

Occupational stress, uncertainty and organisational commitment in higher education: Job satisfaction as a moderator



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Orientation: Committed employees contribute to the success of an organisation. Therefore, organisations need to understand the level of employees' occupational stress and uncertainty to minimise their negative effects on both the individuals and the organisation. Organisations should also understand the effect of job satisfaction in explaining occupational stress and organisational commitment, as well as uncertainty and organisational commitment.

Research purpose: The purpose of the study was to investigate the relationships between occupational stress, uncertainty and organisational commitment of academic staff from two South African historically black institutions of higher learning. The study further investigated whether job satisfaction moderated the relationship between (1) occupational stress and organisational commitment and (2) uncertainty and organisational commitment.

Motivation for the study: Institutions of higher learning gain a competitive advantage by having a committed workforce. Therefore, it is necessary to investigate the drivers of organisational commitment to attain organisational success.

Research approach/design and method: A quantitative approach by using a cross-sectional survey design was used to collect data from the academic staff from two institutions of higher education ($n = 424$). Both institutions are contact institutions and are of the same level. Cronbach's alpha coefficients, factor analysis, Pearson product-moment correlation coefficient and multiple regression analyses were used to analyse the data.

Main findings: This study found a negative, significant relationship between occupational stress and organisational commitment and a negative relationship between uncertainty and organisational commitment. However, uncertainty was found to be only a significant predictor of organisational commitment. The study also found that job satisfaction moderates the relationship between uncertainty and organisational commitment. However, it does not moderate the relationship between occupational stress and organisational commitment.

Practical/managerial implications: Institutions of higher learning need to establish a conducive working climate and provide employee assistance programmes to minimise the levels of occupational stress and uncertainty and improve job satisfaction to have committed academic staff.

Contribution/value-add: The research is one of the few studies that explored the moderating role of job satisfaction with the relationship between occupational stress and organisational commitment, and the relationship between uncertainty and organisational commitment in the higher education sector. Hence, it adds new information to the body of knowledge in the sector. Institutions of higher learning can consider evaluating the levels of occupational stress, uncertainty and job satisfaction of their academic staff to promote the issue of the organisational commitment of their employees. Thus, this study has the potential to influence organisational policy on how to reduce work stress and uncertainty and improve organisational commitment.

Keywords: academic staff; confirmatory factor analysis; higher education; job satisfaction; moderator; occupational stress; organisational commitment; South Africa; uncertainty.

Introduction and background

The inception of democracy has seen the South African higher education sector undergoing a radical shift in form and identity. Increases in student diversity and access have been witnessed in the sector compared with pre-1994 (Council on Higher Education [CHE], 2013; Mawoyo, 2014; Smit, 2012). Policy documents such as the White Paper of 1997 and the South African Qualifications

Authority (SAQA) of 1997 were introduced to redress the social injustices of the past by increasing access to higher education for all (Department of Higher Education, 1997). However, this positive paradigm shift in higher education came with its challenges.

Greater access to higher education led to higher student enrolments (De Oliveira Barbosa, Pires, & Dwyer, 2018). For instance, in 25 years enrolment almost doubled, from 473 000 in 1993 to some 800 000 in 2008 (Badat, 2010). By 2016, 2 million students were enrolled in higher education, 78.3% of them in public institutions and 21.7% in private institutions (De Oliveira Barbosa et al., 2018). This massification exerted excessive pressure on already limited resources in universities, thereby affecting their success rate (Akalu, 2016; Mohamedbhai, 2014; Smit, 2012), epistemological access (Boughey, 2005; McKenna, 2012) and graduation rate (Machingambi, 2011). Various universities are under financial strain such that some have resorted to recruiting adjunct academic staff (independent contractors) rather than permanent staff to save on the wage bill (Bozzoli, 2016; Herman, 2016; Nortje, 2013). However, this cost saving mechanism may result in low organisational commitment because of high levels of occupational stress, high uncertainties about future job security and low job satisfaction among the employees regardless of one's nature of employment, which may be explained by low job satisfaction.

Zagelmeyer, Sinkovics, Sinkovics and Kusstatscher (2018) report that employees become less committed when they are stressed, when and their job security is threatened. Several studies also revealed that insecure, less satisfied and highly stressed workforce exhibits less emotional attachment to the organisation (Arnolds, Lillah, & Stofile, 2013; Cooper, 2018; Martin & Roodt, 2008; Öztürk, Karagonlar, & Emirza, 2017). Therefore, for an organisation to be effective and efficient, it requires a highly committed workforce. This can be achieved when talent is managed in such a way that occupational stress and uncertainty are minimised, and job satisfaction is increased. This study argues that it is not only the organisational change that may lead to high occupational stress, uncertainty and less organisational commitment, but it is also the level of job satisfaction of an individual in an organisation following a change.

Literature review

Occupational stress

Boyd, Tuckey and Winefield (2014) define stress as the individual's response to an imbalance that is perceived between the demands made in the situation and the resources available. Organisational change can lead to high occupational stress. According to Slade, Ribando and Fortner (2016), stress negatively affects employee organisational commitment. Therefore, to have committed employees, organisations should reduce the level of employee stress. The demands made on an individual (stressors) serve as a stimulus for evoking a response, such as emotions of anger, anxiety and stress (Cooper, 2018). These stressors can be internal or

external. Although a single stressor may cause major stress, stressors usually combine to put pressure on an employee in a variety of ways until stress develops (Graebner, Heimeriks, Huy, & Vaara, 2017). Hence, organisations should take note of these stressors to minimise employee occupational stress and improve organisational commitment.

Uncertainty

The significant changes introduced in the South African higher education system soon after 1994, in redressing the imbalances and injustices of the past, directly or indirectly affected the well-being of employees and consequently the organisation at large (Chipunza & Gwarinda, 2010). This implies that changes can stimulate feelings of uncertainties about job security and in turn likely to influence individual employees' commitment towards their organisation.

Uncertainty can be described as the threat of job loss (Kinnunen, Mauno, Nätti, & Happonen, 2000). For this study, the term uncertainty will be used synonymously with the term job insecurity. Hence, employees who experience uncertainty about future job security are likely to be insecure about whether they will be able to continue working, or will lose their jobs in the near future. Having said this, employees become uncertain about their jobs if they perceive the threat to their job to be dire and feel powerless to do anything about their situation (Moshoeu & Geldenhuys, 2015).

Uncertainty has not received as much attention in the literature on organisational commitment (Lumingkewas, Nimran, Raharjo, & Utami, 2019; Moshoeu & Geldenhuys, 2015). Studies have shown that employees who perceive that they have an uncertain future in their jobs often feel threatened and anxious and may exhibit symptoms of distress such as depression (Lee, Huang, & Ashford, 2018). Organisations, therefore, should minimise the uncertainties of job security among its employees. To minimise uncertainties in any organisation, management should constantly communicate the organisational strategic plan to its employees as well as assure them of job security, especially during difficult times such as what the higher education sector is currently facing (Bryson, 2018).

One can also argue that employment security is a vital aspect of employees' quality of life. For instance, Moshoeu and Geldenhuys (2015) establish that being employed gratifies several individual needs, such as earning income, and the need for personal and social growth. When these aspects are not met, uncertainties can affect the behaviour and emotional well-being of employees in an organisation (Khan, Soundararajan, Wood, & Ahammad, 2017), leading to low organisational commitment (Clark, Knabe, & Rätzel, 2010), particularly with high uncertainties created in the South African labour market. This study hypothesises that it is this uncertainty or insecurity that leads to the low level of employee organisational commitment among higher education academic staff. Therefore, the study investigates whether this is indeed the case.

Job satisfaction

Despite various studies on the concept of job satisfaction, its meaning can differ based on particular contexts or theoretical positions. However, job satisfaction can, in general terms, be viewed as the extent to which individuals like their job and thus derive gratification from it (De Nobile, 2017; Spector, 2008; Valaei & Rezaei, 2016). It has been conceptualised as how an individual feels about his or her job (George & Zakkariya, 2018). There are various facets of job satisfaction, and these include the work itself, pay, promotion opportunities, supervision and co-workers (Matla & Xaba, 2019).

Employee job satisfaction is deemed important aspects within the workplace. Mabasa and Ngirande (2015) state that job satisfaction increases employee organisational commitment and productivity. It is, therefore, vital to consider how employees in the organisation can be kept satisfied to achieve better results. Thus, job satisfaction is one of the important variables that contribute to the success of the organisation as a whole. The inverse relationship between occupational stress and job satisfaction has been strongly linked in various studies, including the education sector (Cheng, Liou, Tsai, & Chang, 2015; Collie, Shapka, Perry, & Martin, 2015; Courtney & Phelan, 2019; Rana & Soodan, 2019). Uncertainty about the future of one's job has also been found to be linked to low job satisfaction (Cheung, Wu, & Ching Chi, 2019). Although studies on job satisfaction are reported previously (Cheng et al., 2015; Cheung et al., 2019; Collie et al., 2015; Courtney & Phelan, 2019; Rana & Soodan, 2019), studies that examined the moderating role of job satisfaction on the relationship between occupational stress, uncertainty and organisational commitment in higher education could not be found, hence the assumption that job satisfaction will moderate the relationship between occupational stress, uncertainty and organisational commitment of academic staff in the higher education sector.

Organisational commitment

Organisational commitment can be viewed as the psychological attachment that employees have with the organisation and its goals and the desire to stay with that particular organisation (Pieters, Van Zyl, & Nel, 2019). Organisational commitment is characterised by three dimensions, namely continuance, normative and affective commitment (Meyer, Allen, & Smith, 1993). Continuance commitment refers to one's commitment towards the organisation because of the costs associated with leaving it. Normative commitment is a result of one's desire to remain with the organisation because of perceived obligation. For instance, one can feel attached to an organisation because it has paid for their further studies. Affective commitment is the 'psychological and emotional attachment towards the organisation and working towards achieving the goals and objectives of the organisation' (Pieters et al., 2019, p. 2).

Various factors influence employee organisational commitment. These include occupational stress, uncertainty

and job satisfaction (Haque, Aston, & Kozlovski, 2018; Nelson, 2018; Tekingündüz, Top, Tengilimoğlu, & Karabulut, 2017). For the institutions to remain productive and efficient, they need to make sure that their employees are committed and less stressed with their working environments. This is in line with Burke's (2017) view that employees who are highly stressed and uncertain about their future job security are likely to be less committed to their organisation.

Authorities in higher education institutions may need to understand the factors affecting the workforce's commitment. Higher education institutions should also understand the impact occupational stress and uncertainty have on employees' levels of organisational commitment, particularly when changes like a merger take place (Abildgaard, Nielsen, & Sverke, 2018; Vosse & Aliyu, 2018). In a similar view, Van der Westhuizen (2001) revealed that educators become more stressed and less committed when new educational policies are being introduced and new structures emerge as a result of interventions. The two institutions selected in this study were both affected by the higher education merger process. Therefore, it is important to explore the study variables.

The relationship between occupational stress and organisational commitment

Several studies have found a negative relationship between occupational stress and organisational commitment (Burke, 2017; Haque et al., 2018; Slade et al., 2016). These studies show that the more stressed an individual is, the less the likelihood that the individual will be committed to the organisation. However, a study by Faragher, Cass and Cooper (2013) and Arnolds et al. (2013) revealed that no relationship exists between occupational stress and organisational commitment.

The relationship between uncertainty and organisational commitment

A study by Lee et al. (2018) revealed that there is an inverse significant relationship between uncertainty and organisational commitment. In a similar view, Lumingkewas et al. (2019) pointed out that an employee experiencing high job uncertainty appears to have poor organisational commitment. This shows that as employees feel more uncertain about their jobs in the near future, they tend to be less committed to their organisation. In addition, Moshoeu et al.'s (2015) study on academic staff in an open distance learning institution revealed a negative significant relationship between uncertainty and organisational commitment.

The moderating role of job satisfaction on the relationship between occupational stress, uncertainty and organisational commitment

In the South African higher education context – historically black institutions – there is a paucity of literature on job satisfaction as a moderator of the relationship between occupational stress, uncertainty and organisational commitment. However, job satisfaction was found to be a

predictor of occupational stress (Cheng et al., 2015; Rana & Soodan, 2019), uncertainty (Cheung et al., 2019) and organisational commitment (Mabasa & Ngirande, 2015). Hence, the assumption that job satisfaction moderates the relationship between occupational stress, uncertainty and organisational commitment.

Existing literature has shown that most studies that were conducted on the relationship between occupational stress, uncertainty and organisational commitment focussed mainly on different settings and on each variable separately (Cheung et al., 2019; Moshoeu & Geldenhuys, 2015). Little is known about these relationships from the perspective of higher education. Besides, there is a dearth of knowledge on whether the relationship between occupational stress and uncertainty on organisational commitment is moderated by job satisfaction, hence the need to explore further.

Several studies have been conducted on the general effects of occupational stress, uncertainty and job satisfaction on employee organisational commitment (Cheng et al., 2015; Cheung et al., 2019; Lumingkewas et al., 2019; Rana & Soodan, 2019). However, none of these studies investigated the relationship between occupational stress and uncertainty on organisational commitment together in the higher education sector. Furthermore, the researcher could not find information on the moderating role of job satisfaction on the relationship between occupational stress, uncertainty and organisational commitment. This made it necessary to explore the matter. Thus, this study investigates the relationship between occupational stress, uncertainty and organisational commitment and further explores whether job satisfaction moderates this relationship among higher education academic staff.

Research purpose

The main purpose of this study was to investigate the relationship between occupational stress, uncertainty and organisational commitment among academic staff in South African higher learning institutions. The study also explored whether job satisfaction moderates the relationship between occupational stress, uncertainty and organisational commitment. This study is important as it holds the potential to determine the proportion of variance in occupational stress and uncertainty on organisational commitment that is because of job satisfaction.

Research objectives

The objectives of the study are:

- To investigate the relationship between occupational stress and organisational commitment.
- To investigate the relationship between uncertainty and organisational commitment.

- To determine whether job satisfaction moderates the relationship between occupational stress and organisational commitment.
- To determine whether job satisfaction moderates the relationship between uncertainty and organisational commitment.

Research hypotheses

The study hypothesised that:

H1: There is a negative relationship between occupational stress and organisational commitment.

H2: There is a negative relationship between uncertainty and organisational commitment.

H3: Job satisfaction moderates the relationship between occupational stress and organisational commitment.

H4: Job satisfaction moderates the relationship between uncertainty and organisational commitment.

Conceptual model

A conceptual model based on reviewed literature and the researchers' logical deductions as shown in Figure 1 was developed, and it shows the hypothesised moderating role of job satisfaction on the relationships between occupational stress, uncertainty and organisational commitment.

Research methodology

Research design

A quantitative approach was used to gather data by using a cross-sectional research design. This was deemed appropriate in investigating the relationship between occupational stress, uncertainty, job satisfaction and organisational commitment and in testing research hypotheses (Creswell & Creswell, 2017). Furthermore, as in Du Plooy-Cilliers, Davies and Bezuidenhout (2019), the quantitative approach was used in this study because the data were numerically and statistically presented.

Research participants

A sample of 424 academic staff, employed on a fixed-term, temporary contract from two rural-based higher education institutions – selected by using Raosoft sample size calculator online software – participated in the study. One institution is in the Limpopo Province, and the other one in Eastern Cape Province of South Africa. Both institutions share almost the same characteristics in terms of student

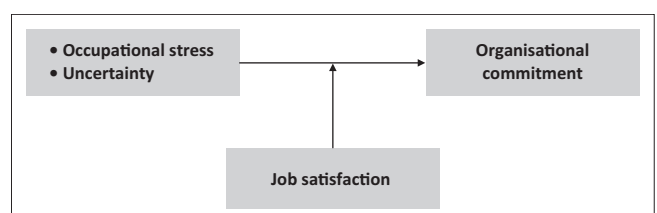


FIGURE 1: Theoretical moderating role of job satisfaction on occupational stress, uncertainty and organisational commitment.

profile and are rural based. The characteristics of the respondents listed in Table 1 show that the overall sample had an equal number of males and females. The highest number of participants (45.8%) were aged between 36 and 45 years, followed by the 46–55-year age group (37.7%). The least number of the participants were those aged 25 years and below (0.5%). Furthermore, the majority of the respondents had postgraduate degrees (83%) and more than 10 years of working experience (63.2%).

Measuring instruments

A self-administered questionnaire was used to collect data. The questionnaire consisted of biographical information and study variables such as occupational stress, uncertainty, job satisfaction and organisational commitment. The biographical information was collected by using a questionnaire developed by the researcher to get information regarding the respondents' gender, age, highest qualification and working experience from two institutions of higher learning. To measure occupational stress, a 16-item Effort-Reward Imbalance (ERI) questionnaire, composed of the effort and rewards subscale, was used. However, eight items were found to be good items (Tabachnick & Fidell, 2013). The questionnaire previously established a coefficient alpha of 0.68 to 0.86 from five different groups of nursing home samples (Siegrist & Peter, 1996). In the South African context, an alpha of 0.88 was found (Ngirande, 2019). Items that formed part of the scale include the following: 'I have constant pressure because of a heavy workload' and 'I receive the respect I deserve from my superiors'. Uncertainty regarding future job security was measured by using a 10-item questionnaire (De Witte, 2000), which asked the respondents to indicate their degree of certainty on whether they will have a job in the organisation in the near future. The questionnaire was rated on a 5-point rating scale ranging from 'strongly agree' (1) to 'strongly disagree' (5). Its previous alpha coefficient ranges between 0.76 and 0.96 (De Witte, 2000). In the South African context, Ngirande (2019) found an alpha of 0.77.

Job satisfaction was measured by using the 10-item Halpern's (1966) job satisfaction questionnaire. Examples of

TABLE 1: Characteristics of the respondents ($n = 424$).

Variable	Category	Frequency	Percentage (%)
Gender	Male	212	50.0
	Female	212	50.0
Age category	25 years and below	2	0.5
	26–35 years	34	8.0
	36–45 years	194	45.8
	46–55 years	160	37.7
	56 years and above	34	8.0
Highest qualification obtained	Diploma	4	0.9
	Undergraduate degree	68	16.0
	Postgraduate degree	352	83.0
Working experience in the organisation	< 1 year	20	4.7
	1–5 years	50	11.8
	6–10 years	86	20.3
	10 years and above	268	63.2

the items included in this scale are working conditions, opportunities for achievement, work itself and overall satisfaction. Organisational commitment was measured by using an 18-item organisational commitment questionnaire (Meyer & Allen, 1997). This questionnaire has three subscales measuring normative commitment, affective commitment and continuance commitment, with six items on each subscale. However, the organisational commitment items were combined to form a single measure in this article, and 10 items were found to be good items for this study as well. Previous studies conducted in South Africa reported Cronbach's alphas ranging from 0.73 to 0.81 for the organisational commitment scale (Lumley, Coetzee, Tladinyane, & Ferreira, 2011; Simons & Buitendach, 2013). The whole questionnaire was measured on a 5-point rating scale ranging from 'strongly agree' (1) to 'strongly disagree' (5).

Data processing and analysis

The statistical package for social sciences (SPSS) version 26 was used to analyse data. Descriptive statistics were used to describe the sample profile. Several inferential, statistical techniques were conducted to analyse data in this study. Firstly, an item analysis was performed to inspect the internal consistency of variables under investigation. Secondly, confirmatory factor analysis (CFA) was also conducted to examine the construct validity of the measuring instruments. Correlation and multiple regression analyses were conducted to test the relationship between occupational stress, uncertainty and organisational commitment, and to check the predictor variable of organisational commitment respectively. Finally, to test the degree to which job satisfaction moderates the relationship between occupational stress, uncertainty and organisational commitment, hierarchical multiple regression analysis was conducted (Hayes, 2015).

Descriptive statistics and reliability analysis

Table 2 shows a summary of the key descriptive statistics of occupational stress, uncertainty, job satisfaction and organisational commitment scales by showing means and standard deviations (SDs). The normality of the data-set is also assessed by using skewness and kurtosis values. Cronbach's alphas are also displayed. The mean scores of the occupational stress, uncertainty, job satisfaction and organisational commitment were 3.3 (SD = 6.33), 2.7 (SD = 2.5), 2.3 (SD = 4.67), 2.5 (SD = 10.5) and 2.3 (SD = 10.30), respectively. Data were also normally distributed and allow

TABLE 2: Descriptive statistics and reliability statistics.

Scale	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Cronbach's alpha	No. items
Occupational stress	3.3	6.330	-0.881	0.431	0.767	8
Uncertainty	2.7	4.667	0.083	-0.583	0.801	6
Job satisfaction	2.5	10.513	0.652	-1.391	0.941	10
Organisational commitment	2.3	10.295	0.807	-1.063	0.940	10

SD, standard deviation.

for further analysis as they range from -2 to 2 for both skewness and kurtosis (Tabachnick & Fidell, 2013).

The reliability of the instruments was also shown by using Cronbach's alpha coefficients as depicted in Table 2. Items correlating below 0.30 with the total score were considered as poor items and were excluded from further analysis (Pallant, 2016). All four scales obtained good coefficient alphas, which range from 0.767 to 0.941 (Pallant, 2016). The highest reliabilities amongst the scales included job satisfaction ($\alpha = 0.941$) and organisational commitment ($\alpha = 0.940$), followed by uncertainty ($\alpha = 0.801$) and occupational stress ($\alpha = 0.767$).

Evaluating the fit of the measurement model

Confirmatory factor analysis was carried out on all the scales utilised in the study to assess the goodness-of-fit of the measurement models by using AMOS version 26. Several fit indices were used to assess model fit. The results in Table 3 show an acceptable p -value of 0.000 (Hair, Black, Babin, & Anderson, 2010). Diamantopoulos and Siguaw (2000) and Balogun, Mahembe and Allen-Ile (2020) pointed out that the standardised root mean square residual values below 0.05 are suggestive of good fit, those between 0.05 and under 0.08 suggest reasonable fit, values between 0.08 and 0.10 denote mediocre fit and values > 0.10 indicate a poor fit. Results show a model misfit of standardised root mean square residual of 0.293 . The goodness of fit index, the comparative fit index, the incremental fit index and Tucker–Lewis index show the good fit category of 0.904 , 0.941 , 0.941 and 0.90 respectively (Hair et al., 2010). Likewise, the normed fit index (0.936) was also good. However, the relative fit index (0.888), the adjusted goodness of fit index (0.784) and Parsimony goodness fit index (0.402) slightly fail to meet a good model fit cut off point level of 0.90 .

The measurement model is shown in Figure 2.

Validity and reliability of the measurement model

According to Awang (2015), the assessment of modelling unidimensionality, validity and reliability for the measurement model is important before testing the relationships between

TABLE 3: Structural model fit summary.

Fit index	Indices
χ^2	199.022
p	0.000
Degrees of freedom	16
Standardised root mean square residual	0.293
Goodness of fit index	0.904
Comparative fit index	0.941
Incremental fit index	0.941
Tucker–Lewis index	0.896
Parsimony goodness fit index	0.402
Adjusted goodness of fit index	0.784
Normed fit index	0.936
Relative fit index	0.888

traits. In this article, the requirement of unidimensionality was met when the fitness indices reached the required level in the measurement model. Furthermore, all items obtained positive factor loadings. Consequently, after the CFA measurement model procedure, the validity and reliability of each construct was calculated. The composite reliability (CR) requirement was achieved as all CR values were > 0.60 as shown in Table 4 (Awang, 2015; Byrne, 2016). The validity requirement was checked by assessing the convergent validity, construct validity and discriminant validity of the measurement model. To meet the requirements for convergent validity, all values of the average variance extracted (AVE) for each variable should be at least 0.5 (Rose, Awang, & Yazid, 2017). As shown in Table 4, all values exceeded 0.5 . In addition, the construct validity for the measurement model was also achieved when the fitness indices met the required level as shown in Table 3.

The diagonal values (in bold) is the square root of AVE of the construct, whereas other values are the correlation between the respective constructs. The discriminant validity for all constructs shown in Table 4 was achieved as the diagonal values (in bold) are higher than the values in its rows and columns.

The relationship between occupational stress, uncertainty and organisational commitment

Table 5 shows the Pearson product–moment correlation coefficients calculated to determine the strength of the relationship between occupational stress, uncertainty and organisational commitment. Hypothesis 1 stated that there is a significant relationship between occupational stress and organisational commitment. A negative significant relationship between occupational stress and organisational commitment (Table 5) was found ($r = -0.311$; $p < 0.01$). Hence, both hypotheses 1 and 2 were supported. A negative significant relationship between uncertainty and organisational commitment was also found ($r = -0.362$; $p < 0.01$). Furthermore, regression analyses were performed to determine whether the two independent variables (occupational stress and uncertainty) are significant predictors of organisational commitment.

TABLE 4: Validity and reliability.

Variable	CR	AVE	MSV	1	2	3	4
1. Commitment	0.972	0.946	0.973	0.972	-	-	-
2. Uncertainty	0.733	0.587	0.817	-0.440***	0.766	-	-
3. Occupational stress	0.864	0.761	0.891	-0.352***	0.211***	0.872	-
4. Job satisfaction	0.936	0.880	0.957	0.912***	-0.458***	-0.325***	0.938

CR, composite reliability; AVE, average variance extracted; Commitment, organisational commitment; MSV, maximum shared variance.

*, $p < 0.050$; **, $p < 0.010$; ***, $p < 0.001$.

TABLE 5: Pearson product–moment correlation coefficients.

Variable	1	2	3
1. Occupational stress	-	-	-
2. Uncertainty	0.173**	-	-
3. Organisational commitment	-0.311**	-0.362**	-

**, Correlation is significant at the 0.01 level (2-tailed).

Occupational stress and uncertainty as predictors of organisational commitment

Multiple regression analyses were performed to determine whether occupational stress and uncertainty can predict organisational commitment. In model 1, organisational commitment was used as the dependent variable, with occupational stress and uncertainty as independent variables. As shown in Table 6, entry of occupational stress and uncertainty at the first step of the regression analysis produced a statistically significant model ($F_{(3,420)} = 50.885; p < 0.01$) and accounted for 19.5% of the variance. From the results, uncertainty ($\beta = -0.318; t = -7.162; p < 0.01$) is a significant predictor of organisational commitment. Occupational stress was also found to be a significant predictor of organisational commitment ($\beta = -0.256; t = -5.760; p < 0.01$). Occupational stress was therefore, found to be the most significant predictor of employees' organisational commitment when compared to uncertainty.

The moderating role of job satisfaction

To test hypothesis 3 that states that job satisfaction moderates the relationship between occupational stress and organisational commitment, a two-stage, moderated, hierarchical multiple regression analysis was also performed (Baron & Kenny, 1986). As displayed in Table 7, in the first step, two variables were included: occupational stress and job satisfaction. These variables accounted for a significant amount of variance in organisational commitment, $R^2 = 0.794, F_{(3, 420)} = 541.005, p = 0.000$. To avoid potentially problematic high multicollinearity with the interaction term, the variables were also centred, and an interaction term between occupational stress and job satisfaction was created (Aiken & West, 1991).

Next, the interaction term between occupational stress and job satisfaction was added to the regression model, which accounted for a significant proportion of the variance in organisational commitment, $\Delta R^2 = 0.002, \Delta F_{(1, 420)} = 4.503, \beta = -0.011, t_{(420)} = -2.122, p = 0.034$ as shown in Table 6. From these results, job satisfaction moderates the relationship between occupational stress and organisational commitment. Therefore, the hypothesis was supported.

From the slope analysis depicted in Figure 3, it can be interpreted that employees with high stress and low job satisfaction experience low level of organisational commitment. However, employees with high job satisfaction had higher levels of organisational commitment regardless of their level occupational stress.

To test hypothesis 4 that stated that job satisfaction moderates the relationship between uncertainty and organisational commitment, a two-stage, moderated, hierarchical multiple

TABLE 7: The moderating role of job satisfaction on the relationship between occupational stress and organisational commitment.

(n = 424)	R ²	ΔR ²	β	T	F	Δf	df	p
Model 1								
OS, JS	0.794	-	-	-	541.005	-	3.420	0.000
Model 2								
OS*JS	-	0.002	-0.011	-0.2.122	-	4.503	1.420	0.034

OS, occupational stress; JS, job satisfaction; OS*JS, interaction term; R², percentage variance explained; ΔR², adjusted R square; β, regression coefficient; t, test for independence mean; F, overall significance; df, degrees of freedom; p, probability value.

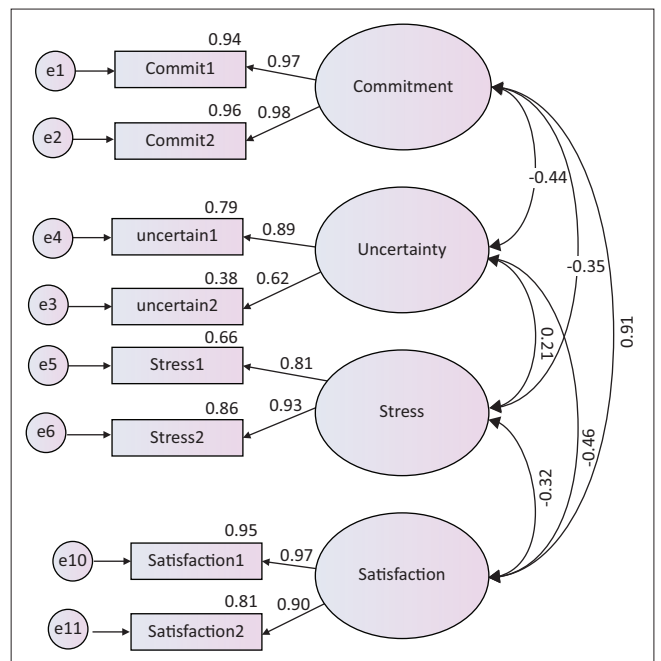


FIGURE 2: Measurement model.



FIGURE 3: Testing the interaction effect of job satisfaction on the relationship between occupational stress and organisational commitment.

TABLE 6: Multiple regression with organisational commitment as the dependent variable and occupational stress and uncertainty as the independent variable.

Model	Unstandardised coefficients		Standardised coefficients (β)	t	P	F	R ²
	Beta	SE					
(Constant)	49.563	2.461	-	20.138	0.000	50.885	0.195
Uncertainty	-0.863	0.120	-0.318	-7.162	0.000**	-	-
Occupational stress	-0.607	0.105	-0.256	-5.760	0.000**	-	-

a. Dependent variable: Organisational commitment

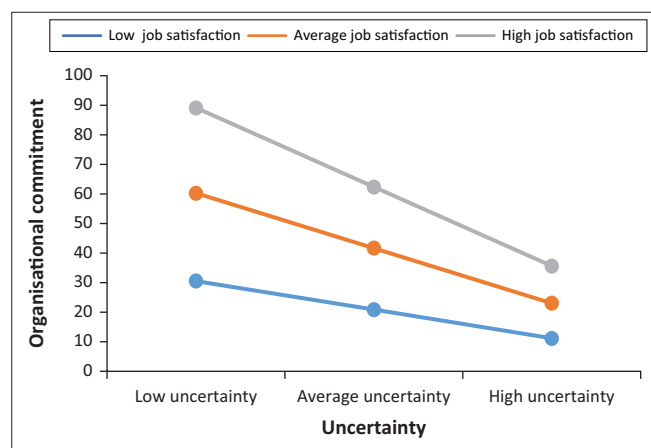
SE, standard error; β, regression coefficient; t, test; p, probability value; F, overall significance; R², percentage variance explained.

** , p ≤ 0.01.

TABLE 8: The moderating role of job satisfaction on the relationship between uncertainty and organisational commitment.

(n = 424)	R ²	ΔR ²	β	T	F	ΔF	df	p
Model 1								
Uncert, JS	0.793	-	-	-	537.758	-	3.420	0.000
Model 2								
Uncert*JS	-	0.006	-0.020	-3.419	-	11.691	1.420	0.034

Uncert, Uncertainty; JS, job satisfaction; Uncert*JS, interaction term; R², percentage variance explained; ΔR², adjusted R square; β, regression coefficient; t, test for independence mean; F, overall significance; df, degrees of freedom; p, probability value.

**FIGURE 4:** Testing the interaction effect of job satisfaction on the relationship between uncertainty and organisational commitment.

regression analysis was performed (Baron & Kenny, 1986). In the first step, two variables were included: uncertainty and job satisfaction. These variables accounted for a significant amount of variance in organisational commitment, $R^2 = 0.793$, $F_{(3, 420)} = 537.758$, $p < 0.001$ (Table 8). To avoid potentially problematic high multicollinearity with the interaction term, the variables were centered, and an interaction term between uncertainty and job satisfaction was created (Aiken & West, 1991; Pu, Hou, Ma, & Sang, 2017).

Next, the interaction term between uncertainty and job satisfaction was added to the regression model, which accounted for a significant proportion of the variance in organisational commitment, $\Delta R^2 = 0.006$, $\Delta F_{(1, 420)} = 11.691$, $\beta = -0.020$, $t_{(420)} = -3.419$, $p < 0.05$ (Table 8). Job satisfaction, therefore, moderates the relationship between uncertainty and organisational commitment. Hence, hypothesis 4 was supported.

From the slope analysis depicted in Figure 4, it can be interpreted that employees' level of organisational commitment is at its highest when there is high job satisfaction and low uncertainty. It was also noted that employees' level of organisational commitment was at its lowest when there was high uncertainty and low job satisfaction.

Discussion

The purpose of the study was to determine the relationship between occupational stress, uncertainty and organisational commitment among academic staff in South African higher learning institutions and to determine whether job satisfaction moderates the relationship between occupational

stress, uncertainty and organisational commitment among academic staff. An equal number of males and females participated in the study, with the highest number of participants in the middle age group of between 36 and 45 years old. As expected of academics, the majority of the respondents had a postgraduate degree with more than 10 years' working experience in the higher education sector.

Reliability and validity of instruments

High levels of internal consistency reliabilities for the measuring instruments used in this study were found. All four scales obtained acceptable Cronbach's alpha coefficients (α) according to the guideline of $\alpha \geq 0.70$ (Pallant, 2016). The highest reliabilities amongst the scales included job satisfaction ($\alpha = 0.941$), organisational commitment ($\alpha = 0.940$), uncertainty ($\alpha = 0.801$) and occupational stress ($\alpha = 0.767$). Confirmatory factor analysis used to test whether the observed data correlate with the variables based on the form defined in a measurement model through creating classified-fit indices (Kline, 2016) shows that model fits the data. The construct validity was achieved as all model fit indices were greater than 0.05 (Jöreskog & Sörbom, 1996). The results also show that all constructs are well measured by their indicators as the average variance explained was > 0.05 . Convergent validity and discriminant validity was therefore achieved (see Rose et al., 2017).

The relationship between occupational stress, uncertainty and organisational commitment

The study used Pearson product-moment correlation coefficients to assess the relationship between occupational stress, uncertainty and organisational commitment. The results confirm the first hypothesis of the study that there is a negative significant relationship between occupational stress and organisational commitment. The results show that occupational stress has an inverse relationship with organisational commitment. Likewise, several studies confirm that highly stressed employees are more likely to be less committed to their organisations (Burke, 2017; Haque et al., 2018; Slade et al., 2016). However, Arnolds et al.'s (2013) study revealed that there is no relationship between occupational stress and organisational commitment. From the findings, one can argue that occupational stress can be an antecedent of organisational commitment and a significant predictor of organisational commitment. This might be explained by the rapid changes in higher education, which can make the academic staff to become less committed to their organisation because of high pressures in the working environment.

A negative significant relationship between uncertainty and organisational commitment was also found. This finding confirms hypothesis 2 that states that as employees become more uncertain about their future job security, their level of organisational commitment decreases as well. Previous studies confirm the finding that a negative relationship between uncertainty and organisational

commitment exists (Lee et al., 2018; Luminkewas et al., 2019). Moshoeu and Geldenhuy's (2015) study of staff in higher education also revealed the same result. This shows that as employees feel unsure about their jobs, they tend to be less committed to their organisation. The regression analysis also confirms that both uncertainty and job stress are predictors of organisational commitment. Slade et al. (2016) support the results of the current study that uncertainty and occupational stress have a significant predictive value to organisational commitment. Khan et al. (2017) echoed the same sentiments by pointing out that when employees perceive their job as uncertain, they are more likely to become less attached to the organisation. Therefore, these results are important as employee behaviour is determined by various organisational aspects, and they should be explored. This will assist organisations to make well-informed policies that will promote high employee commitment.

Job satisfaction as moderator of occupational stress and organisational commitment, as well as the relationship between uncertainty and organisational commitment

The findings of the study confirm hypothesis 3 that states that job satisfaction moderates the relationship between occupational stress and organisational commitment. The results indicated that stressed employees will experience less commitment. However, this relationship can be explained by job satisfaction. Therefore, job satisfaction does moderate the relationship between occupational stress and organisational commitment. Job satisfaction was also found to be a moderator of the relationship between uncertainty and organisational commitment among academic staff in higher education. Therefore, the results confirmed hypothesis 4 that states that job satisfaction moderates the relationship between uncertainty and organisational commitment.

These findings brought new insight into the body of knowledge as there is a dearth of knowledge about the intervening role of job satisfaction on the relationship between occupational stress, uncertainty and organisational commitment in general, and in higher education in particular. Organisations can use the study findings to develop interventions and strategies that promote employee organisational commitment.

Limitations

Whilst this study explored work-related issues such as occupational stress, uncertainty and job satisfaction, and the effect thereof on organisational commitment for individuals and organisations, it had some limitations. The population of higher education institutions is too small to generalise the findings to the larger population. A cross-sectional sample was employed, which may result in employees overthinking their responses on items in the scales. Relatively little research has been conducted on the moderating role of job satisfaction

on the relationship between occupational stress, uncertainty and organisational commitment in South African higher education, which makes it difficult to relate the findings to the South African context.

Recommendations for future research

It is recommended that future studies make use of a longitudinal design to examine the relationship between the variables of the study. Future research can address the limitations of the generalisation of the study results by using a larger sample size of higher education institutions. In this study, the moderating role of job satisfaction on the relationship between occupational stress, uncertainty and organisational commitment was investigated, and insignificant results were found on the moderating role of job satisfaction on the relationship between occupational stress and organisational commitment. Further studies can investigate the mediating role of job satisfaction in these relationships to gain more insight into employee attitudes and behaviour.

Implications

In practical terms, the new knowledge gained from observing the relationship between occupational stress, uncertainty and organisational commitment may be useful in the retention and promotion of organisational commitment of employees in the higher education sector. The results suggest that to have employees who identify themselves attached to their respective organisations, managers need to review existing policies and practices to lessen job stress and job uncertainties and promote positive attitude and behaviour among employees.

Conclusion

The relationship between occupational stress, uncertainty and job satisfaction on organisational commitment can be viewed as valuable to managers in enabling them to develop workplace strategies that minimise occupational stress, uncertainty and increase job satisfaction and to contribute towards improving positive workplace outcomes such as organisational commitment.

It is evident that less occupational stress and uncertainty lead to more committed employees. Occupational stress, uncertainty and organisational commitment need further investigation in employees within the South African higher education to explicitly understand how they relate to each other, and how an understanding of these phenomena can contribute to employees' organisational commitment.

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The author declares that no financial or personal relationships that may have inappropriately influenced him in writing this article.

Author's contributions

H.N. is the sole author of this article.

Ethical consideration

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Data availability statement

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