


Model of coping with occupational stress of academics in a South African higher education institution



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Orientation: Occupational stress is a phenomenon that affects the physiological and psychological health and well-being of academic staff in higher education institutions (HEIs).

Research purpose: The purposes of this study were: (1) to test a structural model of occupational stress and coping for academics in a South African HEI, and (2) to determine whether the proposed adaptive coping strategies positively and significantly predict coping success.

Motivation for the study: Occupational stress among academics will increase unless strategies and mechanisms are adopted to cope with the environmental demands in their profession. Higher education institutions seeking to promote academics' health and well-being should first comprehend the complexities of the coping process. There is thus a need for a more holistic view of coping with occupational stress in academia.

Research approach/design and methods: A quantitative approach, using a cross-sectional, survey design, collected 305 responses from a convenience sample of academics. The Comprehensive Coping Strategies Questionnaire (CCSQ) was administered to the participants. Statistical analyses included descriptive statistics, thematic analysis, exploratory and confirmatory factor analysis, standard multiple regression analysis and structured equation modelling.

Main findings: The theoretically hypothesised model had a good fit with the empirically manifested structural model. Academics experience both organisation- and job-specific stressors that elicit distressing emotions. Academics adopt adaptive coping strategies, which are associated with coping success.

Practical/managerial implications: Higher education institutions should implement interventions to eliminate occupational stressors and should encourage academic staff to adopt adaptive coping strategies by arranging stress management courses and Affect Regulation Training (ART).

Contribution/value-add: The study contributes toward a more holistic view of coping with occupational stress in academia, especially within a South African higher education context.

Keywords: occupational stress; coping; emotion regulation; academia; higher education.

Introduction

Background to and rationale for the study

Occupational stress is a general and global phenomenon that affects the physiological and psychological health and well-being of an individual (Rakshit & Sharma, 2016). Academic staff in higher education institutions (HEIs) are no exception, as workplace stress among academics has increased over the past decade (Mudrak et al., 2016). The rising levels of occupational stress could be ascribed to: the substantial growth in student numbers and in the number of HEIs (Catano et al., 2010); an increased emphasis on research output (Bezuidenhout, 2015); adapting to changing curricula and quality assurance measures (Slišković & Maslić Seršič, 2011); and keeping abreast of rapid technological advances (Jahanzeb, 2010). Hence, all domains of academia are becoming more demanding, with each academic fulfilling approximately 40 work roles, such as subject specialist, researcher and assessor, daily (Bezuidenhout, 2015).

Owing to an increase in work demands, academics are forced to work long hours, which results in a number of physiological, psychological, behavioural and organisational consequences (Kinman, 2001; Steyn & Kamper, 2006). The reported consequences of stress on academic staff are: teaching below standard, absenteeism, conflict with students, seeking employment elsewhere

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and, ultimately, poor health and well-being (Stevenson & Harper, 2006). Darabi, Macaskill and Reidy (2017) warn that the stressors that academics experience will continue to increase unless they and their respective institutions adopt strategies and mechanisms to cope with these demands.

Against this background, it is evident that occupational stress is a continuing concern for HEIs.

Previous research explored occupational stressors and coping strategies amongst academics in other countries (Abbas & Roger, 2013; Ablanedo-Rosas, Blevins, Gao, Teng, & White, 2011; Broadbent, 2013; Darabi et al., 2017; Holton, Barry, & Chaney, 2016; Johnson, Willis, & Evans, 2018; Poalses & Bezuidenhout, 2018), but researchers have devoted little attention to producing a more holistic view of coping with occupational stress in a South African higher education context. Researchers have also become increasingly interested in emotional experiences during stressful life events (such as chronic illnesses), but have devoted little attention to the emotions that employees experience when confronted with occupational stressors. From a positive psychology perspective, it is important for academics to identify occupational stressors in their respective institutions and to develop solutions to eliminate them.

Research purpose and objectives

This study aims to address the shortcomings in existing literature by extending the appraisal theory of coping and emotion (Folkman & Lazarus, 1988) to produce a more holistic view of coping with occupational stress among academics. The objective of this study was to test a structural model of occupational stress and coping for academics in a HEI in South Africa. Additionally, the study aimed to determine whether the proposed adaptive coping strategies positively and significantly predict coping success. The following research hypotheses were formulated:

H1: The theoretically hypothesised model has a good fit with the empirically manifested structural model.

H2: Adaptive coping strategies positively and significantly predict coping success.

The proposed theoretical model is illustrated in Figure 1 and will be discussed briefly in the next section.

Literature review

Conceptualising the constructs

The concept of stress has been a source of immense interest over the past decades and has gradually evolved to the seminal work of Lazarus and Folkman in the 20th century (Lazarus & Folkman, 1984). 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). Similarly, occupational stress results from the individual's inability to cope with the pressures of the job because of a poor fit between their abilities and work requirements (Beheshtifar & Nazarian, 2013). However, the perception of stress increases until the individual has made a conscious decision to cope with the stressor. Consequently, coping is defined as a conscious effort that individuals adopt to manage specific demands that are appraised as taxing or exceeding their coping resources (Lazarus & Folkman, 1984).

Antecedents of the proposed model

Occupational stress

Many individuals perceive the organisation as a source of stress that affects their physiological and psychological health and well-being (Beheshtifar & Nazarian, 2013; Vokić & Bogdanić, 2008). Studies have shown that academics are exposed to various organisational stressors. Typical stressors include work overload (Mudrak et al., 2016), inappropriate deadlines (Devonport, Biscoomb, & Lane, 2008), increased student numbers (Martins & Ungerer, 2014) and student demands (Darabi et al., 2017), pressure to publish in peer-reviewed scholarly journals (Malik, Björkqvist, & Österman, 2017), administrative tasks (Bezuidenhout, 2015), lack of resources and support services (Devonport et al., 2008), poor working conditions (Mark & Smith, 2012), job insecurity (Safaria, Othman, & Wahab, 2010), lack of promotion opportunities (Archibong, Bassey, & Effiom, 2010), poor interpersonal relationships (Slišković & Maslić Seršič, 2011), inadequate remuneration (Pienaar & Bester, 2008) and lack of autonomy (Barkhuizen & Rothmann, 2008).

The consequences of occupational stress in academia have been associated with job dissatisfaction, impaired work

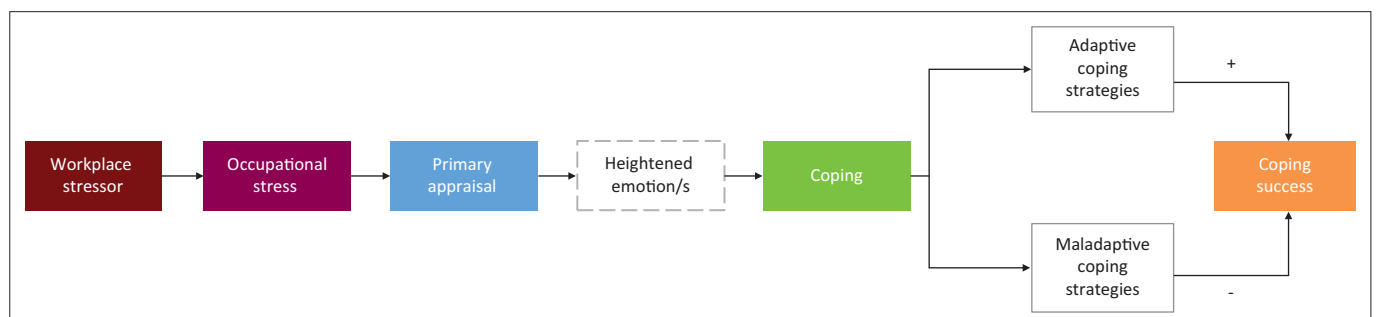


FIGURE 1: Proposed theoretical model

performance, ill-health and poor psychological well-being, poor interpersonal relationships, absenteeism, intention to leave the institution and high staff turnover (Kinman, 2001; Pienaar & Bester, 2008; Steyn & Kamper, 2006). Occupational stress has also been negatively associated with the quality of the academic's family life (Slišković & Maslić Seršič, 2011).

Emotional response

According to the appraisal theory of coping and emotion (Folkman & Lazarus, 1988), an emotion is elicited when a workplace stressor is appraised as being a threat or challenge and harmful to the individual's health and well-being. The emotion elicited therefore depends on the cognitive appraisal of the significance of the person–environment relationship for the individual's well-being and available coping resources (Folkman & Lazarus, 1988). Primary appraisal is thus essential to understand the cause of the emotional response being elicited.

If an emotion is elicited, it has to be regulated to modify the magnitude and type of emotional experience. Emotional responses are experienced because of the individual's inability to regulate his or her emotions. Coping and regulatory strategies are adopted to respond to the felt emotion and to modulate the individual's perception of the stressor (Schmidt, Tinti, Levine, & Testa, 2010). From this perspective, coping is thus perceived as a mediator of the emotional response (Schmidt et al., 2010).

Coping strategies

A coping strategy is an adaptive or maladaptive response to a stressor (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Adaptive strategies are positively associated with affect modulation and physiological and psychological health and well-being. Adaptive coping strategies are thus able to modulate felt emotions so that the individual's perception of the stressor is changed (i.e. coping success).

Adaptive coping strategies include (Du Plessis & Martins, 2019):

- *Cognitive coping* includes the cognitive processes of acquiring knowledge and understanding through thought and experiences, to manage the intake of emotion-arousing stimuli. Strategies include, for example, cognitive restructuring, acceptance and problem-solving.
- *Emotional coping* is the subjective, psychological and physiological expression and reaction to stressful encounters that are appraised as taxing or exceeding an individual's coping resources. Examples include emotional expression and processing.
- *Social support coping* is the perceived support that individuals receive from their social support network (e.g. family, friends and co-workers) or personal relationships.
- *Leisure coping* includes physical activities that individuals voluntarily engage in to regulate heightened emotions in response to environmental demands. Leisure coping

include passive leisure, active leisure, social leisure activities and vacation time.

- *Religious coping* is defined as 'ways of understanding and dealing with negative life events that are related to the sacred' (Pargament & Raiya, 2007, p. 743), and includes organisational and non-organisational religious activities.

Maladaptive coping strategies are associated with increased psychological distress and occupational stress, and consequently with disorders such as anxiety, depression and burnout (Karekla & Panayiotou, 2011; Mark & Smith, 2012; Newman & Llera, 2011). Individuals who engage in maladaptive coping strategies continue to reappraise the stressor (because the negative emotional experience is not altered) until they are able to adopt adaptive coping strategies. Experiential avoidance (EA) is an example of a maladaptive coping strategy (Du Plessis & Martins, 2019), and is defined as an activity that individuals engage in to alter the form and frequency of any aversive experience and distress (Hayes, Strosahl, & Wilson, 1999). Four EA coping strategies were identified by Du Plessis and Martins (2019):

- *Expressive suppression* is defined as the conscious suppression of emotions.
- *Thought suppression* is defined as a conscious cognitive avoidance strategy that individuals adopt when actively attempting to suppress unwanted thoughts or feelings.
- *Avoidant coping* is defined as an individual's cognitive and behavioural attempt to avoid or escape from having to deal with a situation, a person, an emotion, a thought or any entity that causes harm. Avoidant coping strategies include self-destructive behaviour, behavioural, social and religious disengagement.
- *Rumination* is a method of responding to distress that involves repetitively and passively focusing on the causes, symptoms and consequences of distress.

Research findings indicate that academics adopt both adaptive and maladaptive coping strategies to respond to occupational stressors. Adaptive strategies, such as active planning (Kersh, 2018; Ladebo & Oloruntoba, 2005), problem solving (Mark & Smith, 2012; Mate Siakwa, 2014), positive reappraisal (Mate Siakwa, 2014), time management (Iqbal & Kokash, 2011), seeking social support (Darabi et al., 2017; Devonport et al., 2008; Mate Siakwa, 2014), and exercise and relaxation (Holton et al., 2016) were reported. Maladaptive strategies such as using alcohol and eating more than usual (Holton et al., 2016), avoidance coping (Odirile, Mpofu, & Montsi, 2009; Mate Siakwa, 2014) and social disengagement (Ladebo & Oloruntoba, 2005) were also reported. Maladaptive coping strategies are, therefore, associated with poor health and well-being (Holton et al., 2016).

Research design

Research approach

For this exploratory study, a non-experimental, cross-sectional, quantitative survey design was used to achieve the research objectives. A quantitative approach was chosen to collect data

via self-administered questionnaires to determine if there was a good fit between the empirically manifested structural model and the theoretically hypothesised model. The data was collected at a single point in time (Babbie, 2010).

Research method

Research participants

The participants comprised a non-probability sample of 305 academics ($N = 4\,016$) who were permanently employed in a HEI in the Gauteng province of South Africa. The sample was predominantly comprised of female (64.3%) academics (65.9%) with a median age of 45.5 who had been employed in the higher education sector for more than 10 years (62.0%). These academics were employed as either lecturers (24.3%) or senior lecturers (21.3%) who had obtained a master's (35.7%) or doctoral (34.4%) degree.

Measuring instrument

A measuring instrument, the Comprehensive Coping Strategies Questionnaire (CCSQ) developed by Du Plessis and Martins (2019), was deductively developed to achieve the objectives of this study. The questionnaire is a self-reporting instrument that consists of two sections. Section A consists of four questions that measure occupational stress. Participants were required to: (1) identify and describe a job-specific stressor; (2) classify the stressor as academic, research or administrative-related; (3) indicate the intensity of the stressor on a 10-point sliding scale (1 = slightly stressful; 10 = extremely stressful); and (4) indicate what emotion(s) they had experienced when confronted with the stressor. Section B required participants to indicate whether they had used specific coping strategies to deal with the stressor identified in Section A. Section B consists of 69 items that measure six different coping strategies, namely cognitive coping (15 items), emotional coping (4 items), social support coping (8 items), leisure coping (11 items), religious coping (9 items) and EA (22 items) (Du Plessis & Martins, 2019). Participants had to rate each item on a six-point agreement scale where 1 represented strongly disagree and 6 strongly agree.

Research procedure

The contact details of the academics were requested from the university's human resources department. The questionnaire was uploaded in English onto an online survey application, which generated a URL link. The URL link to the questionnaire and instructions on how to complete the questionnaire were copied into an electronic mail, which was sent to the participants. The link redirected the respondents to the online platform where their responses were captured. Informed consent was obtained, and confidentiality and anonymity were assured. The researcher further assured the participants in writing that the data would be used for research purposes only.

Statistical analysis

Primary data were captured, scrutinised for missing values or unengaged responses and processed. Data were processed

using SPSS version 24 (IBM Corp., 2015) software. The statistical analyses included descriptive analysis, thematic analysis, exploratory and confirmatory factor analysis, standard multiple regression analysis and structured equation modelling (SEM).

Thematic analysis, which is a type of qualitative analysis, was used to classify the job-specific stressors that the participants perceived as stressful into categories or themes. The data was analysed following the three-phased process as proposed by Elo and Kyngäs (2008).

Exploratory factor analysis (EFA) was used to explore the underlying dimensionality of the instrument as suggested by Watkins (2018). Maximum-likelihood extraction and principal axis factoring (PAF) with oblique rotation (promax) was used to correlate and rotate the factor structure. Oblique rotation was preferred because it revealed more meaningful theoretical factors (Furr, 2011). Kaiser's criterion (eigenvalues for each factor ≥ 1), a screen test and percentage of variance explained ($\geq 60\%$) were used to determine the number of factors. Confirmatory factor analysis (CFA) was used to confirm the factor structure and assess the internal consistency of the instrument. Internal consistency was demonstrated by Cronbach alpha coefficients.

Standard multiple regression analysis, a multivariate method, was used to determine how well a set of independent variables (namely, the coping strategies) was able to predict coping success, and to determine which variable was the best predictor of coping success. Lastly, SEM was performed to determine the extent to which the hypothesised theoretical model was supported by the empirical data (Salkind, 2010). The chi-square statistics (χ^2) (test of absolute model fit), the magnitude of the standardised path coefficient estimates between the independent and dependent variables and the results of the standard multiple regression analysis were used to empirically test the hypothesised relationships.

Ethical consideration

The researcher obtained ethical clearance and permission from the university's research and ethics committees. Ethical clearance (2014/CEMS/IOP/025) and permission (2017_RPSC_011) to conduct the research was obtained from the University of South Africa.

Results

Thematic analysis

A deductive approach was followed to code the data into categories. Literature on the sources of occupational stress, and more specifically the sources that academics experience, was used to develop a categorisation matrix. Frequencies were calculated to determine the prevalence of the codes across the dataset and in relation to each category. The participants were also required to classify their identified stressor as being related to academic, administrative or

research conditions (classification of the stressor), and to indicate on a sliding scale of 1 to 10 ten (1 = slightly stressful; 10 = extremely stressful) *how* stressful the stressor was for them. These results are summarised in Table 1.

The frequency distribution and mean scores of the job-specific stressors that the participants in the sample perceived as stressful are reported in Table 1. The results indicate that 17.8% of the participants perceived *organisation-specific*

TABLE 1: Results of the thematic content analysis

Occupational stressor	Classification of the stressor										Intensity of the stressor*	
	Academic		Admin		Research		Other		Total		Mean	SD
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%		
1. Organisation-specific stressors												
1.1 Inadequate salaries	-	-	1	0.70	-	-	-	-	1	0.30	9.00	-
1.2 Job insecurity	-	-	1	0.70	-	-	1	1.70	2	0.70	9.50	0.707
1.3 Leadership style	-	-	-	-	-	-	-	-	-	-	-	-
1.3.1 Poor leadership skills	2	3.10	4	2.60	-	-	1	1.70	7	2.30	7.71	1.496
1.3.2 Poor communication	3	4.70	8	5.30	1	3.20	1	1.70	13	4.30	8.15	1.144
1.4 Organisational change	-	-	1	0.70	-	-	-	-	1	0.30	7.00	-
1.5 Organisational culture	-	-	-	-	-	-	-	-	-	-	-	-
1.6 Organisational structure	1	1.60	1	0.70	-	-	-	-	2	0.70	10.00	0
1.7 Physical work environment	-	-	-	-	-	-	-	-	-	-	-	-
1.7.1 Poor work environment	-	-	2	1.30	-	-	4	6.80	6	2.00	9.00	0.894
1.7.2 Changing office locations	-	-	1	0.70	-	-	1	1.70	2	0.70	8.50	0.707
1.8 Policies and procedures	-	-	7	4.60	-	-	-	-	7	2.30	7.86	1.676
1.9 Protest action	1	1.60	8	5.30	-	-	3	5.10	12	3.90	8.75	1.545
1.10 Financial well-being of the institution	-	-	1	0.70	-	-	-	-	1	0.30	9.00	-
Subtotal of the organisation-specific stressors	7	11.00	35	23.30	1	3.20	11	18.70	54	17.80	-	-
2. Job-specific stressors												
2.1 Factors intrinsic to the job	-	-	-	-	-	-	-	-	-	-	-	-
2.1.1 Work overload	15	23.4	27	17.90	10	32.30	21	35.60	73	23.90	7.73	1.660
2.1.2 Administrative tasks	4	6.30	19	12.60	-	-	1	1.70	24	7.90	8.13	1.296
2.1.3 Lack of or inadequate resources	-	-	6	4.00	-	-	2	3.40	8	2.60	8.25	1.669
2.1.4 Demanding students	4	6.30	5	3.30	-	-	1	1.70	10	3.30	7.30	3.302
2.1.5 Uncooperative students	1	1.60	-	-	-	-	-	-	1	0.30	7.00	-
2.1.6 Pressure to publish	2	3.10	-	-	1	3.20	-	-	3	1.00	7.00	2.646
2.1.7 Time pressure	17	26.60	15	9.90	3	9.70	5	8.50	40	13.10	7.43	1.796
2.2 Organisational roles	-	-	-	-	-	-	-	-	-	-	-	-
2.2.1 Role ambiguity	-	-	-	-	-	-	-	-	-	-	-	-
2.2.2 Role conflict	-	-	1	0.70	-	-	1	1.70	2	0.70	9.00	1.414
2.2.3 Routine work	-	-	-	-	-	-	1	1.70	1	0.30	7.00	-
2.2.4 Conflict	-	-	-	-	-	-	1	1.70	1	0.30	8.00	-
2.2.5 Managing a group of individuals	-	-	-	-	1	3.20	-	-	1	0.30	9.00	-
2.3 Career development or progression	-	-	-	-	-	-	-	-	-	-	-	-
2.3.1 Over-promotion	1	1.60	4	2.60	2	6.50	-	-	7	2.30	6.29	1.799
2.3.2 Under-promotion	-	-	1	0.70	-	-	1	1.70	2	0.70	5.50	2.121
2.3.3 Employee recognition	4	6.30	1	0.70	1	3.20	-	-	6	2.00	7.50	2.429
2.3.4 Progression with own studies	2	3.10	1	0.70	10	32.30	-	-	13	4.30	8.31	1.251
2.4 Interpersonal relationships	-	-	1	0.70	-	-	-	-	1	0.30	8.00	-
2.4.1 Poor interpersonal relationship with management	1	1.60	4	2.60	-	-	4	6.80	9	3.00	8.56	1.740
2.4.2 Poor interpersonal relationship with colleagues	-	-	2	1.30	-	-	-	-	2	0.70	7.00	0
2.5 Lack of support	-	-	2	1.30	-	-	-	-	2	0.70	8.50	2.121
2.5.1 Lack of support from management	-	-	7	4.60	1	3.20	-	-	8	2.60	8.25	1.669
2.5.2 Lack of support from colleagues	3	4.70	3	2.00	-	-	1	1.70	7	2.30	7.14	1.952
2.5.3 Lack of support from support departments	2	3.10	13	8.60	1	3.20	1	1.70	17	5.60	7.59	1.460
2.6 Isolation and unfair treatment	-	-	-	-	-	-	-	-	-	-	-	-
2.6.1 Harassment	-	-	-	-	-	-	-	-	-	-	-	-
2.6.2 Discrimination	-	-	-	-	-	-	1	1.70	1	0.30	10.00	-
2.6.3 Threats of violence	-	-	-	-	-	-	-	-	-	-	-	-
2.6.4 Bullying	1	1.60	4	2.60	-	-	3	5.10	8	2.60	9.13	0.835
2.7 The work-home interface	-	-	-	-	-	-	-	-	-	-	-	-
2.7.1 Work-family conflict	-	-	-	-	-	-	2	3.40	2	0.70	8.50	2.121
2.8 Other	-	-	-	-	-	-	2	3.40	2	0.70	7.00	2.828
Subtotal of the job-specific stressors	57	89.30	116	7.60	30	96.80	48	81.50	251	82.50	-	-
Total of organisational - and job-specific stressors	64	100.00	151	100.00	31	100.00	59	100.00	305	100.00	7.88	1.713

*, The intensity of the stressor was measured on a 10-point sliding scale.

stressors as stressful (group mean = 8.59). More specifically, 6.6% of the participants indicated that they perceived the leadership style of their supervisor or line manager (poor leadership skills [2.3%] and poor communication [4.3%]) as a potential source of stress (group mean = 7.93), which caused them to become frustrated (80%) with management. Secondly, the #FeesMustFall protest action on university campuses in South Africa in 2016 had caused 3.9% of the participants to experience occupational stress (group mean = 8.75), which had caused them to feel anxious (83%), frustrated (75%) and helpless (75%). Lastly, the results revealed that the organisation-specific stressors were mostly administration related (64.8%).

The majority (82.5%) of the participants perceived *job-specific stressors* as demands that taxed or exceeded their coping resources (group mean = 7.84). A total of 52.1% of the participants further indicated that factors intrinsic to the job, especially work overload (23.9%), time pressure (13.1%) and administrative tasks (7.9%) had caused them to experience occupational stress (group means = 7.73, 7.43, and 8.13, respectively). These stressors were further classified as administration related (45.2%). Twenty-eight (9.3%) of the participants indicated that career development or progression, especially progression with their own studies (4.3%), had caused them to experience relatively high levels of occupational stress (group mean = 8.31), which were mostly research related (76.9%). Thirty-four (11.2%) of the participants indicated that a lack of support, especially from support departments (5.6%), management (2.6%) and colleagues (2.3%) had resulted in moderate to high levels (group means = 7.59, 8.25 and 7.14, respectively) of occupational stress that were mostly administration related (73.5%). Lastly, 4.0% of the participants indicated that poor relationships, especially with management (3.0%) had caused them to experience occupational stress (group mean = 8.56).

The results further revealed that job-specific stressors had caused participants to experience frustration (63%), anxiousness (57%), anger (38%), irritability (37%) and helplessness (34%) which were mostly administration related (46.2%).

Lastly, two participants' responses were classified as 'Other' (occupational stressor 2.8) because the identified stressors could not be grouped under any subcategory.

Exploratory and confirmatory factor analysis

Exploratory factor analysis

The responses to the 69 items were correlated and rotated using maximum-likelihood extraction with oblique rotation (promax). Initial eigenvalues indicated that the first 15 factors explained 67.5% of the total variance.

When compared to the dimensions proposed by Du Plessis and Martins (2019), the results of the initial EFA clearly overestimated the number of factors for the dataset. Several

items in the rotated factor matrix cross-loaded on more than one factor. These were removed, starting with the highest ratio of loadings on the variables with the highest loading. In addition, items with low factor loadings (≤ 0.35) and high cross-loadings (less than 0.20 difference) in each factor were removed (Hair, Black, Babin, & Anderson, 2010). Only 42 items were retained, which were subjected to a second round of EFA.

The 42-item instrument was subjected to a principal axis factoring (PAF). Prior to performing PAF, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of 0.30 and above. The Kaiser-Meyer-Olkin value was 0.86, exceeding the recommended value of 0.60 (Kaiser, 1970, 1974), and Bartlett's Test for Sphericity (Bartlett, 1954) reached statistical significance ($p \leq 0.05$), supporting the factorability of the correlation matrix.

Principal axis factoring revealed the presence of nine components with eigenvalues exceeding 1, explaining 70.4% of the total variance. An inspection of the scree plot revealed a clear break after the ninth component.

Using Catell's (1966) scree test, it was decided to retain the nine components for further investigation. To aid in the interpretation of the components, oblique rotation (promax) was performed. The rotated solution revealed the presence of a simple structure, with the nine components showing a number of strong loadings and all variables loading substantially on only one component.

Confirmatory factor analysis

The initial baseline model had a poor to mediocre fit with the following indices: the goodness-of-fit index (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 0.90 and higher (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 the observed data well. Modification indices and standard residual covariance were assessed to remedy the discrepancies between the proposed and estimated model.

The revised model had a good fit with the following fit statistics reported in Table 2: all the statistics were in line with the prescribed threshold outlined by Hu and Bentler (1999), where $CMIN/df < 3$, $GFI > 0.90$, $AGFI > 0.90$, $CFI > 0.95$, $RMSEA < 0.06$, and $PCLOSE > 0.05$. As this data should not be viewed in isolation, the validity and reliability of the

TABLE 2: Model fit: Revised model.

Goodness-of-fit (GOF) statistic	Revised model	Prescribed threshold
Absolute fit indices		
Chi-square (CMIN)	820.75	-
Degrees of freedom (<i>df</i>)	459	-
Chi-square/ <i>df</i> (CMIN/ <i>df</i>)	1.79	< 3 = Good
Goodness-of-fit index (GFI)	0.87	> 0.90
Adjusted goodness-of-fit index (AGFI)	0.84	> 0.90
Root mean square error of approximation (RMSEA)	0.05	≤ 0.06
Root mean square residual (RMR)	0.11	< 0.02
Standardised root mean square residual (SRMR)	0.05	≤ 0.08
PCLOSE	0.00	< 0.05
Relative fit indices		
Normed fit index (NFI)	0.87	≥ 0.90
Relative fit index (RFI)	0.85	≥ 0.90
Tucker Lewis index (TLI)	0.93	≥ 0.90
Comparative fit index (CFI):	0.94	> 0.90 = Good

CMIN/*df*, chi-square/degrees of freedom; PCLOSE, Test of close fit.

TABLE 3: Reliability and validity estimates: Revised model.

Variable	CR	AVE	MSV	ASV
RUM	0.79	0.66	0.49	0.85
SOC	0.91	0.67	0.24	0.95
REL	0.92	0.67	0.16	0.97
COG	0.87	0.52	0.3	0.98
ACT LEI	0.88	0.72	0.18	0.98
VAC TIME	0.86	0.67	0.18	0.98
AVOID	0.78	0.55	0.49	0.98
SOC DIS	0.85	0.65	0.29	0.99
EMO	0.72	0.56	0.24	0.99

CR, composite reliability; AVE, average variance extracted; MSV, maximum shared variance; ASV, average shared variance; RUM, rumination; 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; EMO, emotional coping.

revised model were evaluated for each separate dimension, as indicated in Table 3.

Since the reliability (CR) for all the constructs was above the recommended threshold of 0.70 (Hair et al., 2010), all the constructs were retained. The convergent reliability (AVE) for all the constructs was above the recommended 0.50 (Hair et al., 2010), and was thus retained in the model. The discriminant validity (MSV and ASV) for all the constructs 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 was accepted.

The results provided supportive evidence for Hypothesis 1, in that the theoretically hypothesised model had a good fit with the empirically manifested structural model.

Standard multiple regression analysis

The F-test was used to test whether there was a significant regression between the independent variables (coping strategies) and the dependent variable (coping success). Collinearity diagnostics were examined to ensure that the variance inflation factors (VIF) did not exceed 10, that the condition index was below 15, and that the tolerance values were close to 1.0 (Field, 2013).

TABLE 4: Multiple regression analysis ($n = 305$).

Variable	Standardised coefficient			Collinearity statistics	
	Beta (β)	<i>t</i>	<i>p</i> -value	Tolerance	VIF
SOC	0.172	5.544	0.002**	0.737	1.357
REL	0.024	3.121	0.664	0.770	1.299
COG	0.249	0.435	0.000*	0.727	1.376
ACT LEI	0.000	4.477	0.996	0.764	1.310
VAC TIME	0.100	0.005	0.058***	0.808	1.237
AVOID	-0.146	1.905	0.019**	0.591	1.692
SOC DIS	-0.140	-2.368	0.011**	0.745	1.342
RUM	-0.115	-2.549	0.055***	0.635	1.574
EMO	0.073	-1.927	0.193	0.709	1.410

Note: Model fit: $R^2 = 0.337$; ANOVA $F(p) = 16.674(0.000)***$.

*, $p < 0.001$; **, $p < 0.05$; ***, $p < 0.10$.

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.

The significant results of the multiple regression analysis are summarised in Table 4. The model was statistically significant ($F_p \leq 0.05$), with the model accounting for 33% ($R^2 = 0.33$) of the variance in coping success. These results were moderate to large in practical effect. In terms of relative importance, coping success was mostly explained by cognitive coping ($\beta = 0.249$; $p = 0.000$) and social support coping ($\beta = 0.172$; $p = 0.002$), and there was an inverse relationship with avoidant coping ($\beta = -0.146$; $p = 0.019$), social disengagement ($\beta = -0.140$; $p = 0.011$) and rumination ($\beta = -0.115$; $p = 0.055$).

Structured equation model

The results of the model fit are summarised in Table 2. It was concluded that the model fitted the data well with a chi-square of 820.75 (459 *df*); $CMIN/df = 1.79$; $p = 0.00$; $RFI = 0.85$; $NFI = 0.87$; $TLI = 0.93$; $CFI = 0.94$; $RMSEA = 0.05$; and $SRMR = 0.05$. The standardised path coefficient estimates and correlations between the independent variables are summarised in Table 5 and depicted in Figure 2. The nine one-way arrows in the path diagram are indicative of regression coefficients that demonstrate the hypothesised effects of the independent variables on the dependent variable, and the two-way arrows represent the correlation or covariance between the variables.

The model fit revealed that the model explains an estimated 33% ($R^2 = 0.33$) of the variance in coping success.

In terms of relative importance, coping success was mostly explained by cognitive coping (24.9%), social support coping (17.2%) and vacation time (10.0%), and a negative relationship was observed between avoidant coping (14.6%), social disengagement (14.0%) and rumination (11.5%).

The results provided supportive evidence for Hypothesis 2, in that adaptive coping strategies positively and significantly predict coping success.

TABLE 5: Standardised regression weights and correlations.

Variable	Standardised regression weights			Correlations			
	Regression	Factor	Estimate	Factor	Correlation	Factor	Estimate
v17	←	SOC	0.913	SOC	↔	REL	0.341
v28	←	SOC	0.848	SOC	↔	COG	0.083
v9	←	SOC	0.824	SOC	↔	ACT LEI	0.253
v59	←	SOC	0.807	SOC	↔	VAC TIME	0.223
v2	←	SOC	0.666	SOC	↔	AVOID	-0.063
v53	←	REL	0.867	SOC	↔	SOC DIS	-0.175
v40	←	REL	0.841	SOC	↔	RUM	0.060
v30	←	REL	0.837	SOC	↔	EMO	0.491
v21	←	REL	0.837	REL	↔	COG	0.030
v41	←	REL	0.798	REL	↔	ACT LEI	0.404
v48	←	REL	0.726	REL	↔	VAC TIME	0.345
v62	←	COG	0.862	REL	↔	AVOID	0.070
v57	←	COG	0.790	REL	↔	SOC DIS	-0.057
v46	←	COG	0.710	REL	↔	RUM	-0.055
v26	←	COG	0.703	REL	↔	EMO	0.182
v34	←	COG	0.623	COG	↔	ACT LEI	0.069
v65	←	COG	0.610	COG	↔	VAC TIME	-0.005
v37	←	ACT LEI	0.878	COG	↔	AVOID	-0.544
v29	←	ACT LEI	0.866	COG	↔	SOC DIS	-0.268
v19	←	ACT LEI	0.791	COG	↔	RUM	-0.400
v39	←	VAC TIME	0.877	COG	↔	EMO	0.481
v20	←	VAC TIME	0.801	ACT LEI	↔	VAC TIME	0.424
v51	←	VAC TIME	0.772	ACT LEI	↔	AVOID	-0.119
v44	←	AVOID	0.864	ACT LEI	↔	SOC DIS	-0.099
v12	←	AVOID	0.731	ACT LEI	↔	RUM	-0.101
v42	←	AVOID	0.606	ACT LEI	↔	EMO	0.206
v32	←	SOC DIS	0.827	VAC TIME	↔	AVOID	0.071
v23	←	SOC DIS	0.820	VAC TIME	↔	SOC DIS	0.013
v63	←	SOC DIS	0.774	VAC TIME	↔	RUM	0.010
v60	←	RUM	0.908	VAC TIME	↔	EMO	0.118
v45	←	RUM	0.696	AVOID	↔	SOC DIS	0.534
v8	←	EMO	0.755	AVOID	↔	RUM	0.704
v16	←	EMO	0.738	AVOID	↔	EMO	-0.319
Coping success	←	SOC	0.172	SOC DIS	↔	RUM	0.531
Coping success	←	REL	0.024	SOC DIS	↔	EMO	-0.281
Coping success	←	COG	0.249	RUM	↔	EMO	-0.164
Coping success	←	ACT LEI	0.000	-	-	-	-
Coping success	←	VAC TIME	0.100	-	-	-	-
Coping success	←	AVOID	-0.146	-	-	-	-
Coping success	←	SOC DIS	-0.140	-	-	-	-
Coping success	←	RUM	-0.115	-	-	-	-
Coping success	←	EMO	0.073	-	-	-	-

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.

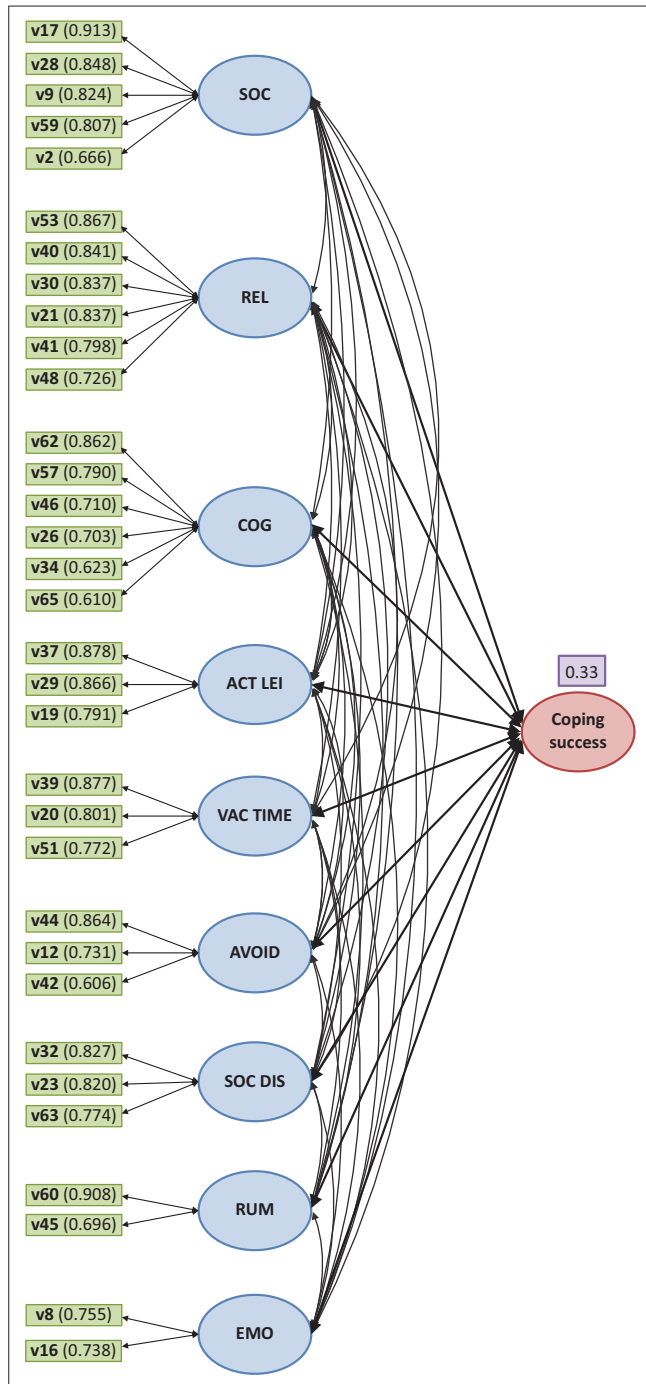
Discussion

The purpose of this study was to test a structural model of occupational stress and coping for academics in a HEI in South Africa and determine whether the proposed coping strategies positively and significantly predict coping success. The study contributes towards a more holistic view of coping with occupational stress in academia, especially within the South African higher education context.

Summary of findings

The results revealed that the theoretically hypothesised model had a good fit with the empirically manifested structural model. The model outlines that academics experience both

organisation-specific and job-specific stressors in the institution. Concerning organisation-specific stressors, academics perceive their managers' leadership style and student protest action as extremely stressful, while job-specific stressors were perceived as moderately stressful. Job-specific stressors perceived by academics further include factors intrinsic to the job, career development and progression, interpersonal relationships and a lack of support from management, colleagues and support departments. Work overload, time pressure and administrative demands were, however, perceived as stressful by most academics in the sample. These findings were in agreement with the findings of previous research (Bezuidenhout, 2015; Devonport et al., 2008; Malik et al., 2017; Mudrak et al., 2016). Consequently, academics experience occupational stress (group mean = 7.88) that is mostly related to administrative factors.



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.

FIGURE 2: Structured equation model.

Secondly, the model reveals that through primary appraisal, emotions are elicited once a stressor is perceived. The results revealed that both organisation-specific and job-specific stressors elicited emotions such as frustration, anxiousness, anger, irritability and helplessness.

Thirdly, once the appraisal of stress-inducing conditions elicits an emotion, coping strategies are adopted to modulate the felt emotion and change the individual's perception of the stressor (Schmidt et al., 2010). Although six coping strategies were identified in literature (Du Plessis & Martins,

2019), the following nine empirically validated coping strategies emerged: (1) cognitive coping, (2) emotional coping, (3) social support coping, (4) active leisure coping, (5) vacation time, (6) religious coping, (7) avoidant coping, (8) social disengagement, and (9) rumination. The results revealed that the academics mostly adopted adaptive coping strategies (namely cognitive coping, social support coping, and vacation time) to modulate the felt emotions so that their perceptions of the stressor were altered. These findings are supported by previous studies which found that academics adopt adaptive coping strategies to respond to occupational stressors (Darabi et al., 2017; Kersh, 2018; Mark & Smith, 2012; Mate Siakwa, 2014). Adaptive coping strategies are further associated with coping success and physiological and psychological health and well-being.

Lastly, negative (inverse) relationships were observed between avoidant coping, social disengagement and rumination and coping success. These results imply that academics who adopt maladaptive coping strategies are unable to change the aversive experiences or events that elicit emotions, and continue to experience distress (Holahan, Moos, Holahan, Brennan, & Schutte, 2005; Newman & Llera, 2011). Consequently, they will continue to reappraise the stressor until they are able to adopt adaptive coping strategies.

Practical implications of the study

Given the pervasive nature of occupational stress, the model should allow industrial and organisational psychologists and human resources practitioners in HEIs to gain a deeper understanding of the complexities of the coping process in order to develop and implement wellness practices that prevent occupational stress. Possible interventions concerned with reducing or eliminating stressors inherent in the workplace include:

- redesigning the academic's job to increase academic freedom and autonomy;
- providing adequate resources and support for academics to accomplish goals;
- providing more constructive feedback on job performance;
- allowing flexibility to meet family and personal needs;
- allowing time off to focus on career development (e.g. research and development leave);
- providing a more supportive work environment;
- consulting and communicating on matters that affect them; and
- reducing the administrative burden by engaging support staff.

Management should further encourage academics to use adaptive coping strategies. It may be useful to arrange stress management courses to introduce them to more appropriate ways of coping with occupational stress (Barkhuizen & Rothmann, 2008). Cognitive restructuring, problem-solving, time management and planning and critical thinking would be applicable in this context. Furthermore, increasing the availability of resources in the institution would facilitate the

adoption of adaptive coping strategies (Holton et al., 2016). While adaptive coping strategies are recommended, practitioners should not ignore employees who adopt maladaptive coping strategies, as these employees are at risk of developing psychological disorders. Lastly, HEIs should offer Affect Regulation Training (ART) to improve academics' emotion regulation skills and well-being (Buruck, Dörfel, Kugler, & Brom, 2016).

Limitations of the study

The following limitations were encountered in this study: firstly, the literature consulted was mostly of international origin. Secondly, there was little agreement among researchers on the best way to conceptualise these concepts, and the theories discussed were restricted to the seminal work of Lazarus and Folkman which dates back to the late 20th century. Thirdly, although the sample size was sufficient to conduct statistical analyses, further research needs to be conducted among a broader spectrum of participants. Fourthly, a non-probability convenience sample was chosen. The results of the study can therefore not be generalised to other populations. Lastly, a single questionnaire was used to measure all the constructs, so the strength of the relationship between the constructs may be somewhat inflated.

Recommendations for the study

The author recommends that future researchers explore the moderating effect of individual characteristics (such as personality and locus of control) and external variables (such as social and/or technological changes, and economic and financial conditions) on an academic's ability to cope with occupational stressors.

Furthermore, instead of using a single questionnaire, future researchers could use psychometrically sound questionnaires to further refine the model. Finally, the author recommends that future researchers test the model in other South African industries to minimise the negative spin-off of occupational stress among employees.

Conclusion

A model for coping with occupational stress in academia was developed. The study revealed that occupational stress among academics could be ascribed to organisation-specific and job-specific stressors that elicit distressing emotions. Findings further suggest that academics adopt adaptive coping strategies to respond to occupational stressors. The model therefore highlights a number of important aspects that HEIs should consider when identifying interventions to assist academics in coping with occupational stressors.

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Author's contributions

I declare that I am the sole author of this research article

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Disclaimer

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