A survey design was used. Random samples (N = 3178) were taken from electricity supply personnel, nurses and police officials, and the COPE was administered. Descriptive statistics, exploratory factor analysis and multivariate analysis of variance (MANOVA) were used to analyse the data.

Exploratory factor analysis, using principal axis factoring with varimax rotation, was conducted on 53 items of the COPE and revealed four interpretable factors (Factor 1 = Approach Coping; Factor 2 = Avoidance; Factor 3 = Seeking Support; and Factor 4 = Turn to Religion). Highly acceptable Tucker's phi coefficients were found for all the comparisons, and therefore, sufficient evidence for the construct equivalence of the COPE was demonstrated. Alpha coefficients, ranging from 0,85 to 0,92, were obtained. Statistically significant differences were found between the coping strategies employed within the different organisational, gender and language groups.

Recommendations for future research were made.

OPSOMMING

Titel: Die psigometriese eienskappe van die COPE in geselekteerde beroepe in Suid-Afrika.

Sleutelterme: Coping, coping-strategieë, ekwivalensie, geldigheid, betroubaarheid.

Coping-strategieë verteenwoordig die inspanning, beide in terme van gedrag en kognisie, wat mense demonstreer ten einde spanningsvolle situasies te hanteer (Lazarus & Folkman, 1984). Coping met spanning (Levine & Ursin, 1991) is 'n basiese komponent vir die ontwikkeling van aanpassing en speel 'n belangrike rol in die verhouding tussen die individu en die omgewing, veral as 'n matigingselement tussen spanning en siekte. In die lig van die uitwerking wat die welsyn van werknemers het op organisasies, is dit baie belangrik dat organisasies verstaan hoe hulle lede die vereistes wat die organisasies op hulle plaas hanteer. 'n Begrip hiervan kan organisasies help om die bronne wat hulle beskikbaar stel aan werknemers te evalueer, en om hulle sodoende te help om die vereistes meer positief te hanteer.

Die algemene doelwit van die huidige studie is om die psigometriese eienskappe van die 'Coping Orientations to the Problems Experienced Questionnaire' – COPE – tussen verskillende beroepsgroepe in Suid-Afrika te ondersoek, om die konstrukekwivalensie te ondersoek, en om betroubaarheid te bepaal. 'n Dwarssneeopname-ontwerp is gebruik. 'n Ewekansige steekproef (N = 3178) is geneem van elektrisiteitsvoorsieningspersoneel, verpleegpersoneel en polisiebeamptes. Die COPE is as meetinstrument gebruik. Beskrywende statistiek, verkennende faktoranalise en meerveranderlike variansie-analise (MANOVA) is gebruik om die data te analiseer.

'n Hoofkomponente faktoranalise met 'n varimax rotasie is toegepas op 53 items van die COPE, en het vier interpreteerbare items opgelewer (Faktor 1 = Benaderingshantering; Faktor 2 = Vermyding; Faktor 3 = Soek na Ondersteuning; en Faktor 4 = Keer na Religie). Hoogs aanvaarbare Tucker's phi waardes is gevind vir al die vergelykings, en dit het onderliggende strukturele ekwivalensie van die COPE gedemonstreer. Alfakoëffisiënte, wat gevarieer het tussen 0,85 en 0,92, is behaal en het op aanvaarbare interne betroubaarheid gedui. Statisties beduidende verskille is gevind tussen die coping-strategieë wat gebruik word deur die verskillende organisasies, geslags- en taalgroepe.

Aanbevelings vir toekomstige navorsing is aan die hand gedoen.

CHAPTER 1

INTRODUCTION

This mini-dissertation is about the internal consistency, construct validity, and structural equivalence of the COPE.

This chapter contains the problem statement. Moreover, the research objectives, research method, and the division of chapters are discussed.

1.1 PROBLEM STATEMENT

The health and well-being of an organisation are dependent upon the health and well-being of its members. Work and health psychology has traditionally occupied itself predominantly with the malfunctioning of work-related health and well-being, usually under the umbrella of stress. Work stress and its associated problems cost organisations an estimated $200 billion or more each year, in terms of decreased productivity, absenteeism, turnover, worker conflict, higher health care costs, and more worker's compensation claims of all kinds (DeFrank & Ivancevich, 1998; Farenn, 1999).

Most people complain that their work is their biggest source of stress and very few feel that their jobs give them pleasure or satisfaction (Quick, 1997). Probably the most important outcome variables associated with the study of work stress are health and well-being (Quick, 1997; Edwards, 1992). Despite the variety of approaches to conceptualising stress, the literature is generally in agreement that certain stressors can elicit responses in individuals that can, over time, have a substantial adverse impact on their behaviour and health. These physical or psychological stimuli to which the individual responds are commonly referred to as either stressors or demands.

According to Quick, Quick, and Nelson (1997), the core elements of the occupational stress process are organisational demands and stressors which lead to the stress response. The stress response results in eustress or distressful consequences. Eustress consequences of stressful experiences or events are healthy, positive and constructive. On the other hand, distressful consequences are negative and destructive and influence the organisation's core. Edwards

and Cooper (1988) suggest that eustress may improve health either directly through hormonal and biochemical changes or indirectly by facilitating effort and abilities directed toward coping with existing distress. It is important to emphasise that stress per se is not necessarily harmful. Many researchers concluded that moderate levels of stress enhance performance, but that extreme levels of stress can be distressful because of the under- or over-stimulation it causes. Stress must be managed to maintain a proper balance that allows for the optimum functioning of individuals and organisations (Quick, Quick, & Nelson, 1997).

In their holistic model of work-related well-being, Nelson and Simmons (2004) included the demands a job places on an individual and the resources available. Combined with individual differences (optimism, lifestyle, sense of coherence and self-efficacy), the individual copes with these demands with distress (which leads to exhaustion and mental distance) or with positive eustress (vitality and work devotion). The way in which the individual copes with these demands either leads to improved physical and mental health, improved performance, fewer accidents, and behaviour that improves safety, or it leads to the downside of ill physical and mental health, a decrease in performance, behaviour that is more risky, and, consequently, more accidents. Schaufeli and Enzmann (1998) also suggest in their model that, if the individual copes with stress in a functional way, it leads to professional efficacy and a positive outcome. However, if the individual's coping mechanism is dysfunctional, it can lead to burnout and a negative outcome, which in turn creates an unfavourable work environment.

Against this backdrop of the impact that the well-being of employees has on organisations, it is of paramount importance that organisations need to understand how their members cope with the demands the organisation places on them. This understanding can assist organisations in evaluating the resources they make available to help employees to cope more positively with the demands placed upon them.

Coping strategies represent the efforts, both behavioural and cognitive, that people invest in order to deal with stressful encounters (Lazarus & Folkman, 1984). Coping is a basic component for developing adaptation and plays a major role in the relationship between the individual and the environment, especially as a moderating element between stress and sickness (Levine & Ursin, 1991). In fact, health, well-being and adaptation, both somatic and psychological, are considered as the outcome of an efficient management of stress, rather

than a consequence of its presence or absence (Antonovsky, 1987; Holroyd & Lazarus, 1983). Coping has been differentially conceived in several ways (Livneh, Antonak, & Gerhardt, 2000): 1) both as personality trait and situational-determined response; 2) as a dynamic process and a static construct; 3) as a strategy that is mature, adaptive and flexible, but also as a reaction that is neurotic, maladaptive and rigid; and 4) as a global, generally dichotomous concept, but also as an intricate, hierarchically structured, multilevel concept.

Coping has been defined as the process of executing a response to a threat (Lazarus, 1966). Folkman and Lazarus (1980, 1985) suggested two general types of coping. The first is problem-focused coping; the person finds a method for resolving stress at its source. The second is emotion-focused coping; the person feels that the source of the stress must somehow be tolerated, and he/she endeavours to manage or lessen the emotional discomfort associated with the situation. In addition, Carver, Scheier, and Weintraub, (1989) proposed a third style of coping, avoidant coping, which was integrated into a self-regulatory model of stress and coping (Carver & Scheier, 1996). Avoidant coping strategies are sometimes viewed as less adaptive methods of coping.

In literature on coping, an additional distinction is often made between active and avoidant coping strategies. Active coping strategies are either behavioural or psychological responses designed to change the nature of the stressor itself, or how one thinks about it, whereas avoidant coping strategies lead people into activities (such as alcohol use) or mental states (such as withdrawal) that keep them from directly addressing stressful events. Generally speaking, active coping strategies, whether behavioural or emotional, are regarded as better ways to deal with stressful events, and avoidant coping strategies appear to be a psychological risk factor or marker for adverse responses to stressful life events (Holahan & Moos, 1987).

The Coping Orientations to the Problems Experienced (COPE; Carver, Scheier, & Weintraub, 1989) describes 14 different coping modalities and makes several distinctions within the overall categories of problem-focused and emotional-focused coping (e.g., Active Coping, Planning, Restraint Coping, Seeking Social Support For Emotional Reasons, Focus On And Venting Emotions, Positive Reinterpretation, and Acceptance). In terms of the present study, it is important to establish the reliability and validity of the COPE. When measures are applied to different groups, issues of construct equivalence become important (Van de Vijver

& Leung, 1997). Construct equivalence indicates the extent to which the same construct is measured across all groups studied. When an instrument measures different constructs in different groups, no comparison can be made. The same construct is measured in the case of construct equivalence (also labelled structural equivalence). In a study conducted on the police service in South Africa (Pienaar & Rothman, 2003), the factors extracted showed structural equivalence for the four racial groups included in the study. The latter finding is of special importance, since no studies had previously been conducted regarding structural equivalence of the COPE for different racial groups in South Africa. Although generalisations would be premature, without the extraction of these factors in other occupations, these results indicate that the extracted coping factors are valid across racial groups within the SAPS. Pienaar and Rothman (2003) suggested a four-factor structure (i.e. Approach Coping, Social/Emotional Coping, Avoidance Coping and Turning to Religion).

During the past decade, a substantial amount of research has been concerned with organisational stress (Beehr, King, & King, 1990; Caplan, Cobb, French, Van Harrison, & Pinneau, 1975; Davidson & Cooper, 1987, 1992). The environment in which coping occurs may be regarded as a potential resource or constraint that influences coping. A great deal of research has focused on the dynamics of social support in relation to work stress (Delongis & O'Brien, 1985; Hobfoll, 1989), but sufficient information could not be gleaned as far as the coping strategies that individuals employ within organisations are concerned.

Another factor that one needs to take into consideration is that of gender. Demographic factors such as race and gender have been emphasised as influential in coping responses (Coyne & Downey, 1991; Kessler, Price, & Wortman, 1985), and in reported sources of work stress (Patterson, 2000), whereby coping is indirectly influenced. Furthermore, demographic factors have been shown to interact with age (Folkman, Lazarus, Pimley, & Novacek, 1987) and gender (Folkman & Lazarus, 1980) to affect coping responses among individuals.

Upon investigating the literature the researcher were confronted with the problem that there is no comprehensive study of a measurement instrument of coping in South Africa, and how it manifests in different occupational groups. The question to be answered is: Do different occupational groups within South Africa employ different coping strategies to deal with their work? It is obvious that we need to look at the validity, reliability and equivalence of the measuring instrument.

1.2 RESEARCH OBJECTIVES

The research objectives can be divided into a general objective and specific objectives.

1.2.1 General objectives

The general objective of the current study is to investigate the psychometric properties of the Coping Orientations to the Problems Experienced Questionnaire – COPE – within different occupational groups in South Africa.

1.2.2 Specific objectives

Based on the foregoing discussion, the specific objectives of this research are:

- to conceptualise coping from the literature;
- to assess the construct equivalence and validity of the COPE across and within different organisational groups;
- to investigate the reliability of the COPE;
- to analyse differences between the coping strategies of different demographic groups within different occupations; and

1.3 RESEARCH METHOD

1.3.1 Research design

In order to attain the research objectives, a cross-sectional survey design is used (Rosnow & Rosenthal, 1999). A cross-sectional design is used for research that collects data on relevant variables at one time, from a variety of people, subjects or phenomena. The data is collected simultaneously (or within a short time frame). This design is suited to the descriptive and predictive functions associated with correlational research (Graziano & Raulin, 2004).

1.3.2 Participants

Random samples ($N = 3178$) are taken from electricity supply personnel, nurses and the police. Table 1 presents some of the characteristics of the participants.

Table 1

Characteristics of the Participants (N = 3178)

Variable	Category	Percentage
Group	Electricity supply	6,80
	Nurses	25,70
	Police	67,50
Gender	Male	61,20
	Female	38,80
Language	Afrikaans	49,00
	English	15,50
	Other	35,50

Table 1 indicates that 67,5% of participants are from the police service and more than 60% were male. Almost half of the sample group consists of Afrikaans-speaking individuals.

1.3.3 Measuring instrument

One questionnaire is used in this research, namely the Coping Orientations to Problems Experienced Questionnaire (COPE) (Carver et al., 1989).

The Coping Orientations to the Problems Experienced Questionnaire (COPE) (Carver et al., 1989) was designed to measure both situational and dispositional coping strategies. In the present study, the dispositional version consisting of 53 items was used. Response choices range from 1 ('*I usually don't do this at all*') to 4 ('*I usually do this a lot*'). The COPE measures 14 coping strategies. According to Carver et al. (1989), the development of the COPE was more theoretical or rational than empirical. Theoretically, five scales of the inventory were established as the sub-dimensions of *problem-solving* (Active Coping, Planning, Suppression of Competing Activities, Restraint Coping and Seeking Social Support for Instrumental Reasons); another five scales as sub-dimensions *of emotional coping*

(Seeking Social Support for Emotional Reasons, Positive Reinterpretation and Growth, Acceptance, Denial and Turning to Religion); and three as less useful (Focus on and Venting Emotions, Behavioural Disengagement and Mental Disengagement) coping responses. Carver et al. (1989) submitted the COPE to a principal-factor analysis with oblique rotation, which yielded 14 scales: Active Coping, Planning, Suppression of Competing Activities, Seeking Social Support for Instrumental Reasons, Seeking Social Support for Emotional Reasons, Focus on and Venting Emotions, Denial, Mental Disengagement, Behavioural Disengagement Acceptance, Restraint Coping, Positive Reinterpretation and Growth, Turning to Religion and a single item scale, Alcohol/Drug Use. Evidence for the reliability of the COPE scales comes mainly from the Cronbach alphas, which range from 0,39 (for Mental Disengagement) (Fontaine, Manstead, & Wagner, 1993) to 0,96 (for Alcohol/Drug Use) (Clark, & Watson, 1995). Initial test-retest reliability findings showed that coping tendencies measured by COPE are relatively stable (Carver et al., 1989). In previous South African research, Storm and Rothmann (2003) found acceptable alpha values, with inter-item correlation coefficients varying between 0,25 (Acceptance) and 0,65 (Turning to Religion), showing acceptable levels of internal consistency for this questionnaire.

1.3.4 Data analysis

The statistical analysis is conducted with the aid of the SPSS programme (SPSS Inc. 2003). Exploratory factor analyses are performed to investigate the construct validity of the measuring instruments. First, a simple principal component analysis is performed on the constructs that form part of the measurement model. The eigen values and the scree plot are studied to determine the number of factors. In order to evaluate the construct validity of the COPE, principal factors extraction with a varimax rotation is performed on the 53 items of the COPE (Tabachnick & Fidell, 2001).

Descriptive statistics are used to explore the data. Internal consistencies of the measuring instruments are assessed by Cronbach alpha coefficients (Clark & Watson, 1995). Coefficient alpha conveys important information regarding the proportion of variance contained in a scale, while the mean inter-item correlation coefficient (which is a straightforward measure of internal consistency) is a useful index to supplement information supplied by coefficient alpha (Clark & Watson, 1995).

Multivariate analysis of variance (MANOVA) is used to assess the significance of the coping strategies employed within the different organisational, gender, and language groups. MANOVA tests whether or not mean differences among groups in a combination of dependent variables are likely to have occurred by chance (Tabachnick & Fidell, 2001). A new dependent variable that maximises group differences will be created from a set of dependent variables. Wilks' Lambda is a likelihood ratio statistic of the data on the assumption of the equal population mean vectors for all the groups, against the likelihood on the assumption that the population mean vectors are identical to those of the sample mean vectors for the different groups.

1.4 DIVISION OF CHAPTERS

The chapters will be presented as follows:
Chapter 1: Introduction.
Chapter 2: Research article.
Chapter 3: Conclusions, limitations and recommendations.

1.5 CHAPTER SUMMARY

This chapter focussed on the problem statement, objectives and the research method of this study.

Chapter 2 will subsequently focus on the research article.

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THE PSYCHOMETRIC PROPERTIES OF THE COPING ORIENTATIONS TO THE PROBLEMS EXPERIENCED QUESTIONNAIRE (COPE) IN SOUTH AFRICA

ABSTRACT

The objective of this study was to determine the internal consistency, construct validity, and structural equivalence of the COPE, and to determine the differences between coping strategies of different occupational groups in South Africa. A cross-sectional survey design was used. A random, stratified sample *(N* = 3178*)* was taken from an electricity supply organisation, nurses and the South African Police Service. The COPE was administered and four internally consistent factors were extracted, namely Approach Coping, Avoidance, Seeking Support and Turning to Religion. These factors showed acceptable structural equivalence for all the organisational, gender and language groups. Differences in coping strategies were found for the different organisational, gender and language groups.

OPSOMMING

Die doelstelling van die studie was om die interne konsekwentheid, konstrukgeldigheid, en strukturele ekwivalensie van die COPE te bepaal en om verskille tussen die coping-strategieë van verskillende beroepsgroepe in Suid-Afrika te bepaal. 'n Dwarsnee-opname-ontwerp is gebruik. 'n Ewekansige streekproef (*N* = 3178) is geneem van 'n elektrisiteitsvoorsieningsmaatskappy, verpleegpersoneel en die Suid-Afrikaanse Polisiediens. Die COPE is afgeneem en vier intern konsekwente faktore, naamlik Benaderings-coping, Vermyding, Soek na Ondersteuning en Keer-na-Religie is onttrek. Hierdie faktore het strukturele ekwivalensie vir verskillende organisasies getoon. Verskille rakende coping-strategieë is vir die verskillende organisatoriese-, geslags- en taalgroepe gevind.

The health and well-being of an organisation are dependent on the health and well-being of its members. Work and health psychology has traditionally occupied itself predominantly with malfunctioning work-related health and well-being, usually under the umbrella of stress. Work stress and its associated problems cost organisations an estimated $ 200 billion or more each year in terms of decreased productivity, absenteeism, turnover, worker conflict, higher health care costs, and more worker's compensation claims of all kinds (DeFrank & Ivancevinch, 1998; Farren, 1999). Most people complain that their work is their biggest source of stress and very few feel that their jobs give them pleasure or satisfaction (Quick, 1997).

Probably the most important outcome variables associated with the study of work stress are health and well-being (Edwards, Canster, & Scaubroeck, 1991; Quick, 1997). Despite the variety of approaches to conceptualising stress, the literature is generally in agreement that certain stressors can elicit responses in individuals that can, over time, have a substantial adverse impact on their behaviour and health. These physical or psychological stimuli to which the individual responds are commonly referred to as either stressors or demands. The negative response to stressors is commonly termed distress. Distress is negative and dysfunctional. The other side of the coin is eustress (Selye, 1976). Quick, Nelson, and Hurrell (1997) associate eustress with healthy, positive outcomes. Edwards and Cooper (1988) suggest that eustress may improve health either directly through hormonal and biochemical changes, or indirectly, by facilitating effort and abilities directed toward coping with existing distress.

In their holistic model of work-related well-being, Nelson and Simmons (1994) looked at the demands a job places on an individual (pace and amount of work, work-home conflict, mental load, emotional load and physical demands) and the resources available (information, communication, role clarity, task significance, opportunities to learn, task variety, autonomy, independence, participation, remuneration, career opportunities, relation with the supervisor, support and contact from colleagues and future certainty) to deal with these demands. Combined with individual differences (optimism, lifestyle, sense of coherence and self-efficacy), the individual copes with these demands with distress (which leads to exhaustion and mental distance) or with positive eustress (vigour and dedication). The way in which the individual copes with these demands either leads to improved physical and mental health, improved performance, fewer

accidents and behaviour that improves safety, or leads to the downside of physical and psychological ill health, decrease in performance, behaviour that is more risky, and, therefore, more accidents.

Against this backdrop of the impact that the well-being of employees has on organisations, it is of paramount importance that organisations need to understand how their members cope with the demands the organisation places on them. This understanding can assist organisations in evaluating the resources they make available to help employees to cope more positively with the demands placed upon them. It is important that this evaluation is done with a reliable, valid and equivalent measurement instrument to ensure that any corrective action is based upon solid information.

Coping

Coping strategies represent the efforts, both behavioural and cognitive, that people invest in order to deal with stressful encounters (Lazarus & Folkman, 1984). Coping has been differentially conceived in several ways (Livneh, Antonak, & Gerhardt, 2000): 1) both as personality trait and situational determined response; 2) as a dynamic process and a static construct; 3) as a strategy which is mature, adaptive and flexible, but also as a reaction, which is neurotic, maladaptive and rigid; and 4) as a global, generally dichotomous concept, but also an intricate, hierarchically structured, multilevel concept.

Coping has been defined as the process of executing a response to a threat (Lazarus, 1966). Folkman and Lazarus (1980, 1985) suggested two general types of coping. The first is problem-focused coping; the person finds a method for resolving stress at its source. The second is emotion-focused coping; the person feels that the source of the stress must somehow be tolerated, and he/she endeavours to manage or lessen the emotional discomfort associated with the situation. In addition, Carver, Scheier, and Weintraub (1989) proposed a third style of coping, avoidant coping, which was integrated into a self-regulatory model of stress and coping (Carver & Scheier, 1999).

Avoidant coping strategies are sometimes viewed as less adaptive methods of coping. Denial (pretending the stressor is not present or that it is not causing any significant distress), mental disengagement (distracting oneself from thinking about the goal with

which the stressor is interfering), and behavioural disengagement (giving up on the goals with which the stressor is interfering) are examples of avoidant coping strategies. Endler and Parker (1990) also refer to avoidance as a third basic strategy that may be used in coping with stress. Avoidance can include either person-oriented or task-oriented strategies. Avoidance differs from problem- and emotion-focused coping in that avoiding a situation actually removes the person from the stressful situation, whereas problem- and emotion-focused coping might help the person manage the stressful situation while he/she remains in it (Kowalski & Crocker, 2001).

Literature on coping often makes an additional distinction between active and avoidant coping strategies. Active coping strategies are either behavioural or psychological responses designed to change the nature of the stressor itself or how one thinks about it, whereas avoidant coping strategies lead people into activities (such as alcohol use) or mental states (such as withdrawal) that keep them from directly addressing stressful events. Generally speaking, active coping strategies, whether behavioural or emotional, are regarded as better ways to deal with stressful events, and avoidant coping strategies appear to be a psychological risk factor or marker for adverse responses to stressful life events (Holahan & Moos, 1987).

Broad distinctions, such as problem-solving versus emotion-focused, or active versus avoidant, have only limited utility for understanding coping. Thus, research on coping and its measurement has evolved to address a variety of more specific coping strategies, mentioned below in the measurement section.

Measurement of coping

Several questionnaires have been developed to measure coping strategies. The Ways of Coping was developed by Folkman, Lazarus, and their associates (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). It is an empirically-derived inventory of specific ways in which people might cope with a stressful event. Individuals are asked to designate or respond to a specific stressor (such as neighbourhood crime) and indicate the degree to which they have utilised each particular coping method to deal with it. Responses to the statements are then factor-analysed to identify more general patterns of coping. In a representative community study that employed this measure,

eight distinct coping strategies emerged: Confrontational Coping, Seeking Social Support, Planned Problem-Solving, Self-Control, Distancing, Positive Appraisal, Accepting Responsibility, and Escape/Avoidance. Researchers often add items that address the particular coping needs of the stressful events they are studying. The result, however, is that the Ways of Coping instrument is employed idiosyncratically across different studies, limiting the comparability of results from the instrument across different samples and situations.

The Coping Style Questionnaire (Billings & Moos, 1981) describes five modes of coping: Active-cognitive, Active-behavioural, Avoidance, Problem-focused, and Emotion-focused. The Miller Behavioural Style Scale (Miller, 1987; Muris, Van Zuuren, De Jong, De Beurs, & Hanewald, 1994) takes into consideration Monitoring and Blunting strategies. The Coping Strategy Indicator (Amirkhan, 1990) measures three coping styles: Problem-solving, Seeking Social Support, and Avoidance. The Coping Inventory for Stressful Situations assesses Task-, Emotion- and Avoidance-oriented coping (Endler & Parker, 1994), and lastly, the Coping Orientations to the Problems Experienced (COPE; Carver, Scheier, & Weintraub, 1989) describes 14 different coping modalities and makes several distinctions within the overall categories of problem-focused and emotional-focused coping (e.g., Active Coping, Planning, Restraint Coping, Seeking Social Support for Emotional Reasons, Focus on and Venting Emotions, Positive Reinterpretation, and Acceptance).

Among the questionnaires mentioned above, we focused our attention on COPE (Carver et al., 1989) because it supplies unambiguous, large and theoretically derived categories of coping. It also takes into consideration strategies not specifically covered by other questionnaires, such as Turning to Religion, Acceptance, and Denial.

In terms of the present study, it is important to establish the reliability and validity of the COPE. When measures are applied to different cultural groups, issues of measurement equivalence become important (Van de Vijver & Leung, 1997). Measurement equivalence should be computed for measuring instruments in any multicultural setting where groups from different cultural groups are compared in terms of a specific construct. Construct equivalence indicates the extent to which the same construct is measured across all cultural groups studied. When an instrument measures

different constructs in different cultures, no comparison can be made. The same construct is measured in the case of construct equivalence (also labelled structural equivalence). In a study conducted on the police service in South Africa (Pienaar & Rothmann, 2003), the factors extracted showed structural equivalence for the four racial groups included in the study. The last finding is of particular importance, since no studies had previously been conducted regarding structural equivalence of the COPE for different racial groups in South Africa. To generalise at this point would be to early, without extracting these factors in other occupations but these results indicate that the extracted coping factors are valid across racial groups within the SAPS.

Coping Orientations to the Problems Experienced Questionnaire – COPE

A more theoretical conceptualisation than the dichotomy of problem- and emotion-focused coping was developed in the late eighties by Carver et al. (1989). The COPE has a constant set of scales and items and, for this reason, it currently enjoys wide use among researchers concerned with coping. The 'trait' form of the COPE asks respondents to designate how they typically react to stressful events.

The full COPE is a 53-item measure that yields 14 factors that reflect active versus avoidant coping strategies. In the 'trait like' version, respondents are asked to rate the degree to which they typically use each coping strategy when under stress. In the 'state like' version, respondents rate the degree to which they use each coping strategy to deal with a particular stressful event. Ratings are made on a 4-point Likert-type scale that ranges from 'I (usually) don't do this at all' (1); to 'I (usually) do this a lot' (4). The COPE has acceptable internal consistency, with alpha coefficients ranging from 0,62 to 0,92 (with the exception of mental disengagement, which has an alpha coefficient of 0,45) (Carver et al., 1989). The COPE scales comprise: Active Coping, Planning, Seeking Instrumental Social Support, Seeking Emotional Social Support, Suppression of Competing Activities, Turning to Religion, Positive Reinterpretation and Growth, Restraint Coping, Resignation/Acceptance, Focus on and Venting of Emotions, Denial, Mental Disengagement, Behavioural Disengagement and Alcohol/Drug Use.

Pienaar and Rothmann (2003) suggested a four-factor structure underlying the COPE Questionnaire. The first factor could be labelled Approach Coping, which includes

either the three scales (Active Coping, Planning, and Suppression of Competing Activities) as originally proposed, or an assortment of the added scales from the cognitive coping factor. The second factor could be labelled Social/Emotional Coping, which includes the three scales originally proposed (Seeking Social Support for Emotional Reasons, Seeking Social Support for Instrumental Reasons, and Focus on and Venting of Emotion), and has been recognised as the most frequently reproduced factor (Kallasmaa & Pulver, 2000). The third factor deals with avoidance coping and typically includes the three scales originally proposed (Denial, Behavioural Disengagement and Mental Disengagement), but Alcohol/Drug Disengagement also loaded on this factor in six subsequent studies (Cook & Heppner, 1997; Finch, Panter, & Caskie, 1999; Hudec-Kneeviæ, Kardum, & Vukmiroviæ, 1999; Mitchell & Hastings, 2001; Phelps & Jarvis, 1994; Sica, Novara, Dorz, & Sanavio, 1997). The fourth factor constitutes Turning to Religion, which may be such a specific coping strategy that it cannot be defined as an exclusive approach, either social/emotional or avoidant, for it probably serves the purpose of both of these. It could also be a case of specificity regarding the function this coping strategy serves for the user.

Demographic variables and coping

During the past decade a lot of research has been concerned with organisational stress. (Beehr, King, & King, 1990; Caplan, Cobb, French, Van Harrison, & Pinneau, 1975; Davidson & Cooper, 1987, 1992). The environment in which coping occurs may be regarded as a potential resource or constraint that influences coping. For example, higher levels of problem-focused coping have been found in work settings than are found in family environments (Monat & Lazarus, 1991). Research evidence indicates that some strategies may be particularly relevant in coping with work-related stress. A great deal of research has focused on the dynamics of social support in relation to work stress (Delongis & O'Brien, 1985; Hobfoll, 1988).

Demographic factors such as race and gender have been emphasised as influential in coping responses (Coyne & Downey, 1991; Kessler, Price, & Wortman, 1985), and in reported sources of work stress (Patterson, 1999), whereby coping is indirectly influenced. Furthermore, demographic factors have been shown to interact with age

(Folkman, Lazarus, Pimley, & Novacek, 1987) and gender (Folkman & Lazarus, 1980) to affect coping responses among individuals.

The use of social support by the different genders has received considerable attention. It appears that women are able to employ their interpersonal skills to reduce their use of dysfunctional coping strategies (Davidson & Cooper, 1987; Greenglass, 1993; Long, 1988). Similar results have been found with adolescent populations (Frydenberg & Lewis, 1993), where girls have been found more likely to use social support as a coping strategy than boys. Folkman and Lazarus (1980) reported that males use more problem-focused coping, but contrary to the popular stereotype, there were no gender differences found in emotion-focused coping. With regard to emotional mechanisms as sources of coping, although the findings are less consistent, females have been reported to use more distraction, catharsis and seeking reliance on social support than males (Stone & Neale, 1984 in Frydenberg & Lewis, 2002) and they use more strategies for seeking help and support than males (Folkman, S., & Lazarus, R. S.; 1980).

Upon investigating the literature, no comprehensive study of a measurement instrument of coping in South Africa and how it manifests in different occupational groups could be found. The question we want to answer is: Do different occupational groups within South Africa employ different coping strategies to deal with their work? It is obvious that we need to look at the validity, reliability and equivalence of the measuring instrument.

The objective of this study was to investigate the psychometric properties of the Coping Orientations to the Problems Experienced Questionnaire (COPE) within different occupational groups in South Africa, and to assess whether or not differences exist between the coping strategies of different demographic groups.

METHOD

Research design

In order to attain the research objectives, a cross-sectional survey design was used (Rosnow & Rosenthal, 1999). A cross-sectional design is used for research that collects data on relevant variables at one time from a variety of people, subjects or phenomena. The data is collected simultaneously (or within a short time frame). This design is suited to the descriptive and predictive functions associated with correlational research (Graziano & Raulin, 2004)

Participants

Random samples (N = 3178) were taken from electricity supply personnel, nurses and the police service. Table 1 presents some of the characteristics of the participants.

Table 1

Characteristics of the Participants (N = 3178)

Variable	Organisation	Frequency	Percentage
Group	Electricity supply	215	6,80
	Nurses	818	25,70
	Police	2145	67,50
Gender	Male	1923	61,20
	Female	1220	38,80
Language	Afrikaans	1558	49,00
	English	489	15,50
	Other	1078	35,50

Table 1 shows that 67,5% of participants in the sample were from the police and more than 60% were male. Almost half of the sample group consisted of Afrikaans-speaking individuals.

Measuring battery

One questionnaire was used in this research, namely the Coping Orientations to the Problems Experienced Questionnaire (COPE) (Carver et al., 1989).

The Coping Orientations to the Problems Experienced Questionnaire (COPE) (Carver et al., 1989) was designed to measure both situational and dispositional coping strategies. In the present study, the dispositional version consisting of 53 items was used. Response choices ranged from 1 (*'I usually don't do this at all'*) to 4 (*'I usually do this a lot'*). The COPE measures 14 coping strategies. In previous South African research, Storm and Rothmann, (2003) found acceptable alpha values, with inter-item correlation coefficients varying between 0,25 (Acceptance) and 0,65 (Turning to Religion), showing acceptable levels of internal consistency for this questionnaire. In the same study, the authors came to the conclusion that a four-factor structure underlies the COPE. The factors include Approach Coping (Active Coping, Planning and Suppression of Competing Activities), Social/Emotional Coping (Seeking Social Support for Emotional Reasons, Seeking Social Support for Instrumental Reasons and Focus on and Venting of Emotion), Avoidance Coping (Denial, Behavioural Disengagement, Mental Disengagement, and Alcohol/Drug Disengagement), and Turning to Religion (Pienaar & Rothmann, 2003).

Statistical analysis

The statistical analysis was conducted with the aid of the SPSS programme (SPSS Inc., 2003). Exploratory factor analyses were performed to investigate the construct validity of the measuring instruments. First, a simple principal component analysis was conducted on the COPE. The eigenvalues and scree plot were studied to determine the number of factors. In order to evaluate the construct validity of the COPE, principal axis factor analysis with a varimax rotation was performed on the 53 items of the COPE (Tabachnick & Fidell, 2001).

Descriptive statistics were used to explore the data. Internal consistencies of the measuring instrument were assessed by Cronbach alpha coefficients (Clark & Watson, 1995). This is an appropriate way to assess the internal homogeneity of a set of items in

a questionnaire by looking at all the items simultaneously. Coefficient alpha conveys important information regarding the proportion of variance contained in a scale (Clark & Watson, 1995).

Multivariate analysis of variance (MANOVA) was used to assess the significance of the coping strategies employed within the different organisational, gender and language groups. MANOVA tests whether or not mean differences among groups in a combination of dependent variables are likely to have occurred by chance (Tabachnick & Fidell, 2001). A new dependent variable that maximises group differences will be created from a set of dependent variables. Wilks' Lambda is a likelihood ratio statistic of the data on the assumption of the equal population mean vectors for all the groups, against the likelihood on the assumption that the population mean vectors are identical to those of the sample mean vectors for the different groups.

RESULTS

Factor analysis and the construct equivalence of the COPE

A simple principal component analysis was performed on the items of the (COPE) to assess the number of factors. An analysis of the eigenvalues showed that nine factors could be extracted, which explained 53,60% of the total variance. However, the scree plot showed that four factors could be extracted, which explained 44,77 % of the total variance. The eigenvalues of these factors were as follows: Factor 1 = 12,81; Factor 2 = 4,88; Factor 3 = 2,43; and Factor 4 = 2,11.

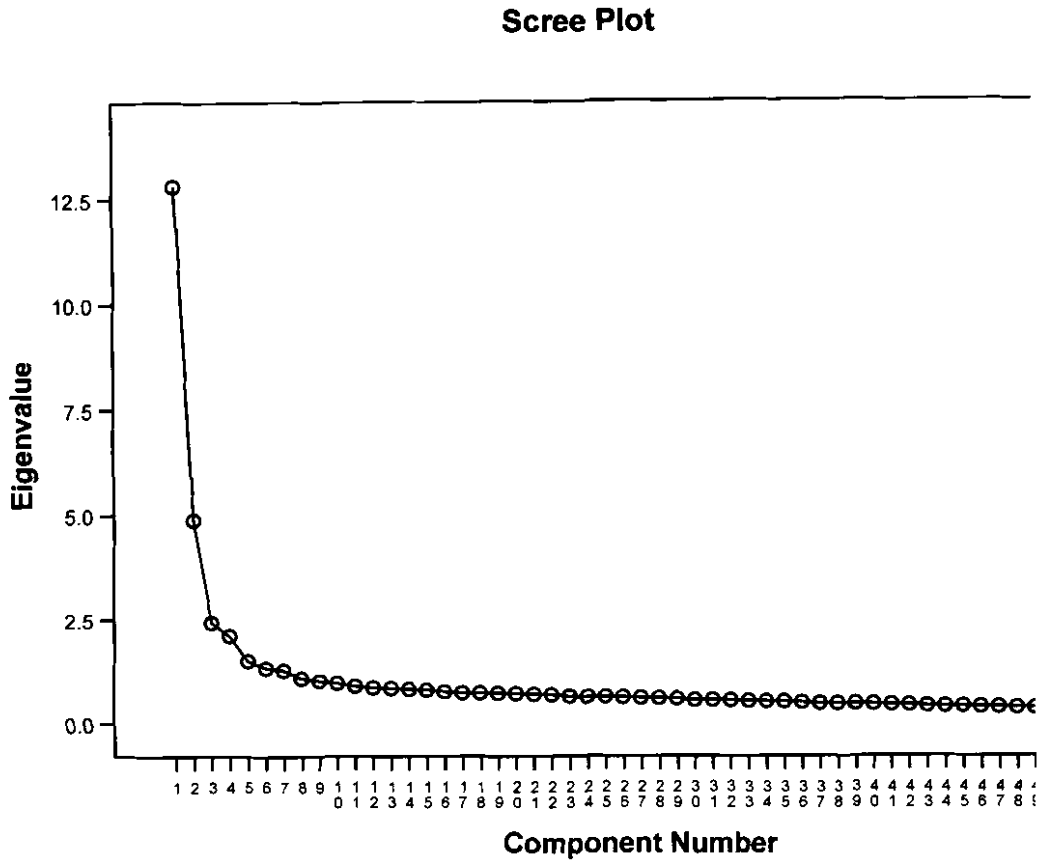

Figure 1. Scree plot of the COPE

A principal axis factor analysis with a varimax rotation was performed on the pooled solution (i.e. all the participants were included in the same analysis). The results of the principal factoring analysis for all participants are illustrated in Table 2.

Table 2
Rotated Factor Matrix for the COPE

	Item	F1	F2	F3	F4
1	I ask people who have had similar experiences what they did	0,29	0,16	**0,38**	0,01
2	I refuse to believe it happened	0,04	**0,50**	0,00	-0,02
3	I try to grow as a person as a result of the experience	**0,51**	-0,07	0,18	0,14
4	I force myself to wait for the right time to do something	**0,43**	0,19	0,07	0,06
5	I put aside other activities in order to concentrate on this	**0,40**	0,22	0,16	0,01
6	I take additional action to try and get rid of the problem	**0,52**	0,07	0,16	0,04
7	I get used to the idea that it happened	**0,44**	0,13	0,13	0,02
8	I talk to someone about how I feel	0,27	0,06	**0,68**	0,09
9	I think about how I might best handle the problem	**0,59**	-0,08	0,28	0,10
10	I put my trust in God	0,34	-0,01	0,13	**0,63**
11	I sleep more than usual	0,06	**0,39**	0,10	0,08
12	I drink alcohol or take drugs, in order to think about it less	-0,06	**0,49**	-0,04	-0,15
13	I admit that I can't deal with it, and quit trying	0,02	**0,55**	0,06	0,01
14	I let my feelings out	0,18	0,14	**0,56**	0,06
15	I try to get emotional support from friends and relatives	0,25	0,12	**0,67**	0,10
16	I say to myself: 'This isn't real'	0,09	**0,58**	0,10	0,05
17	I try to see it in a different light, to make it seem more positive	**0,53**	0,07	0,18	0,12
18	I make sure not to make matters worse by acting too soon	**0,56**	0,07	0,09	0,04
19	I try to prevent other things from interfering with the efforts at dealing with this	**0,60**	0,12	0,12	0,05
20	I devise a plan of action	**0,66**	-0,08	0,17	0,14
21	I learn to live with it	**0,46**	0,14	0,04	0,09
22	I try to get advice from someone about what to do	0,42	0,08	**0,57**	0,08
23	I do what has to be done, one step at a time	**0,65**	-0,03	0,20	0,11
24	I pray more than usual	0,21	0,19	0,14	**0,69**
25	I turn to work or other substitute activities to take my mind off things	0,29	**0,37**	0,08	0,16
26	I give up the attempt to get what I want	0,03	**0,60**	0,09	0,03
27	I get upset and let my emotions out	0,04	**0,41**	0,33	-0,02
28	I get sympathy and understanding from someone	0,18	**0,32**	0,51	0,11
29	I pretend that it hasn't really happened	0,05	**0,66**	-0,06	0,01
30	I look for something good in what is happening	**0,55**	0,06	0,14	0,17
31	I restrain myself from doing anything too quickly	**0,52**	0,18	0,08	0,06
32	I take direction to get around the problem	**0,54**	0,08	0,12	0,10
33	I accept that this has happened and that it can't be changed	**0,45**	0,19	0,07	0,06
34	I talk to someone who could do something concrete about the problem	0,46	0,01	**0,52**	0,11
35	I try to come up with a strategy about what to do	**0,67**	-0,07	0,24	0,10
36	I go to the movies or watch TV, or think about it	0,23	**0,31**	0,15	0,11
37	I try to find comfort in my religion	0,25	0,14	0,14	**0,74**
38	I focus on dealing with the problem, and if necessary let other things slide a little	**0,42**	0,25	0,13	0,17
39	I reduce the amount of effort I'm putting into solving the problem	0,11	**0,52**	0,08	0,11
40	I feel a lot of emotional distress and I find myself expressing those feelings a lot	0,06	**0,48**	0,27	0,05
41	I talk to someone to find out more about the situation	0,43	0,08	**0,55**	0,11
42	I act as though it hasn't even happened	0,13	**0,60**	-0,06	0,07
43	I learn something from the experience	**0,63**	-0,03	0,20	0,15
44	I hold off doing anything about it until the situation permits it	**0,40**	0,39	0,03	0,04
45	I concentrate on my efforts on doing something about it	**0,66**	0,03	0,18	0,09
46	I keep myself from getting distracted by other thoughts or activities	**0,54**	0,21	0,05	0,07
47	I think hard about what steps to take	**0,65**	0,04	0,16	0,10
48	I accept the reality of the fact that it happened	**0,62**	0,00	0,12	0,09

Table 2

Rotated Factor Matrix for the COPE (continued)

	Item	F1	F2	F3	F4
49	I discuss my feelings with someone	0,28	0,08	**0,75**	0,14
50	I just give up trying to reach my goal	-0,04	**0,61**	0,03	0,03
51	I seek God's help	0,26	0,09	0,13	**0,80**
52	I daydream about things other than this	0,06	**0,58**	0,05	0,08
53	I get upset, and am really aware of it	0,12	**0,44**	0,14	0,04

Table 2 indicates that 24 items loaded on Factor 1. This first factor dealt with approaching the problem, redefining it as something positive or a learning experience, and accepting that it has happened. This factor was labelled *Approach Coping*. The second factor had items that related to avoidance (17 items loaded on factor 2), such as daydreaming, ignoring the problem and giving up. This factor was labelled *Avoidance.* Eight items comprised Factor 3, measuring seeking support from someone else, and were labelled *Seeking Support.* Factor 4 consisted of four items which were labelled *Turning to Religion* (Carver et al., 1989). Item 22 loaded on two of the factors (Factor 1: *Approach Coping* – 0, 42; and Factor 3: *Seeking Support* – 0,57), and we can conclude that this item was weak in its relationship to only one factor.

A further factor analysis which used principal axis factoring with varimax rotation was performed on the three different groups to determine the factor structure of the four coping factors per group. The results of the principal factoring analysis per group are illustrated in Table 3.

Table 3

Rotated factor Matrix – By Group

		Electricity Supply				Nursing				Police			
		1	2	3	4	1	2	3	4	1	2	3	4
1	I ask people who have had similar experiences what they did	0,25	**0,54**	0,14	0,01	0,19	**0,32**	0,04	0,05	0,33	0,21	**0,39**	-0,03
2	I refuse to believe it has happened	0,09	0,01	**0,42**	-0,06	0,05	-0,02	**0,45**	0,01	0,04	**0,51**	0,03	-0,04
3	I try to grow as a person as a result of the experience	**0,50**	0,21	-0,06	0,02	**0,39**	0,15	-0,07	0,16	**0,55**	-0,03	0,16	0,12
4	I force myself to wait for the right time to do something	**0,35**	0,03	0,08	0,12	**0,40**	0,04	0,15	0,00	**0,45**	0,21	0,08	0,06
5	I put aside other activities in order to concentrate on this	**0,37**	0,26	0,09	0,00	**0,32**	0,14	0,15	0,00	**0,43**	0,26	0,15	-0,02
6	I take additional action to try and get rid of the problem	**0,55**	0,30	-0,07	0,10	**0,45**	0,07	-0,02	0,02	**0,53**	0,13	0,18	0,02
7	I get used to the idea that it happened	**0,32**	-0,03	0,09	0,16	**0,39**	0,11	0,10	-0,06	**0,47**	0,15	0,14	0,03
8	I talk to someone about how I feel	0,15	**0,62**	0,08	0,05	0,20	**0,70**	-0,05	0,02	0,28	0,12	**0,67**	0,12
9	I think about how I might best handle the problem	**0,45**	0,15	-0,09	0,10	**0,48**	0,27	-0,22	0,07	**0,64**	-0,03	0,28	0,09
10	I put my trust in God	0,22	0,09	0,01	**0,68**	0,17	0,07	-0,03	**0,77**	0,41	-0,01	0,18	**0,53**
11	I sleep more than usual	0,06	0,15	0,27	0,26	-0,01	0,01	**0,32**	0,06	0,08	**0,42**	0,13	0,06
12	I drink alcohol or take drugs, in order to think about it less	-0,04	0,03	0,30	0,00	-0,11	0,00	**0,34**	-0,24	-0,04	**0,51**	-0,05	-0,13
13	I admit that I can't deal with it, and quit trying	-0,09	0,08	**0,45**	-0,10	-0,10	0,03	**0,47**	-0,01	0,08	**0,55**	0,10	0,02
14	I let my feelings out	0,04	**0,44**	0,11	0,08	0,10	**0,56**	0,08	0,00	0,22	0,20	**0,49**	0,08
15	I try to get emotional support from friends and relatives	0,09	**0,64**	0,19	0,10	0,19	**0,69**	0,03	0,09	0,27	0,18	**0,65**	0,10
16	I say to myself: 'This isn't real'	0,06	0,25	**0,57**	0,20	0,06	0,01	**0,51**	,049	0,11	**0,57**	0,17	0,03
17	I try to see it in a different light, to make it seem more positive	**0,43**	0,15	0,07	0,06	**0,49**	0,09	-0,04	0,15	**0,54**	0,13	0,22	0,09
18	I make sure not to make matters worse by acting too soon	**0,54**	0,12	0,03	0,05	**0,54**	0,03	-0,01	0,01	**0,57**	0,08	0,15	0,05
19	I try to prevent other things from interfering with the efforts at dealing with this	**0,61**	0,21	0,06	0,06	**0,57**	0,02	0,04	0,02	**0,59**	0,15	0,19	0,06
20	I devise a plan of action	**0,61**	0,23	-0,08	0,12	**0,61**	0,10	-0,18	0,13	**0,67**	-0,05	0,21	0,15
21	I learn to live with it	**0,45**	-0,04	0,12	0,02	**0,40**	0,02	0,16	0,04	**0,49**	0,14	0,05	0,10
22	I try to get advice from someone about what to do	**0,35**	**0,62**	0,08	0,03	0,32	**0,60**	0,01	0,07	0,46	0,10	**0,55**	0,10
23	I do what has to be done, one step at a time	**0,57**	0,26	0,01	0,20	**0,61**	0,15	-0,09	0,08	**0,66**	0,00	0,20	0,10
24	I pray more than usual	0,16	0,12	0,22	**0,69**	0,16	0,08	0,21	**0,75**	0,23	0,21	0,15	**0,63**

Table 3

Rotated factor Matrix – By Group (continued)

		Electricity Supply				Nursing				Police			
		1	2	3	4	1	2	3	4	1	2	3	4
25	I turn to work or other substitute activities to take my mind off things	0,21	0,05	**0,39**	0,27	0,21	0,08	**0,37**	0,17	0,34	**0,38**	0,07	0,12
26	I give up the attempt to get what I want	-0,07	0,12	**0,52**	0,01	-0,03	0,06	**0,47**	0,02	0,06	**0,66**	0,07	0,05
27	I get upset and let my emotions out	-0,06	**0,34**	0,29	0,05	-0,09	**0,40**	0,31	-0,08	0,09	**0,48**	0,24	0,00
28	I get sympathy and understanding from someone	0,06	**0,54**	0,27	0,03	0,08	**0,54**	0,22	0,09	0,23	**0,34**	0,51	0,14
29	I pretend that it hasn't really happened	0,00	0,04	**0,60**	-0,02	0,08	-0,12	**0,59**	0,02	0,06	**0,66**	-0,01	0,02
30	I look for something good in what is happening	**0,58**	-0,02	-0,02	0,12	**0,53**	0,11	-0,03	0,23	**0,54**	0,17	0,16	0,15
31	I restrain myself from doing anything too quickly	**0,57**	0,06	0,01	0,10	**0,50**	0,07	0,12	0,05	**0,51**	0,22	0,09	0,07
32	I take direction to get around the problem	**0,57**	0,12	-0,01	0,01	**0,49**	0,07	0,01	0,10	**0,55**	0,12	0,15	0,11
33	I accept that this has happened and that it can't be changed	**0,33**	-0,07	0,15	0,07	**0,44**	0,05	0,16	0,00	**0,47**	0,21	0,08	0,10
34	I talk to someone who could do something concrete about the problem	0,39	**0,56**	-0,06	0,03	0,40	**0,51**	-0,09	0,09	**0,47**	0,06	0,52	0,15
35	I try to come up with a strategy about what to do	**0,69**	0,17	-0,14	-0,01	**0,65**	0,17	-0,14	0,09	**0,67**	-0,04	0,28	0,14
36	I go to the movies or watch TV, or think about it	0,29	0,18	0,31	0,14	0,10	0,18	0,30	0,03	0,29	0,29	0,14	0,15
37	I try to find comfort in my religion	0,35	0,04	0,19	**0,65**	0,15	0,12	0,19	**0,82**	0,28	0,12	0,17	**0,71**
38	I focus on dealing with the problem, and if necessary let other things slide a little	**0,46**	0,09	0,15	0,12	**0,37**	0,08	0,25	0,12	**0,43**	0,27	0,16	0,22
39	I reduce the amount of effort I'm putting into solving the problem	0,13	0,06	0,19	0,12	0,07	0,05	**0,46**	0,10	0,12	**0,55**	0,11	0,12
40	I feel a lot of emotional distress and I find myself expressing those feelings a lot	-0,05	0,24	**0,49**	0,15	-0,05	0,36	**0,41**	0,00	0,11	**0,54**	0,19	0,06
41	I talk to someone to find out more about the situation	**0,37**	0,64	-0,06	0,08	0,36	**0,59**	-0,04	0,08	**0,44**	0,14	0,52	0,15
42	I act as though it hasn't even happened	0,22	-0,20	**0,48**	0,03	0,03	-0,08	**0,52**	0,06	0,17	**0,59**	0,02	0,11
43	I learn something from the experience	**0,61**	0,19	0,01	0,07	**0,56**	0,20	-0,08	0,12	**0,65**	0,01	0,19	0,20
44	I hold off doing anything about it until the situation permits it	**0,38**	-0,03	0,31	-0,12	0,31	-0,03	**0,33**	0,03	**0,44**	0,41	0,07	0,07
45	I concentrate on my efforts on doing something about it	**0,68**	0,09	-0,78	0,04	**0,61**	0,15	-0,05	0,05	**0,66**	0,08	0,20	0,13
46	I keep myself from getting distracted by other thoughts or activities	**0,59**	0,17	0,03	0,14	**0,46**	-0,02	0,18	0,01	**0,55**	0,23	0,06	0,11

Table 3

Rotated factor Matrix – By Group (continued)

47	I think hard about what steps to take	**0,65**	0,10	-0,04	0,12	**0,62**	0,19	-0,02	0,05	**0,66**	0,08	0,14	0,12
48	I accept the reality of the fact that it happened	**0,53**	-0,10	-0,04	-0,01	**0,58**	0,19	-0,04	0,03	**0,65**	0,04	0,07	0,13
49	I discuss my feelings with someone	0,10	**0,78**	0,06	0,10	0,17	**0,80**	0,02	0,09	0,33	0,13	**0,70**	0,18
50	I just give up trying to reach my goal	-0,18	-0,03	**0,48**	0,17	-0,06	0,00	**0,53**	-0,04	-0,01	**0,63**	0,05	0,07
51	I seek God's help	0,19	0,14	0,14	**0,76**	0,13	0,11	0,10	**0,87**	0,32	0,08	0,14	**0,75**
52	I daydream about things other than this	-0,01	0,04	**0,52**	0,15	-0,01	0,06	**0,51**	-0,01	0,10	**0,61**	0,04	0,12
53	I get upset, and am really aware of it	0,04	0,15	**0,38**	0,13	0,04	0,15	**0,41**	0,00	0,16	**0,52**	0,08	0,04

Table 3 indicates that 23 items loaded on factor 1 – *Approach Coping* – in all three of the groups. (Item numbers 3; 4; 5; 6; 7; 9; 17; 18; 19; 20; 21; 23; 30; 31; 32; 33; 35; 38; 43; 45; 46; 47; and 48).

Items 34 and 41 loaded on factor 1 in all three the groups, but they also loaded on other factors. (Item 34 loaded more on factor 2 – *Avoidance* – in both the electricity supply group and nursing group, and Item 41 loaded more on factor 2 – *Avoidance* – in the nursing group). Only two items (items 27 and 28) loaded on factor 2 in all three of the groups.

If we analyse the common factor structure (Table 4) for the total sample specific to each group, we see that the proportional coefficient per factor compared favourably to the guideline of 0,90 in all of the factors and in all three of the groups.

Table 4

Proportionality Coefficient per Factor (Tucker's Phi)

Group	**Approach**	**Avoidance**	**Seeking support**	**Turning to religion**
Electricity Supply	0,98	0,95	0,97	0,94
Nursing	0,99	0,98	0,99	0,98
Police	0,99	0,99	0,99	0,99

Table 4 shows that highly acceptable (> 0,90) Tucker's phi coefficients were found for all the comparisons. Therefore, sufficient evidence for the construct equivalence of the COPE was demonstrated.

Descriptive statistics and alpha coefficients

The descriptive statistics, alpha coefficients and correlations of the COPE are reported in Table 5.

Table 5

Descriptive Statistics and Alpha Coefficients of the COPE Scales

	Mean	*SD*	Skewness	Kurtosis	α
Approach Coping	70,56	13,11	-0,75	1,01	0,92
Avoidance	33,71	8,94	0,55	0,19	0,85
Support	24,89	6,38	-0,45	-0,39	0,87
Religion	12,70	3,20	-0,97	0,22	0,85

Table 5 shows that highly acceptable alpha coefficients, ranging from 0,85 to 0,92, were obtained (Nunnally & Bernstein, 1994). Thus, the scales shows acceptable internal consistency reliability.

Differences between groups

Next, multivariate analysis of variance (MANOVA) was used to determine the significance of differences between organisational, gender and language groups (see Table 6). In MANOVA, several dependent variables (in this case Approach Coping, Avoidance, Seeking Support and Turning to Religion) are considered together in the same analysis. Tukey Studentised Range tests were performed to indicate which groups differed significantly when ANOVAS were conducted.

Table 6

MANOVA with Organisation, Gender and Language as Independent Variables and the COPE Scales as Dependent Variables

	Value	*F*	*df*	Error *df*	*p*	η^2
Organisation	0,93	24,06	8,00	5318,00	0,00	0,04
Gender	0,94	39,24	4,00	2638,00	0,00	0,06
Language	0,91	33,32	8,00	5318,00	0,00	0,05

Statistically significant: $p < 0,01$

Table 6 reflects the effect of organisational types on the combined variable coping (F = 24,06; $p < 0,01$ Wilks' Lambda = 0,93; η^2 = 0,04). It was small and explained 4% of the variance of which Avoidance Coping and Seeking Support were the coping strategies used most frequently. The analysis of the coping strategies of the different occupational groups showed that members of the police tended to use Avoidance more than other organisational groups. Nurses, on the other hand, were more inclined than other groups to use approach coping and Seeking Support as their coping strategies.

Regarding gender, the effect was small to medium on the dependent variable coping, as it explained 6% of the variance (F = 39,24; $p < 0,01$; Wilks' Lambda = 0,95; η^2 = 0,06). Males were more inclined to use Avoidance Coping, and females were more inclined than males to use Approach Coping and Seeking Support as their coping strategies.

The effect of language on the dependent variable coping (F = 33,32; $p < 0,01$; Wilks' Lambda = 0,91; η^2 = 0,05) was small to medium, as it explained 5% of the variance. Language had the strongest effect on Avoidance Coping, followed by Seeking Social Support, Turning to Religion, and Approach Coping. Upon analysing the coping strategies between the different language groups, we found that African language groups used Avoidance and Seeking Social Support more than the Afrikaans or English speaking groups.

DISCUSSION

The general objective of the current study was to investigate the psychometric properties of the Coping Orientations to the Problems Experienced Questionnaire – COPE – within different occupational groups in South Africa. The results showed that the different organisational groups did employ different coping strategies to deal with stressful situations. The police group, for instance, used Avoidance more, whereas the nursing group focused more on Approach Coping. With the information to our disposal, we also analysed the information to see if the different gender and language groups used different coping strategies.

The first objective was to investigate the construct equivalence of the COPE. A principal component analysis with the varimax rotation was performed on all 53 items of the COPE on the total target population of 3178. Four factors were extracted, namely Approach Coping,

Avoidance, Seeking Support and Turning to Religion. The original proposition by Carver et al. (1998) also constituted four factors. Moreover, the study by Pienaar and Rothmann (2003) also identified four factors. The resemblance can be found in Approach Coping (task or problem directed), Avoidance, and Seeking Support (social or emotional). These factors also closely resemble three factors identified by Amirkhan (1990). Thus, there is strong support for the conclusion of Kallamaa and Pulver (2000) that a minimum of three factors is needed to explain coping data adequately.

The first and second factors extracted in this study reflect the known styles of Approach Coping (or alternatively referred to as active coping) and Avoidance. The second factor clearly deals with an avoidant type of approach, including items that refer to giving up, denying the reality of the situation/problem, letting emotions out and using alcohol or drugs to cope. The eight items loading on factor three were clearly Seeking Support for either emotional or instrumental reasons. Turning to Religion items constituted the fourth factor, which replicates previous research findings (Lyne & Roger, 2000; Sica et al., 1997) in indicating that this subscale emerges as a fourth factor.

The findings of this study support research conducted by Pienaar and Rothman (2003), in which they identified the factors Approach Coping (which overlaps with problem-focused coping of Ferguson & Cox, 1997), Avoidance, Seeking Emotional Support and Turning to Religion. The factor identified as Approach Coping in this study seems to be a cognitive-behavioural coping strategy, and the most items loaded on this coping strategy. The second factor extracted in this study, namely Avoidance, is related to the cognitive and behavioural disengagement and avoidance of the stressor. The third factor of Seeking Support, extracted in this study, seems to include items that seek support for both emotional and instrumental reasons. The forth factor of Turning to Religion concurs with Pienaar and Rothmann's (2003) findings.

The results indicated that the construct equivalence of the COPE was acceptable for the three organisational types included in this study (i.e. police, nursing and electricity supply). Tucker's phi values were higher than 0,90, which provided a strong indication of structural equivalence for the three organisational groups included in this study. In assessing the reliability of the COPE, acceptable alpha values that ranged from 0,85 to 0,92 for the four factors were identified, which are highly acceptable.

In analysing the differences between the coping strategies of different demographic groups within different occupations, the first focus was on the different occupational groups. The results obtained showed that the effect of occupation on coping as a whole explained 4% of the variance of which Avoidance Coping and Seeking Support were the coping strategies used most frequently. The make-up of the target population might have had an effect on this outcome, as 67,5% of the population were from one group, namely the police force. The analysis of the coping strategies of the different occupational groups showed that members of the police tended to use Avoidance more than other organisational groups. This may be an indication that police force members might try to avoid dealing with stressful situations due to the lack of support from the overall structure, and the lack of skills and/or equipment to their disposal. Nurses, on the other hand, were more inclined than other groups to use approach coping strategies, which might reflect the intrinsic demands of their occupation to deal with their patients' problems immediately. Compared to the other organisations, they were also more inclined to seek social support when they experienced stress.

Gender seems to affect the coping strategies of participants. As a total group, Seeking Support was the coping strategy most frequently employed. Once again, the composition of the target population could have influenced the result, as 61,2% were male and only 38,8% female. Males were more inclined to use Avoidance Coping, which contradicts the findings of Folkman and Lazarus (1980) who reported that males were more inclined to use Problem-focused Coping. Females were more inclined than males to use Approach Coping strategies.

The results suggest that the occupation/organisation can impact on the coping strategies of individuals under stressful situations. The structure within the groups might also have had an influence on this result, as the nursing group consisted of more females and, as has already been explained, the nursing group used Approach Coping more to deal with stressful situations. Females also used Seeking Support as a coping strategy more often than males, which is supported by the findings of Frydenburg and Lewis (1993), where girls have been found more likely to use Social Support as a coping strategy than boys, and Folkman (1980) suggested that they use more strategies for seeking help and support than males.

Language had the strongest effect on Avoidance Coping, followed by Seeking Social Support, Turning to Religion, and Approach Coping. Upon analysing the coping strategies between the different language groups, we found that African language groups used

Avoidance and Seeking Social Support more than the Afrikaans- or English-speaking groups. One would like to understand the impact factors like Apartheid (which has created a divided society with inferior and superior complexes) and the differences in cultures have on the coping strategies employed by individuals in stressful situations.

A limitation of this study was that 67,5% of the participants belonged to the same group, namely the police service. A very small sample came from electricity supply (6,8%). Although the scores were standardised, the smaller sample size could have influenced the results. According to Hair et al. (1998), the relationship among alpha, sample size, effect size and power is quite complicated and one must be aware that sample size can impact on the statistical test by either making it insensitive (for small sample sizes) or overly sensitive (for very large sample sizes).

Another limitation was that previous researchers used different COPE questionnaires, which make the comparisons between studies very difficult. It is recommended that the content of the items in the COPE direct researchers to differentiate between coping strategies in the future. The use of a standardised questionnaire in the future will be a great advantage, because the usefulness of the subscales originally proposed by Carver et al. (1998) can only really be determined with the comparison of equivalent versions of the questionnaire.

RECOMMENDATIONS

It is recommended that the content of the items in the COPE directs researchers to differentiate between coping strategies in the future. The use of a standardised questionnaire by researchers in the future will be a great advantage, because the usefulness of the subscales originally proposed by Carver et al. (1998) can only really be determined with the comparison of equivalent versions of the questionnaire.

Future research, in order to understand the coping strategies that employees from the same organisation or group employ to deal with stressful situations, must ensure that the number of participants representing that group or organisation is more equally represented in the study. Depending on the focus of the study, researchers must also take other factors (such as management of employees, and the specific functions of the occupation) into consideration in the selection of the participants.

In following other researchers (Kowalski & Crocker, 2001), it is also recommended that studying the purpose and effectiveness of coping strategies will facilitate a more complete understanding of coping. In different occupations and organisations there are a number of factors to include in research of this kind (e.g. the type of work, management style, and history of the organisation) and this will provide an invaluable understanding of coping strategies.

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CHAPTER 3

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

In this chapter the conclusion and limitations of this study are summarised. This is followed by recommendations to solve the research problem and for future research.

3.1 CONCLUSIONS

The general objective of the current study was to investigate the psychometric properties of the Coping Orientations to the Problems Experienced Questionnaire – COPE – within different occupational groups in South Africa.

The first objective was to investigate the construct equivalence of the COPE. A principal component analysis with the varimax rotation was performed on all 53 items of the COPE on the total target population of 3178. Four factors were extracted, namely Approach Coping, Avoidance, Seeking Support and Turning to Religion. The original proposition by Carver, Scheier, and Weintraub (1989) also comprised four factors. In addition, the study by Pienaar and Rothmann (2003) also identified four factors. The resemblance may be found in Approach Coping (task or problem directed), Avoidance and Seeking Support (social or emotional). These factors also closely resemble the three factors identified by Amirkhan (1990). Thus, there is strong support for the conclusion of Kallamaa and Pulver (2000) that a minimum of three factors is needed to explain coping data adequately.

The first and second factors extracted in this study reflect the known styles of Approach Coping (or alternatively referred to as active coping) and Avoidance. The second factor clearly deals with an avoidant type of approach, including items that refer to giving up, denying the reality of the situation/problem, letting emotions out and using alcohol or drugs to cope. The eight items loading on factor three were clearly Seeking Support for either emotional or instrumental reasons. Turning to Religion items constituted the fourth factor, which replicates previous research findings (Lyne & Roger, 2000; Sica et al., 1997) in showing this subscale to emerge as a fourth factor.

A further factor analysis using principal axis factoring with varimax rotation was performed on the three different groups to determine the factor structure of the four coping factors per group.

Secondly, the objective was to investigate the item bias of the items and assess the reliability of the COPE. In terms of the item bias, the values of Tucker's phi were higher than 0,90, which provided a strong indication of structural equivalence for the three organisational groups included in this study. In assessing the reliability of the COPE, acceptable alpha values that ranged from 0, 85 to 0, 92 for the four factors were identified.

In analysing the differences between the coping strategies of different demographic groups within different occupations, the first focus was on the different occupational groups. The results obtained showed that the effect of occupation on coping as a whole explained 4% of the variance of which Avoidance Coping and Seeking Support were the coping strategies used most frequently. The make-up of the target population could have had an effect on this outcome, as 67,5% of the population were from one group, namely the police force. The analysis of the coping strategies of the different occupational groups showed that the police force used Avoidance more than the other factors. This may be an indication that the police force members might try to avoid dealing with stressful situations due to the lack of support from the overall structure and the lack of skills and/or equipment to their disposal. Nurses, on the other hand, used Approach Coping more, thus reflecting the intrinsic demands of their occupation to deal with their patients' problems immediately. They were also more inclined to seek support when they experienced stress.

The second focus was on the coping strategies of the gender groups, and here 6% of the variance on the dependent variable coping was explained. As a total group, Seeking Support was the coping strategy that was most employed. Again, the composition of the target population could have influenced the result, as 61,2% were male and only 38,8% female. It is evident from the analysis that males used Avoidance to cope, which contradicts the findings of Folkman and Lazarus (1980), which reported that males used more problem-focused coping (which fits into Approach Coping in terms of this study). Females were found to use Approach Coping more often than their male counterparts, which also contradicts the abovementioned findings.

This is very interesting, and indicates the influence that the occupation and organisation may have on the coping strategy individuals employ in stressful situations. The structure within the groups might also have had an influence on this result, as the nursing group consisted of more females, and, as has already been explained, the nursing group used Approach Coping more to deal with stressful situations. Females also used Seeking Support as a coping strategy more often than males, which is supported by the findings of Frydenburg and Lewis (1993), where girls have been found more likely to use social support as a coping strategy than boys, and Folkman, (1980), who found that that they use more strategies for seeking help and support than males.

Coping strategies within the different language groups constituted the last focal point. The target population consisted of 49% Afrikaans-speaking, 15.5% English-speaking, and 35.5% persons speaking other languages. Upon analysing the total target population, 5% of variance in terms of overall coping was explained by language. Avoidance Coping had the highest effect, which explained 6% of the variance, followed by Seeking Support at 3%. Turning to Religion explained 2%, and Approach Coping, 1%. Upon analysing the coping strategies between the different language groups, we found that the group speaking other languages used Avoidance and Seeking Support more than the Afrikaans- or English- speaking groups. One would like to understand what impact factors such as Apartheid, which has created a divided society with inferior and superior complexes, and the different cultures have on the coping strategies employed by individuals in stressful situations.

3.2 LIMITATIONS

One of the primary objectives of this study was to gain an understanding of the fact that people within different occupational groups employ different coping strategies to deal with stressful situations.

The first limitation in this study was that 67,5% of the participants belonged to the same group, namely the police service. A very small sample came from electricity supply (6,8%). Although the scores were standardised, the smaller sample size could have influenced the results. According to Hair, Anderson, Tatham, and Black (1992) the relationship among alpha, sample size, effect size and power is quite complicated, and one must be aware that

sample size can impact on the statistical test by either rendering it insensitive (for small sample sizes) or overly sensitive (for very large sample sizes).

Another limitation was that previous researchers used different COPE questionnaires, which makes the comparisons between studies very difficult. It is recommended that the content of the items in the COPE directs researchers to differentiate between coping strategies in the future. The use of a standardised questionnaire in the future will be a great advantage, because the usefulness of the subscales originally proposed by Carver et al. (1998) can only really be determined with the comparison of equivalent versions of the questionnaire.

3.3 RECOMMENDATIONS

Based on the results of this study, the use of the COPE to measure coping strategies in different organisations in South Africa is recommended.

Future research, in order to understand the coping strategies that employees from the same organisation or group employ to deal with stressful situations, must ensure that the number of participants representing that group or organisation is more equally represented in the study. Depending on the focus of the study, researchers must also take other factors (such as management of employees, the specific functions of the occupation, etc.) into consideration in the selection of the participants.

It is recommended that the content of the items in the COPE directs researchers to differentiate between coping strategies in the future. The use of a standardised questionnaire in the future will be a great advantage, because the usefulness of the subscales originally proposed by Carver et al. (1998) can only really be determined with the comparison of equivalent versions of the questionnaire.

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