



# Developing a measurement instrument for coping with occupational stress in academia



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**Orientation:** Occupational stress leads to devastating consequences for academia, which include teaching below standard, conflict with students and seeking employment elsewhere. The stressors that academics experience will continue to increase unless they adopt strategies to cope with these demands.

**Research purpose:** The objective of this research was to construct a valid and reliable measurement instrument which could be used to explore how academics cope with occupational stress.

**Motivation for the study:** There is no clear consensus about the conceptualisation of the coping construct and the categorisation and measurement of numerous coping strategies. Also, as working in academia is highly stressful, there is a need for developing a measuring instrument that holistically measures coping with occupational stress in South African higher education institutions.

**Research approach/design and method:** A three-phase instrument development process was followed. A quantitative, cross-sectional online survey was administered to a convenience sample of 305 employees employed in a higher education institution in the Gauteng province of South Africa.

**Main findings:** A nine-dimensional, 33-item measuring instrument was developed for exploring how academics cope with occupational stressors.

**Practical/managerial implications:** If industrial and organisational psychologists could appreciate the consequences of occupational stress and comprehend the complexities of the coping process, then they would be able to design and implement wellness practices that should not only promote the health and well-being of academics but also the institution.

**Contribution/value-add:** A psychometrically sound measuring instrument, The Comprehensive Coping Strategies Questionnaire, was developed within the South African higher education context that would allow industrial and organisational psychologists to determine which coping strategies academics adopt in response to occupational stressors.

**Keywords:** Occupational stress; coping; academia; higher education institutions; scale development.

## Introduction

### Background of and rationale for the study

Despite incredible advancements in science and technology, employees across the world still seem to experience high degrees of psychological stress in the workplace (Kinnunen-Amoroso & Liira, 2016). Academics are no exception, with research confirming that they experience high to very high levels of occupational stress (Darabi, Macaskill, & Reidy, 2017; Malik, Björkqvist, & Österman, 2017). The rising levels of occupational stress could be ascribed to the substantial growth in student numbers and higher education institutions, increased emphasis on research, adapting to ever-changing curricula and quality assurance measures, and keeping abreast with rapid technological advances (Catano et al., 2010; Martins & Ungerer, 2014; Slišković & Maslic Seršič, 2011). The consequences of occupational stress among academics include teaching below standard, conflict with students and seeking employment elsewhere (Barkhuizen & Rothmann, 2008; Stevenson & Harper, 2006). Darabi et al. (2017) warn that the stressors that academics experience will continue to increase unless they adopt strategies and mechanisms to cope with these demands.

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Coping is a continuous, goal-directed process in which individuals consciously and unconsciously engage to adjust their cognitive and behavioural efforts to maintain personal control during specific stressful situations. The coping effort is thus central to the psychological discipline in that it allows individuals to: (1) regulate distressing emotions (Pascual, Conejero & Etxebarria, 2016), (2) do something about situations that are causing psychological distress (Folkman & Lazarus, 1985) and (3) maintain their physiological and psychological health and well-being (Aldao, Nolen-Hoeksema & Schweitzer, 2010). Researchers have therefore proposed several coping strategies for individuals to adopt in response to environmental demands. However, in an analysis of research on coping, Skinner, Edge, Altman and Sherwood (2003) identified more than 400 types of coping strategies, which indicate that there is no consensus among researchers on the best way to conceptualise the coping effort and categorise coping strategies. In addition, there is no clear consensus on how the coping effort should be measured, as existing coping questionnaires do not measure all the domains that are relevant to the coping process (Dewe, O'Driscoll, & Cooper, 2010). The existing literature further outlines various conceptual and methodological concerns regarding the measurement of coping (Folkman, 2010; Stemmet, 2013). Lastly, because academia is a highly stressful occupation, there is a need for academics to identify occupational stressors in their institutions and develop solutions to eliminate them. There is thus a need to develop a measuring instrument that could holistically measure coping with occupational stress in South African higher education institutions. This study aimed at developing a measuring instrument that could: (1) acknowledge the entire coping process, from when an occupational stressor is perceived until a coping response is adopted (2) consolidate the major types of coping strategies into one measuring instrument and (3) holistically measure coping with occupational stress in South African higher education institutions.

## Research purpose

The purpose of this research was to construct a valid and reliable measurement instrument for measuring coping with occupational stress in academia.

## Potential value added by the study

It was anticipated that the results of this study would not only lead to the development of a more holistic or consolidated coping measurement instrument, but also provide insights into the coping strategies that academics adopt in response to occupational stressors. The results obtained would further allow industrial and organisational psychologists in higher education institutions to design and implement wellness interventions that should not only promote the health and well-being of academics but also that of the institution.

## Literature review

### Conceptualisation

The concept of stress has been a source of immense interest over the past few decades and has gradually evolved to the seminal work of Lazarus and Folkman (1984) in the 20th century. These researchers noted that stress is process oriented and transactional, encompassing appraisals, coping and emotions. From this perspective, stress is defined as the relationship between the person and the environment that is appraised as taxing or exceeding their coping resources (Lazarus & Folkman, 1984, p. 19). Occupational stress results from individuals' inability to cope with pressures of the job because of a poor fit between their abilities and work requirements (Beheshtifar & Nazarian, 2013). The perception of stress increases until the individual has made a conscious decision to cope with the stressor. Consequently, coping is defined as conscious efforts that individuals adopt to manage specific internal and/or external demands that are appraised as taxing or exceeding their coping resources (Lazarus & Folkman, 1984). Similarly, Skinner and Wellborn (1994, p. 112) and Compas et al. (2014, p. 72) conceptualise coping as 'regulation under stress' and defined it as *how* individuals regulate their behaviour, cognition, emotion and physiology under conditions of psychological stress. Coping efforts therefore fall under the broad definition of self-regulation, as individuals are continuously adjusting their thoughts and behaviours, and regulating their emotions to change their perceptions of the stressor.

### Coping dimensions and questionnaires

Coping is an important regulatory process, but the literature reveals that there is no clear consensus about the conceptualisation of the coping construct and the categorisation of the numerous coping strategies (Allen & Leary, 2010; Folkman, 2010). The coping concept is also not adequately represented by a single measure, and numerous inventories have been proposed to assess coping (Knight & Sayegh, 2010). Consequently, for the purposes of this study, a number of coping questionnaires were reviewed (see Table 1). The researcher's intention was not only to outline each questionnaire's basic composition, but also to analyse its psychometric properties and the critique it received from other researchers.

Most coping instruments ask participants to recall how they have reacted or responded to a stressful situation. These instruments therefore focus on past events or situations. The Proactive Coping Inventory (PCI) is the only future-oriented coping instrument (Greenglass et al., 1999). Coping instruments further measure coping styles, resources, responses and behaviours.

The most widely used dimensions of coping are problem-versus emotion-focused coping (Lazarus & Folkman, 1984). Alternative categorisations include engagement versus disengagement coping (Carver & Connor-Smith, 2010), adaptive versus maladaptive coping (Aldao et al., 2010) and

**TABLE 1:** Coping questionnaires: Summary and findings.

Instrument	Purpose	Dimensions	Conceptual and methodological issues
<b>Ways of Coping Questionnaire (WCQs)</b> – Lazarus and Folkman (1984)	The WCQ investigated which coping strategies are used in a specific stressful situation.	Eight dimensions: confrontive coping, distancing, self-control, seeking social support, accepting responsibility, escape/avoidance, planful problem-solving and positive reappraisal	<ul style="list-style-type: none"> <li>Poor reliability and validity estimates.</li> <li>The format of the response items and the factor structure were criticised by various researchers (Stemmet, 2013).</li> <li>Confirmatory factor analysis was not used to confirm the factor structure.</li> <li>Some coping dimensions from the theory are not evident in the questionnaire.</li> </ul>
<b>The Coping Orientations to the Problem Experienced (COPE) Inventory</b> – Carver, Scheier and Weintraub (1989)	The COPE investigated which coping strategies are used when stressful events are experienced.	Eleven dimensions: active coping and planning, suppression of competing activities, restraint coping, seeking social support for instrumental reasons and seeking social support for emotional reasons, positive reinterpretation and growth, acceptance, turning to religion and humour, focus on and venting of emotions, denial, behavioural and mental disengagement and alcohol-drug disengagement	<ul style="list-style-type: none"> <li>The Cronbach's alpha for the inventory ranged between 0.45 and 0.92.</li> <li>The structure of the scale has been questioned. Stemmet (2013) points out that the developers used the Kaiser–Guttman rule for factor extraction, which leads to an overextraction of factors comprising too few items.</li> <li>The COPE does not include all the possible coping strategies (Zuckerman &amp; Gagné, 2003).</li> </ul>
<b>Coping Strategy Indicator (CSI)</b> – Amirkhan (1990)	The Coping Strategy Indicator assesses specific responses to real-world stressors.	Three dimensions: problem solving, social support seeking, and avoidance	<ul style="list-style-type: none"> <li>The Coping Strategy Indicator measures event-specific coping strategies and therefore only measures a selected number of possible coping strategies.</li> <li>Results from the confirmatory factor analysis indicated inadequate goodness-of-fit indices.</li> <li>Schwarzer and Schwarzer (1996) found that the <i>problem-solving</i> dimension was closely associated with the WCQ's <i>seeking social support</i> dimension.</li> </ul>
<b>Coping Strategy Inventory (CSI)</b> – Tobin, Holroyd, Reynolds and Wigal (1989)	The Coping Strategy Inventory was designed to assess coping thoughts and behaviours in response to a specific stressor.	Seven dimensions: problem solving, wishful thinking, problem avoidance, social support, cognitive restructuring, self-criticism and expressing emotions	<ul style="list-style-type: none"> <li>The Coping Strategy Inventory was administered to psychology students, which brings its generalisation into question.</li> </ul>
<b>The Multidimensional Coping Inventory (MCI)</b> – Endler and Parker (1990)	The MCI assesses specific responses to a difficult, stressful or upsetting situation.	Three dimensions: task-oriented, emotion-oriented and avoidance-oriented	<ul style="list-style-type: none"> <li>The MCI was administered to undergraduate psychology students, which brings its generalisation into question.</li> <li>According to Stemmet (2013), there is no report of a more robust confirmatory factor analysis to validate the structure obtained by means of principal component analysis.</li> <li>There appears to be an overlap between the factors that impact negatively on the ability to distinguish between different factors of the MCI.</li> </ul>
<b>The Coping Inventory for Stressful Situations (CISS)</b> – Endler and Parker (1990, 1999)	The CISS measures both general trait coping styles and situation-specific coping responses.	Three dimensions: task-oriented coping, emotion-oriented coping and avoidance-oriented coping	<ul style="list-style-type: none"> <li>According to Stemmet (2013), the CISS cannot be generalised to other populations. The instrument is mainly used to measure general traits, coping styles and situation-specific coping responses.</li> <li>Some of the avoidance scale items may also represent ordinary behaviours, rather than coping strategies.</li> <li>According to Zeidner and Endler (1996), the CISS is based on the dispositional approach, which only focuses on one aspect of coping.</li> <li>The avoidance scale seems to measure general behaviours, rather than coping strategies.</li> </ul>
<b>Coping Styles Questionnaire (CSQ)</b> – Roger, Jarvis and Najarian (1993)	The CSQ assesses how one reacts to stress.	Four dimensions: rational coping, emotional coping, avoidance coping and detached coping	<ul style="list-style-type: none"> <li>The CSQ measures the same dimensions as the WCQ, which has been extensively criticised in previous coping literature (Stemmet, 2013).</li> <li>The CSQ was administered to undergraduate students, which brings its generalisation into question.</li> </ul>
<b>Proactive Coping Inventory (PCI)</b> – Greenglass, Schwarzer Jakubiec, Fiksenbaum and Taubert (1999)	The PCI assesses different dimensions of a proactive approach to coping.	Seven dimensions: proactive coping, preventive coping, reflective coping, strategic planning, instrumental support seeking, emotional support seeking and avoidance coping	<ul style="list-style-type: none"> <li>The PCI measures coping skills and not coping responses.</li> <li>The PCI was administered to undergraduate students, which brings its generalisation into question.</li> </ul>
<b>Emotional Approach Coping Scale (EACS)</b> – Stanton, Kirk, Cameron and Danoff-Burg (2000)	The EACS asks participants to indicate what they generally do, feel and think when they experience stressful situations.	Two dimensions: emotional processing and emotional expression	<ul style="list-style-type: none"> <li>It only measures one dimension of coping, namely, emotional coping.</li> </ul>
<b>Acceptance and Action Questionnaire (AAQ)</b> – Hayes et al. (2004)	The AAQ measures individuals' willingness to accept their emotions and thoughts, and ability to behave in a desired way even when they experience intense emotions.	One dimension : experiential avoidance	<ul style="list-style-type: none"> <li>It is unclear whether the AAQ is a comprehensive measure because it was designed to measure only two aspects of experiential avoidance.</li> <li>Internal coefficients for the AAQ are 0.70 and lower, suggesting that it is somewhat heterogeneous.</li> <li>The AAQ displays evidence of poor discriminant validity.</li> </ul>
<b>Multidimensional Experiential Avoidance Questionnaire (MEAQ)</b> – Gámez, Chmielewski, Kotov, Ruggero and Watson (2011)	The MEAQ assesses a broad range of experiential avoidance (EA) contents.	Six dimensions: behavioural avoidance, distress aversion, procrastination, distraction/suppression, repression/denial and distress endurance	<ul style="list-style-type: none"> <li>Exploratory factor analysis was repeated until the preferred solution was obtained.</li> <li>Confirmatory factor analysis was not used to confirm the factor structure.</li> <li>The criterion for selecting the factors was not reported.</li> <li>The test–retest statistics were not reported.</li> <li>The samples were gender-biased and drawn primarily from undergraduate students.</li> </ul>

Table 1 continues on the next page →

TABLE 1 (Continues...): Coping questionnaires: Summary and findings.

Instrument	Purpose	Dimensions	Conceptual and methodological issues
<b>General and Specific Avoidance Questionnaire (GSAQ)</b> – Stemmet (2013)	The GSAQ measures the dimensions of avoidance coping.	Three dimensions: general avoidance, emotional avoidance and conflict avoidance	<ul style="list-style-type: none"> <li>• Exploratory factor analysis and confirmatory factor analysis techniques do not apply to dichotomous data.</li> <li>• Items were taken from the CSQ, which has been critiqued for measuring the same dimensions as the WCQ.</li> <li>• The questionnaire only measures avoidance coping.</li> </ul>
<b>Maladaptive and Adaptive Coping Styles (MAX) Questionnaire</b> – Moritz et al. (2016)	The MAX measures adaptive and maladaptive coping styles.	Three dimensions: adaptive coping, maladaptive coping and avoidance	<ul style="list-style-type: none"> <li>• Confirmatory factor analysis was not used to confirm the factor structure.</li> <li>• The questionnaire contains some double-barrelled items (e.g. I actively address a problem and try to resolve it).</li> <li>• The internal consistency of the avoidance scale was not high. One might thus question the factor structure of the questionnaire, as avoidance was originally labelled a maladaptive coping strategy (Aldao et al., 2010).</li> </ul>
<b>Positive Coping Behaviour Inventory (PCBI)</b> – Marx (2017)	The PCBI measures individuals' positive coping behaviour by focusing on a broad spectrum of positive psychological constructs.	Four dimensions: cognitive coping behaviour, affective coping behaviour, conative motivational coping behaviour and interpersonal social coping behaviour.	<ul style="list-style-type: none"> <li>• Certain categories (4, 5 and 6) of the six-point frequency-based scale were underutilised, indicating disagreement with the statements.</li> </ul>

Note: Please see the full reference list of the article, Du Plessis, M., & Martins, N. (2019). Developing a measurement instrument for coping with occupational stress in academia. *SA Journal of Industrial Psychology/SA Tydskrif vir Bedryfsielkunde*, 45(0), a1653. <https://doi.org/10.4102/sajip.v45i0.1653>, for more information.

avoidance coping (Carver et al., 1989). The identified strategies range from 2 (e.g. emotional processing and emotional expression in the Emotional Approach Coping Scale [EACS]) to 20 in the Adult Coping Scale (Frydenberg & Lewis, 2011). Coping strategies generally include four basic types: problem-solving or active planning, emotion-oriented coping, social support coping and avoidance coping.

Most coping instruments were deductively developed and administered to undergraduate students. A number of conceptual and methodological concerns were identified (Folkman, 2010; Stemmet, 2013). These included:

- developing measurement instruments with no clear purpose in mind
- utilising only literature and feedback from expert reviews to generate items
- generating items that are vague and undefined
- including items that are too situation specific or inappropriate for the population under investigation
- using ambiguous response formats
- poor reliability and validity estimates
- extracting too many factors, which results in undesirable error variance
- failing to conduct or report on the results of the confirmatory factor analysis (CFA) and empirical validation of the instrument.

From the discussion above, it is evident that the continued refinement of existing coping instruments is required.

### Proposed theoretical framework for measuring coping with occupational stress in academia

A thorough literature review was conducted, in which: (1) the constructs under investigation were conceptualised, (2) the dimensions and subdimensions of coping were reviewed, (3) existing measuring instruments were analysed (see Table 1) and (4) literature trends in occupational stress and coping among academics were considered for developing a conceptual framework for coping with occupational stress among academics. This framework allowed the

researcher to generate questions and items for the intended measuring instrument. The conceptual framework is briefly discussed in the remainder of this section.

### Occupational stressors

Higher education institutions are perceived by academics as a source of stress (Darabi et al., 2017). Academics experience occupational stress once a workplace stressor is appraised as a threat, challenge and/or harmful to their health and well-being. There is thus a perceived discrepancy between the demands in the workplace and the academics' ability to cope with these demands.

### Emotional response

Once a workplace stressor is appraised (through primary appraisal) as taxing and/or exceeding the academics' coping resources, an emotion is elicited. Primary appraisal is an individual's evaluation of an event as potentially hazardous to his or her well-being (Lazarus & Folkman, 1984) and is essential for eliciting an emotional response. Once an emotion arises, it has to be regulated to modify the magnitude and type of emotional experience. Coping or regulatory strategies are adopted to respond to the felt emotion and modulate the academic's perception of the stressor.

### Coping strategies

A coping strategy is an adaptive or maladaptive response to a workplace stressor which causes the individual to experience reduced or heightened emotions. Six theoretically derived coping strategies are proposed for this study:

- *Cognitive coping*: The cognitive processes of acquiring knowledge and understanding through thought and experiences to manage the intake of emotion-arousing stimuli. Five subdimensions were identified: cognitive restructuring, acceptance, problem-solving coping, planning and critical thinking.
- *Emotional coping*: The subjective, psychological and physiological expressions and reactions to stressful encounters that are appraised as taxing or exceeding the academic's coping resources. Emotional expression and

emotional processing were identified as subdimensions (Stanton et al., 2000).

- *Social support coping*: The perceived support that individuals receive from their social support network to regulate heightened emotions in response to environmental demands. Four subdimensions were identified: emotional support, network support, information support and tangible support.
- *Leisure coping*: The physical activities that academics engage in to regulate heightened emotions to respond to environmental demands. Four subdimensions were identified: passive leisure, active leisure, social leisure and vacation time.
- *Religious coping*: The 'ways of understanding and dealing with negative life events that are related to the sacred' (Pargament & Raiya, 2007, p. 743). Organisational religious activities (ORA) and non-organisational religious activities (NORA) were recognised as proposed subdimensions.
- *Experiential avoidance (EA)*: A maladaptive coping strategy that academics adopt to alter the form and frequency of aversive experiences and distress. Four subdimensions were identified: expressive suppression, thought suppression, avoidant coping and rumination.

The first five strategies were categorised as adaptive coping strategies, which are positively associated with affect modulation, physiological and psychological health and well-being, and organisational success (Aldao et al., 2010). Experiential avoidance was categorised as a maladaptive strategy, in that it is associated with increased psychological distress, occupational stress and disorders such as anxiety and depression (Karekla & Panayiotou, 2011). Academics who adopt EA are likely to continue to experience heightened emotions and distress until they are able to adopt adaptive coping strategies.

## Research design

### Research approach

In this study, an instrument for measuring how academics cope with occupational stress was developed by following a combination of steps (see Figure 1) proposed by various scale development authors (Barry, Chaney, Stelfox & Chaney, 2011; DeVellis, 2017; Netemeyer Bearden, & Sharma, 2003; Schmiedel, Vom Brocke, & Recker, 2014; Worthington & Whittaker, 2006). To achieve this objective, a non-experimental, cross-sectional, quantitative survey design was used.

### Phase 1: Theoretical investigation

#### Step 1: Conceptualisation and item generation

A deductive approach was used to develop the instrument. As previously mentioned, a thorough literature review was conducted to gain an understanding of the constructs under investigation. The literature review allowed the researcher to develop four questions that measure occupational stress among academics, and generate 82 items that measure the proposed coping strategies. To achieve the objective of this

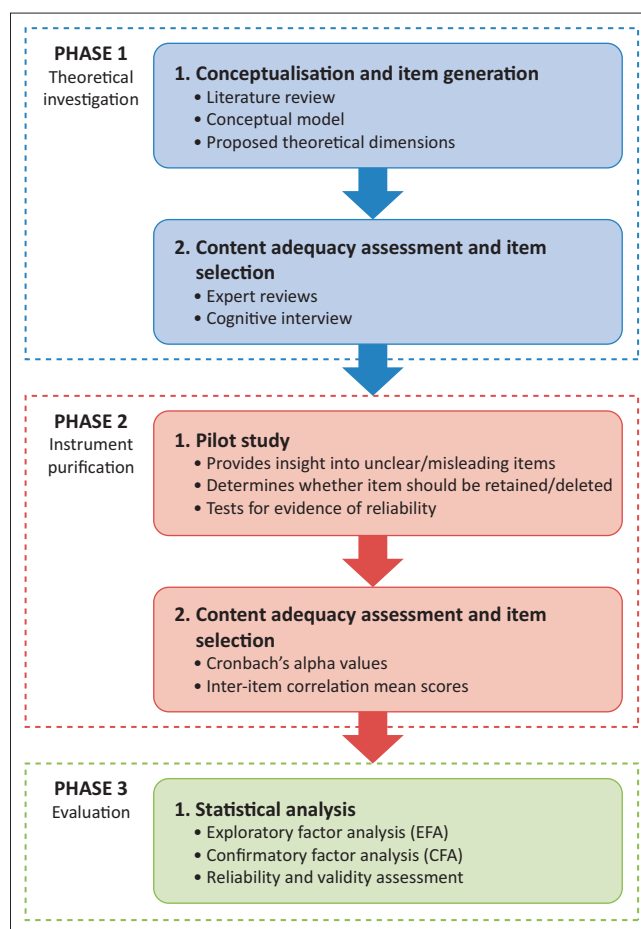


FIGURE 1: The instrument development process.

study, the theoretically derived coping items were further assessed and purified.

#### Step 2: Content adequacy assessment and item selection

The item pool representing the coping items was subjected to an expert review. A panel of nine subject matter experts participated in the review. The experts were instructed to validate the items in terms of item content, content style and comprehensiveness. The information obtained was then used to calculate the content validity index (CVI) at both item level (I-CVI) and scale level (S-CVI). The I-CVI was calculated as the number of reviewers providing a score of 3 or 4 divided by the total number of reviewers. With more than five reviewers, the I-CVI should not be lower than 0.78 (Polit & Beck, 2006). To calculate the S-CVI, two different indices were calculated: (1) scale-level content validity index, universal agreement (S-CVI/UA), which is the proportion of the items on one scale that the reviewers scored essential, and (2) S-CVI/AVE, which is the average proportion of the items on one scale rated 3 or 4. The results of the CVI revealed that 31 items had an I-CVI score of between 0.33 and 0.67. The acceptable standard for I-CVI is 0.80 (Polit & Beck, 2006). The content validity of the instrument (S-CVI) yielded a score of 0.75, which was below the recommended criterion of 0.80 (Polit, Beck, & Owen, 2007). The content validity of the instrument was thus not adequate, suggesting that items had to be revised or

removed. Unclear or vague items were further highlighted by the reviewers and suggestions for improvement were made. Consequently, of the 82 items that had been subjected to an expert review, 51 were retained, 13 were revised and 18 were removed, while 4 new items were included.

Sixty-eight coping items were subjected to a cognitive interview, which allowed for direct input from a sample of 11 academics on the item content, format of the statements and understandability of the statements (Irwin, Varni, Yeatts, & DeWalt, 2009). Informed consent was obtained and the purpose of the cognitive interview was explained to the participants. They were instructed to complete the questionnaire according to the instructions provided. Respondent debriefing was used to obtain specific information about unclear and/or difficult items. The participants were further asked to provide open-ended feedback on the clarity and comprehensibility of the instructions, the meaning of individual items, the response format and the relevance of each item. Throughout the interview, the researcher used cognitive probing to gain a better understanding of the participants' interpretation of the items. The findings of the interview were positive, revealing that the instructions were clear and the questionnaire was easy to complete. However, suggestions for improvement were made. Consequently, eight items were revised and one new item was included. Sixty-nine coping items were included in the final instrument. Figure 2 presents the item development and selection process.

## Phase 2: Instrument purification

### Step 1: Pilot study

A pilot study was initiated. The paper-and-pencil questionnaire was administered to a sample of academics ( $n = 30$ ) that were representative of the actual population. A sample of 30 participants was deemed appropriate to: (1) provide insights into unclear or misleading questions or items, (2) determine which questions or items should be retained or deleted and (3) test for evidence of reliability (Hill, 1998; Isaac & Michael, 1995). Several respondents expressed concern about the meaning of the 'social support network' concept. Respondents indicated that their social support network at home differs from their network in the workplace. However, the item was retained because according to Hämig (2017), social support

comes from a variety of sources, such as family, friends, partners and co-workers or colleagues. If the items had been revised to include only co-workers or colleagues, they would have become restrictive. A comprehensive definition of the concept was included in the questionnaire.

### Step 2: Internal consistency and item reliability

The Cronbach's alpha values of the pilot study were considered adequate for the purposes of the study, with alpha values higher than 0.70 (DeVellis, 2017). The inter-item correlation mean scores for the *cognitive* (0.23), *leisure* (0.22), *religion* (0.38) and *EA* (0.34) coping dimensions fell within the suggested threshold of 0.20 and 0.40 (Piedmont, 2014). However, the *emotional* (0.44) and *social support* (0.63) coping dimensions fell above the suggested threshold of 0.40, suggesting that the items might have only captured a small bandwidth of the construct (Cohen & Swerdlik, 2005). The psychometric properties of the coping items were deemed acceptable.

## Research participants

Data were obtained from a non-probability convenience sample of permanently employed academics in a higher education institution in the Gauteng province of South Africa ( $N = 4016$ ). The sample of participants ( $n = 305$ ) consisted of female (64.3%) and male (35.7%) employees who were predominantly between the ages of 40 and 55 years (44.3%). The majority of the sample (81.6%) had a postgraduate qualification, with 34.4% having a doctoral degree, 35.7% a master's degree, 11.5% an honours degree and 6.6% a bachelor's degree. Only a small proportion (11.8%) of participants had a diploma, higher certificate or matric certificate. The distribution of the sample further showed that 34.1% of the sample were employed as academic support staff and 65.9% as academics. The academic component comprised 16 (5.2%) junior lecturers, 74 (24.3%) lecturers, 65 (21.3%) senior lecturers, 21 (6.9%) associate professors and 25 (8.2%) professors. Lastly, the sample consisted of participants who had predominantly been employed for 10 years or more (62.0%).

## Research procedure

Data were collected by means of a self-administered online questionnaire, which was uploaded onto an online survey

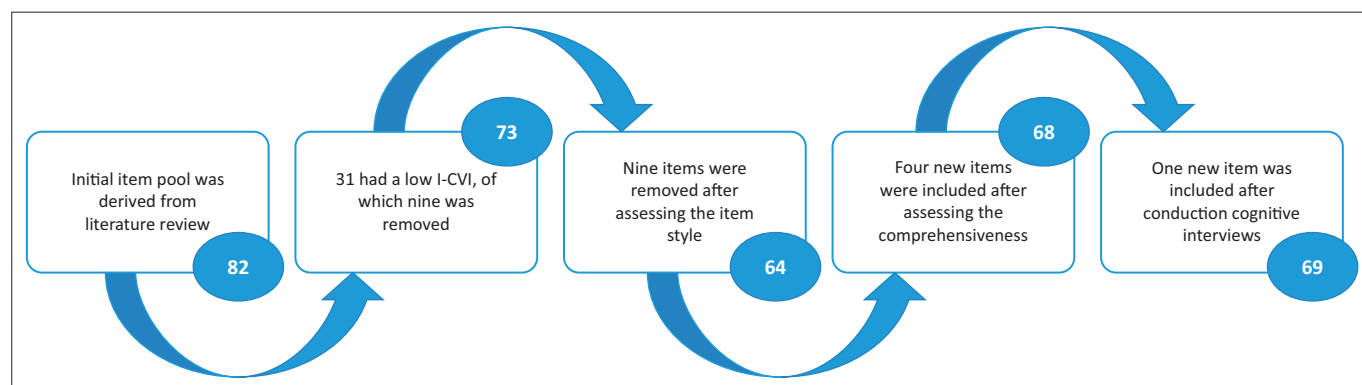


FIGURE 2: Item generation and selection process.

application. The URL link to the questionnaire and instructions were provided to the participants through an electronic mail. The link redirected the respondents to the online platform, where their responses were captured. Informed consent was obtained and participation in the survey was voluntary.

## Statistical analysis

IBM SPSS Statistics version 24 software was utilised to perform the statistical analysis.

### Data screening and descriptive analysis

The first phase in the data analysis process involved cleaning and organising the data. The data were scrutinised for unresponsive and unengaged responses. As there were no cases that showed no variation across the items, the data were deemed sufficient for further analysis. Next, the frequency statistics for each item were calculated and scrutinised in terms of minimum and maximum values, as well as means and standard deviations. These calculations were conducted to determine if there were any outliers. No outliers were detected.

Lastly, assumptions about the normality of the data were assessed. The ratios of kurtoses were reviewed against the standard errors of the kurtoses, and all ratios larger than three were identified and the distribution of responses was inspected. Overall, the data were deemed within acceptable limits of deviation, except for two items that showed excessive ratios of 68.01 (item 55) and 21.89 (item 64). These items were further assessed in terms of their face and/or construct validity and appropriateness. Although a decision was made to retain the items for further analysis, it was anticipated that these items would be removed from the questionnaire. In addition, given the large sample size ( $n > 100$ ), the underlying sampling distribution was deemed to be normally distributed, in line with the central limit theorem (Field, 2013).

### Inferential analysis

To validate the underlying structure of the coping items, a combination of exploratory factor analysis (EFA) and CFA was performed.

**Exploratory factor analysis:** For the purposes of identifying the underlying structure of the coping items, an EFA was performed on the sample comprising 305 academics. According to the requirements set by Worthington and Whittaker (2006), the sample size ( $\geq 300$ ) was sufficient for conducting a factor analysis. Before commencing with the EFA, the strengths of the intercorrelations between the items were determined. The visual inspection of the correlation matrix revealed evidence of coefficients equal to or greater than 0.30 (Hair, Black, Babin, & Anderson, 2010). Secondly, the factorability of the correlation matrix was determined by applying Bartlett's test for sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.

In the EFA, maximum-likelihood extraction and principal axis factoring (PAF) with oblique rotation (promax) were used to correlate and rotate the factor structure. An oblique rotation was used because: (1) factor intercorrelations are the norm in social sciences, (2) both approaches yield the same result if the factors happen to be uncorrelated and (3) it is recommended by instrument development researchers (Furr, 2011). Kaiser's criterion (eigenvalues for each factor), a screen test and percentage of variance explained were used to determine the number of factors that would be considered suitable for further retention. In order to create a parsimonious and simple structure, only items that clearly loaded on a single appropriate factor were retained. All items with factor loadings less than 0.35 or cross-loadings less than 0.20 difference from the item's highest factor were thus removed (Hair et al., 2010). The percentage of total item variance was also considered. A percentage of 60 was considered acceptable.

In this study, EFA was used to reduce the number of coping items into smaller, more parsimonious factors and to determine the construct validity of the instrument.

**Confirmatory factor analysis:** Confirmatory factor analysis was used to validate the underlying structure and assess the internal consistency of the instrument. Aside from the chi-square goodness-of-fit test, a number of goodness-of-fit indices (GFIs) were used to determine the degree to which the theoretical model was consistent with the empirical data.

### Reliability and validity assessment

The reliability of the instrument was assessed by calculating the Cronbach's alpha coefficient. DeVellis (2017) suggests that a Cronbach's alpha coefficient of 0.70 should serve as an absolute minimum for a newly designed instrument. Dimensionality and reliability are important aspects of an instrument's psychometric properties and quality, but without validation any inferences made from the instrument are meaningless, inappropriate and of limited usefulness (Furr, 2011). In this study, the content validity and construct validity of the coping items were assessed.

**Content validity:** The content validity was assessed in the first phase (step 2) of the instrument development process by means of an expert review and cognitive interviews (Figure 1).

**Construct validity:** Evidence of construct validity was provided by conducting EFA and CFA, and assessing the convergent and discriminant validity of the instrument. An instrument demonstrates *convergent and discriminant validity* when it correlates highly with other variables with which it should theoretically correlate, and correlates minimally with variables from which it should differ (Foxcroft & Roodt, 2013). For the purpose of this study, the correlation coefficient was used to estimate the degree to which any

two measures were related to each other. Hair et al. (2010) further advocate the use of composite reliability (CR) ( $>0.70$ ), average variance extracted (AVE) ( $>0.50$ ), maximum shared squared variance (MSV) ( $<AVE$ ) and average shared squared variance (ASV) ( $<AVE$ ) to measure convergent and discriminant validity.

## Ethical consideration

Ethical clearance (2014/CEMS/IOP/025) and permission (2017\_RPSC\_011) to conduct the research were obtained from the University of South Africa's Research and Ethics Committee.

## Results

The statistical processes used to evaluate the performance of the individual items and to further refine the instrument are discussed in this section.

### Exploratory factor analysis

#### Exploratory factor analysis of the 69 coping items

Initially, the factorability of the 69 items was examined. Firstly, the sample size of 305 was in accordance with the guidelines established by Worthington and Whittaker (2006), in that a sample size of at least 300 is sufficient for factor analysis. Secondly, the strengths of the intercorrelations between the items were determined by assessing the factorability of the correlation matrix. The visual inspection of the correlation matrix revealed evidence of coefficients equal to or greater than 0.30 (Hair et al., 2010). Lastly, the KMO measure of sampling adequacy was 0.845, which was well above the commonly recommended value of 0.60 (Tabachnick & Fidell, 2013), and Bartlett's test of sphericity was significant ( $p \leq 0.05$ ). Given these indicators, factor analysis was deemed to be suitable.

The responses of the 69 items were correlated and rotated using maximum-likelihood extraction with oblique rotation (promax). Initial eigenvalues indicated that the first 15 factors explained 67.54% of the total variance. When compared to the dimensions proposed in the literature review, the results of the initial EFA clearly overestimated the number of factors for the data set. Several items in the rotated-factor matrix cross-loaded on more than one factor. These were removed, starting with the highest loadings. In addition, items with low factor loadings ( $\leq 0.35$ ) and high cross-loadings (less than 0.20 difference) in each factor were also removed (Hair et al., 2010). Only 42 items were retained, which were subjected to a second round of EFA.

#### Exploratory factor analysis of the 42 items

A statistically significant Bartlett's test of sphericity ( $p \leq 0.05$ ) and a KMO measure of sample adequacy of 0.859 confirmed that the overall significance of the correlations within the correlation matrix was suitable for factor analysis. Principal axis factoring with oblique rotation (promax) was conducted

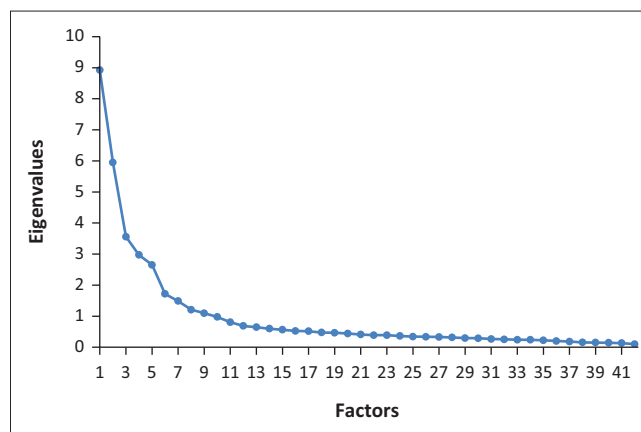


FIGURE 3: Scree plot for the 42 items.

on the 42 items. The scree plot (see Figure 3) and parallel analysis indicated that nine significant factors could be identified from the originally defined six coping dimensions. The nine significant factors explained 70.38% of the total variance, which is in accordance with the guidelines established by Hair et al. (2010), namely that a solution that accounts for 60% of the total variance is satisfactory. The nine-factor solution was accepted because: (1) it is theoretically supported by the existing literature, (2) the minimum cumulative percentage of variance explained, was higher than 60% (Plonsky & Gonulal, 2015), (3) the nine factors' eigenvalues were greater than 1.0, (4) the scree plot started decreasing and straightened after the ninth factor and (5) all the items had factor loadings of 0.40 and higher, indicating the significance of these items for interpretative purposes. The rotated pattern matrix for the 42-item instrument is summarised in Table 2.

The nine factors were labelled *social support coping* (SOC [eight items]), *religious coping* (REL [seven items]), *cognitive coping* (COG [eight items]), *active leisure coping* (ACT LEI [four items]), *avoidant coping* (AVOID, four items), *social disengagement* (SOC DIS [three items]), *vacation time* (VAC TIME [three items]), *ruminantion* (RUM [three items]) and *emotional coping* (EMO [two items]).

The factor correlation matrix summarised in Table 3 shows low or weak correlations between the factors, indicating that the factors are not interrelated (Hair et al., 2010). However, factors 5 (*avoidant coping*;  $R = 0.451$ ) and 6 (*social disengagement*;  $R = 0.458$ ) moderately correlated with factor 8 (*ruminantion*), indicating that these constructs are interrelated. Similarly, factor 4 (*active leisure*;  $R = 0.419$ ) moderately correlated with factor 7 (*vacation time*).

### Confirmatory factor analysis

The original model revealed a mediocre to poor fit, indicating that there was a significant discrepancy between the correlations proposed and the correlations observed. The goodness-of-fit (GFI) obtained was 0.78 (prescribed threshold  $> 0.90$ ) and the adjusted goodness-of-fit (AGFI) was 0.75 (prescribed threshold  $> 0.90$ ). The normed fit index



(NFI), relative fit index (RFI), comparative fit index (CFI) and Tucker Lewis index (TLI) were 0.79, 0.77, 0.87 and 0.85, respectively, compared to the recommended level of above

**TABLE 2:** Rotated pattern matrix for the nine-factor model.

Variable	Factor								
	1	2	3	4	5	6	7	8	9
v17	0.933	-	-	-	-	-	-	-	-
v28	0.889	-	-	-	-	-	-	-	-
v59	0.830	-	-	-	-	-	-	-	-
v9	0.818	-	-	-	-	-	-	-	-
v2	0.703	-	-	-	-	-	-	-	-
v36	0.699	-	-	-	-	-	-	-	-
v47	0.636	-	-	-	-	-	-	-	-
v3	0.526	-	-	-	-	-	-	-	-
v21	-	0.857	-	-	-	-	-	-	-
v30	-	0.837	-	-	-	-	-	-	-
v53	-	0.834	-	-	-	-	-	-	-
v48	-	0.817	-	-	-	-	-	-	-
v41	-	0.802	-	-	-	-	-	-	-
v11	-	0.778	-	-	-	-	-	-	-
v40	-	0.757	-	-	-	-	-	-	-
v57	-	-	0.816	-	-	-	-	-	-
v62	-	-	0.810	-	-	-	-	-	-
v65	-	-	0.746	-	-	-	-	-	-
v54	-	-	0.683	-	-	-	-	-	-
v34	-	-	0.674	-	-	-	-	-	-
v46	-	-	0.626	-	-	-	-	-	-
v61	-	-	0.557	-	-	-	-	-	-
v26	-	-	0.549	-	-	-	-	-	-
v29	-	-	-	0.866	-	-	-	-	-
v19	-	-	-	0.858	-	-	-	-	-
v37	-	-	-	0.856	-	-	-	-	-
v18	-	-	-	0.652	-	-	-	-	-
v42	-	-	-	-	0.768	-	-	-	-
v22	-	-	-	-	0.746	-	-	-	-
v12	-	-	-	-	0.705	-	-	-	-
v44	-	-	-	-	0.566	-	-	-	-
v32	-	-	-	-	-	0.833	-	-	-
v63	-	-	-	-	-	0.748	-	-	-
v23	-	-	-	-	-	0.742	-	-	-
v39	-	-	-	-	-	-	0.857	-	-
v20	-	-	-	-	-	-	0.797	-	-
v51	-	-	-	-	-	-	0.772	-	-
v45	-	-	-	-	-	-	-	0.770	-
v60	-	-	-	-	-	-	-	0.670	-
v33	-	-	-	-	-	-	-	0.632	-
v8	-	-	-	-	-	-	-	-	0.762
v16	-	-	-	-	-	-	-	-	0.592

Note: This is a summary of the statistical output from SPSS.

**TABLE 3:** Factor correlation matrix for the nine-factor model.

Factor	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9
Factor 1	1	-	-	-	-	-	-	-	-
Factor 2	0.385†	1	-	-	-	-	-	-	-
Factor 3	0.201	0.074	1	-	-	-	-	-	-
Factor 4	0.348†	0.398†	0.124	1	-	-	-	-	-
Factor 5	-0.020	0.129	-0.432	-0.032	1	-	-	-	-
Factor 6	-0.179	-0.042	-0.211	-0.106	0.370†	1	-	-	-
Factor 7	0.253	0.302†	0.049	0.419†	0.173	-0.007	1	-	-
Factor 8	0.055	-0.105	-0.210	-0.123	0.451†	0.458†	0.037	1	-
Factor 9	0.387†	0.143	0.415†	0.169	-0.226	-0.216	0.036	-0.249	1

Note: Extraction method: Principal axis factoring.

†, significant correlations between factors.

0.90 (Baumgartner & Homburg, 1996). The root mean square error of approximation (RMSEA) was 0.07, which was above the recommended limit of 0.06 (Hu & Bentler, 1999), and the root mean square residual (RMR) was above the recommended threshold of 0.02 at 0.16 (Hu & Bentler, 1999). The theorised model therefore did not fit well with the observed data.

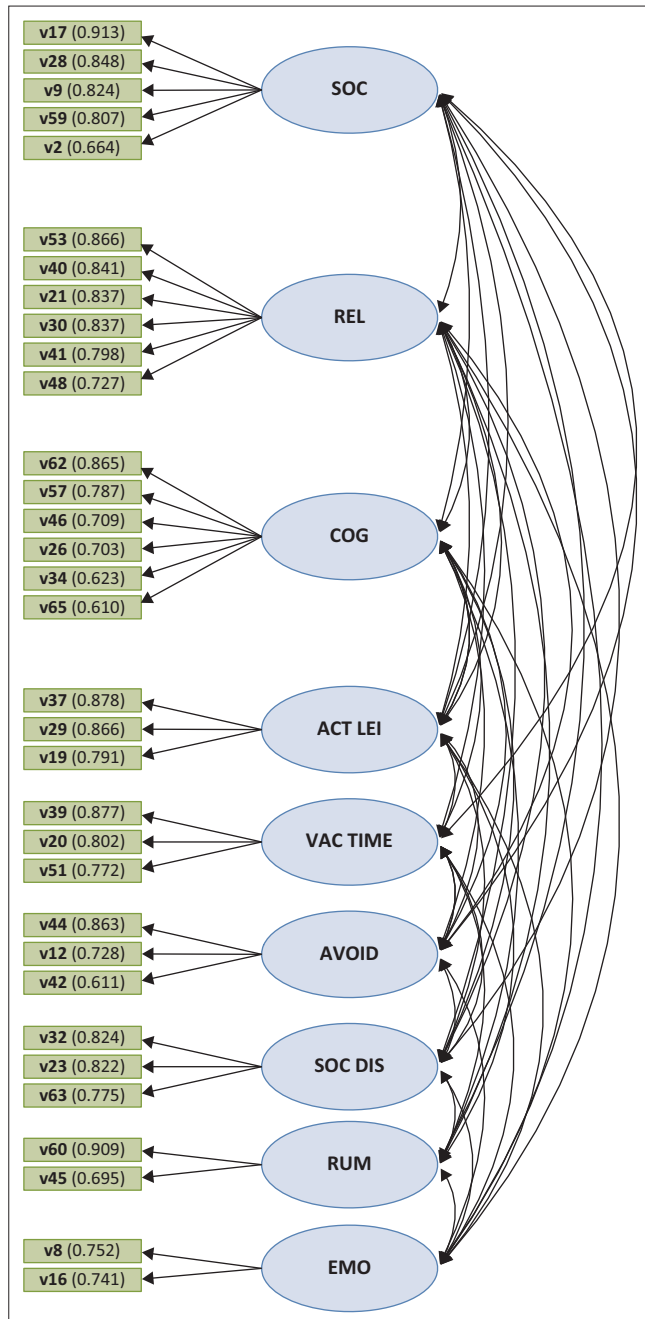
The modification indices and standardised residual covariance were assessed to remedy the discrepancies between the proposed and estimated models. Residuals greater than 2.5 suggested an unacceptable degree of error and resulted in the deletion of items (Field, 2013). Nine additional items with residuals equal to or greater than 2.5 were removed to account for the correlations between variables in the data set.

The Santorra–Bentler chi-square statistic of 820.75, based on 459 degrees of freedom ( $p = 0.00$ ), was significant and revealed an acceptable model fit. The CMIN/DF ratio was 1.79 ( $\text{CMIN/DF} \leq 5.0$ ), which indicates a good model fit (Garson, 2002). According to these guidelines, the revised model appeared to fit the data well. Bentler (2007), however, advises that the CMIN value should be used with caution and other fit indices, such as the CFI, RMSEA and standardised root mean square residual (SRMR), should be used to assess the model's fit.

The GFI obtained was 0.87, and the AGFI was 0.84. The NFI, RFI, CFI and TLI were 0.87, 0.85, 0.94 and 0.93, respectively, compared to the recommended level of above 0.90. Both the RMSEA and SRMR values were 0.05, which were in accordance with the guidelines established by Hair et al. (2010), in that RMSEA values between 0.05 and 0.08 and SRMR values of less than 0.50 are indicative of an acceptable model fit. The CMIN/DF value, CFI, RMSEA and SRMR values, therefore, met the minimum requirements for model fit. The revised model for the nine dimensions is shown in Figure 4.

## Reliability and validity assessment

The dimensions were retained because the reliability (CR) for all the dimensions was above the recommended threshold of 0.70 (RUM  $\alpha = 0.79$ ; SOC  $\alpha = 0.91$ ; REL  $\alpha = 0.92$ ;



v, variable; SOC, social support coping; REL, religious coping; COG, cognitive coping; ACT LEI, active leisure coping; VAC TIME, vacation time; AVOID, avoidant coping; RUM, rumination; EMO, emotional coping.

**FIGURE 4:** Revised model.

COG  $\alpha = 0.87$ ; ACT LEI  $\alpha = 0.88$ ; VAC TIME  $\alpha = 0.86$ ; AVOID  $\alpha = 0.78$ ; SOC DIS  $\alpha = 0.85$ ; EMO  $\alpha = 0.72$ ) (Hair et al., 2010). The convergent reliability (AVE) for the dimensions was above the recommended threshold of 0.50 prescribed by Hair et al. (2010) and was thus retained. The discriminant validity (MSV and ASV) for all the dimensions fell within the recommended threshold, where  $MSV < AVE$  and  $ASV < AVE$  (Hair et al., 2010). Considering the goodness-of-fit results and reliability and validity results, the revised model (Figure 4) was accepted. Table 4 outlines the standard regression weights between the nine coping strategies and individual items, as well as the correlations between the coping strategies.

## Discussion

The purpose of this study was to construct a measuring instrument that holistically measures coping with occupational stress in academia by consolidating the major types of coping strategies identified in the literature into one measuring instrument, namely The Comprehensive Coping Strategies Questionnaire (CCSQ). Although the theoretical dimensions proposed comprised six coping strategies: (1) cognitive, (2) emotional, (3) social support, (4) leisure, (5) religious and (6) EA – the results of the development process confirmed nine empirically validated coping strategies: (1) social support coping, (2) religious coping, (3) cognitive coping, (4) active leisure coping, (5) avoidant coping, (6) social disengagement, (7) vacation time, (8) rumination and (9) emotional coping. Although the theoretically derived *leisure coping* and EA items loaded on a new latent structure, the results of the factor correlation matrix indicated that *active leisure coping* ( $R = 0.419$ ) moderately correlated with *vacation time*, indicating that these constructs were interrelated. Kim and McKenzie (2014) identified four leisure categories, namely, passive leisure, active leisure, social leisure and vacation time. Although these four categories were considered in formulating the *leisure coping strategy*, the empirical results confirmed Kim and McKenzie's (2014) categorisation, indicating that these four strategies should not be categorised under one dimension. *Passive leisure* and *social leisure* were, however, not regarded as coping strategies that academics adopt in response to an occupational stressor. It is therefore recommended that the *active leisure* and *vacation time* items should be reviewed to form one dimension.

Regarding the EA coping strategy, only two of the theoretically proposed subdimensions (*avoidant coping* and *rumination*) survived the stages of scale development. Although the literature considered both avoidant coping and rumination as EA strategies (Karekla & Panayiotou, 2011), the results of the empirical study confirmed two separate factors. The findings were thus inconsistent with the literature. Secondly, a subdimension of the proposed *avoidant coping* strategy also loaded on a new factor, namely, *social disengagement*. This finding was also inconsistent with the literature, which stated that social disengagement is a form of avoidant coping (Karekla & Panayiotou, 2011). The results of the factor correlation matrix, however, revealed that *avoidant coping* ( $R = 0.451$ ) and *social disengagement* ( $R = 0.458$ ) are moderately correlated with *rumination*. Lastly, the six items that constituted the *self-destructive behaviour* subdimension did not load on a factor. According to Nolen-Hoeksema, Wisco and Lyubomirsky (2008), self-destructive behaviour is a maladaptive coping strategy that individuals adopt to redirect their attention away from a stressor and includes behaviours such as reckless driving, excessive drinking, drug abuse or aggressive behaviour. It was concluded that the respondents either did not adopt self-destructive behaviour as a mechanism of coping, or the items were of such a sensitive nature that the respondents answered the question dishonestly even though anonymity and confidentiality were assured. According to De Schrijver (2012), socially undesirable

**TABLE 4:** Standardised regression weights and correlations for the revised model (33 items).

Variable	Standardised regression weights			Correlations			
	Regression	Factor	Estimate	Factor	Correlation	Factor	Estimate
v17	←	SOC	0.913	SOC	↔	AVOID	-0.063
v28	←	SOC	0.848	SOC	↔	VAC TIME	0.223
v9	←	SOC	0.824	SOC	↔	COG	0.084
v59	←	SOC	0.807	SOC	↔	ACT LEI	0.253
v2	←	SOC	0.664	SOC	↔	REL	0.341
v53	←	REL	0.866	SOC	↔	SOC DIS	-0.175
v40	←	REL	0.841	SOC	↔	RUM	0.060
v21	←	REL	0.837	SOC	↔	EMO	0.490
v30	←	REL	0.837	REL	↔	COG	0.030
v41	←	REL	0.798	REL	↔	ACT LEI	0.404
v48	←	REL	0.727	REL	↔	VAC TIME	0.345
v62	←	COG	0.865	REL	↔	AVOID	0.070
v57	←	COG	0.787	REL	↔	SOC DIS	-0.057
v46	←	COG	0.709	REL	↔	RUM	-0.055
v26	←	COG	0.703	REL	↔	EMO	0.182
v34	←	COG	0.623	COG	↔	ACT LEI	0.069
v65	←	COG	0.61	COG	↔	VAC TIME	-0.004
v37	←	ACT LEI	0.878	COG	↔	AVOID	-0.545
v29	←	ACT LEI	0.866	COG	↔	SOC DIS	-0.269
v19	←	ACT LEI	0.791	COG	↔	RUM	-0.400
v39	←	VAC TIME	0.877	COG	↔	EMO	0.481
v20	←	VAC TIME	0.802	ACT LEI	↔	VAC TIME	0.424
v51	←	VAC TIME	0.772	ACT LEI	↔	AVOID	-0.119
v44	←	AVOID	0.863	ACT LEI	↔	SOC DIS	-0.100
v12	←	AVOID	0.728	ACT LEI	↔	RUM	-0.101
v42	←	AVOID	0.611	ACT LEI	↔	EMO	0.206
v32	←	SOC DIS	0.824	VAC TIME	↔	AVOID	0.071
v23	←	SOC DIS	0.822	VAC TIME	↔	SOC DIS	0.013
v63	←	SOC DIS	0.775	VAC TIME	↔	RUM	0.010
v60	←	RUM	0.909	VAC TIME	↔	EMO	0.119
v45	←	RUM	0.695	AVOID	↔	SOC DIS	0.535
v8	←	EMO	0.752	AVOID	↔	RUM	0.703
v16	←	EMO	0.741	AVOID	↔	EMO	-0.320
-	-	-	-	SOC DIS	↔	RUM	0.531
-	-	-	-	SOC DIS	↔	EMO	-0.281
-	-	-	-	RUM	↔	EMO	-0.164

v, variable; SOC, social support coping; REL, religious coping; COG, cognitive coping; ACT LEI, active leisure coping; VAC TIME, vacation time; AVOID, avoidant coping; SOC DIS, social disengagement; RUM, rumination; EMO, emotional coping.

behaviour is often under-reported and includes behaviour such as substance use and alcohol consumption. The *self-destructive behaviour* subdimension should thus be reviewed.

Strong support exists for the psychometric properties of the instrument. Firstly, the questionnaire was deductively developed after conducting a thorough literature review. Secondly, empirical support was shown for construct and content validity (determined through an expert review, cognitive interviews and a pilot study), internal consistency reliability ( $\alpha = 0.87$ ) and CR (between 0.72 and 0.92). The instrument further demonstrated convergent ( $\geq 0.50$ ) and discriminant validity ( $MSV < AVE$  and  $ASV < AVE$ ). Lastly, the factor structure of the instrument was confirmed using CFA.

### Practical implications

This study could prove useful for industrial and organisational psychologists because a valid and reliable measuring instrument was developed for determining which coping strategies academics adopt to regulate heightened emotions

in response to an occupational stressor. The instrument could thus be used as a diagnostic tool for determining *how* academics respond to occupational stressors. The results obtained from administering the instrument should further allow industrial and organisational psychologists to gain an in-depth understanding of: (1) the occupational stressors that academics perceive as taxing and/or exceeding their coping resources, (2) the emotions elicited when a workplace stressor is perceived as stressful and (3) the coping strategies academics adopt to modulate the felt emotion. If industrial and organisational psychologists are able to appreciate the consequences of occupational stress and comprehend the complexities of the coping process, then they will be able to design and implement wellness practices that should not only promote the health and well-being of the academics, but also that of the institution.

### Limitations of the study and recommendations

No study of this nature is without limitations, especially because the coping process is a complex phenomenon.

The following limitations were encountered in this study: firstly, the sources consulted were mostly of international origin, and there is little agreement among researchers about the best way to conceptualise these concepts. Secondly, the literature on the categorisation and measurement of coping strategies is limited, obsolete and incongruent. Thirdly, although the sample size was adequate to conduct the statistical analysis, further research needs to be conducted among a broader spectrum of participants. Lastly, a non-probability convenience sample was selected.

Despite having acceptable psychometric properties, continued refinement of the instrument is suggested. Modifications to the questionnaire could include the following: firstly, although a deductive approach was followed to generate items, the researcher recommends that both deductive and inductive approaches should be considered to increase the instrument's content validity further (Hinkin, 1995). Secondly, while granting that the final instrument obtained provides adequate support for reliability and validity, the dimensions with three or fewer items should be revised and new items should be considered for inclusion. Thirdly, the *emotional coping* items should be reviewed because only one subdimension with two items (*emotional expression*) survived the stages of scale development. Lastly, future researchers should consider the inclusion of *distraction* as a subdimension of coping with occupational stress among academics. Distraction, which could be categorised as an adaptive coping strategy, is often used as a technique to divert oneself from an emotion-eliciting stimulus (Lehto, Park, Fu, & Lee, 2014).

## Conclusion

A nine-dimensional, 33-item coping instrument, The Comprehensive Coping Strategies Questionnaire (CCSQ), was developed for South African higher education institutions. Although the findings were encouraging, it should be borne in mind that the validation of an instrument is an ongoing process. Continued refinement of the instrument is thus recommended for other industries in South Africa.

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## Competing interests

The authors declare that they have no financial or personal relationships which may have inappropriately influenced them in writing this article.

## Author's contributions

M.d.P. was a PhD student of N.M. Both authors contributed to the writing and finalisation of the article for submission.

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## Data availability statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

## Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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