

# Occupational Stress, Coping Strategies, Health, and Well-Being Among University Academic Staff—An Integrative Review

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## Abstract

Occupational stress has been constantly rising among academics in universities globally, which affects their health and well-being. Although some studies reviewed occupational stress in academics, there has been less systematic evidence reviewed occupational stress of academic staff through the lens of the Transactional Model of Stress and Coping (TTSC). This integrative review aims to search, extract, appraise and synthesise recent evidence relating to occupational stress, coping strategies, health, and well-being of university academic staff. The Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) methodology provides a structure for searching and reporting the search outcomes. Primary studies relating to occupational stress, coping strategies, health, and well-being of academics in university published from 2010 onwards were selected from five databases, CINAHL, ERIC, PsycINFO, SCOPUS, and Web of Science in June 2020. Keywords included “stress”, “coping strategy”, “health”, “well-being”, “academics” and “university” in various combinations. The boolean operators “AND” and “OR” were also used. 17 out of 682 articles were included in this review. Most studies reported academics experienced moderate to high level of stress, and the heavy workload was one of the main stressors. Both positive and negative coping methods were used by academics to cope with stress. Occupational stress can contribute to poor mental health and decreased well-being of academics. This review can help to understand the work phenomenon of university academics and improve their health and well-being, which in turn can contribute to satisfaction and productivity within the educational institutes.

**Keywords:** occupational stress, coping strategies, health, well-being, academics, university

## 1. Introduction

Teaching is complicated in educational settings; it is marked by a large number of competencies and abilities that teachers have to acquire throughout their professional careers (Puertas, Zurita, Ubago, & González, 2019), which resultantly puts high stress on them (Chaudhry, 2012). The academics, especially in the higher education institutions are recognised that they have experienced higher occupational stress compared to other populations (Adewale, Ghavifekr, & Abdulsalam, 2017; Singh, Cross, Munro, & Jackson, 2020). The statistics of Education Support (2019) showed 72% of teachers were stressed at work, and 63% were considering leaving their current position.

### 1.1 Conceptualisation of Stress

Stress remains a difficult concept to define, with researchers employing various models to explain aversive experiences of stress (Watts & Robertson, 2011). Lazarus and Folkman's (1984) theoretical model (Transactional Stress and Coping Theory (TTSC)) (see Figure 1) of stress, coping and their relations to health and well-being was accepted widely (Lee & Roberts, 2018). The individual appraisal is the basic component of the model; person-environment encounters and reactions to stress are mediated through a process of three types of cognitive appraisal: primary, secondary, and reappraisal (Lazarus & Folkman, 1984). Primary appraisal is an essential assessment that evaluates the possible effects of the demands and resources on health and well-being. The secondary appraisal concerns possible coping options for overcoming the threat or challenge when a situation is evaluated as potentially stressful. As the situation develops further, reappraisal involves a constant re-evaluation about how stressful the situation is based on new information from the environment (Bell, Rajendran, & Theiler, 2012). Obviously, stress is a complicated phenomenon in which health consequences are dependent upon each individual and how they deal with stressors (Bell et al., 2012). High stress leads to ill-being, poor health concerns

and poor job satisfaction. TTSC provides a theoretical framework for capturing and analysing the facets of stress, coping strategies, health, and well-being among teachers (Walinga, 2010), which will be applied to direct, structure and develop the present review.

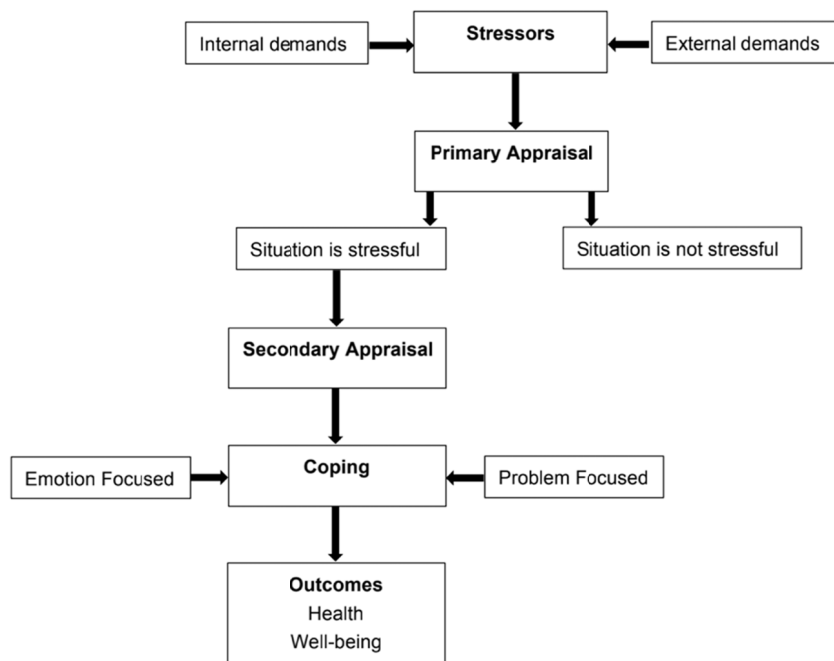


Figure 1. Transactional model of stress and coping (Lazarus & Folkman, 1984)

### 1.2 Occupational Stress in Academics

Occupational stress is a leading major public health associated challenge and concern for all organizations (Lee, Joo, & Choi, 2013; Imran, Ramzan, Khan, & Maqsood, 2016; Basu, Qayyum, & Mason, 2017). Over 550 million working days are lost annually in America due to work stress (The American Institute of Stress, 2018), and in the UK, 487,000 employees lost 11.3 million working days in 2013/14 (Buckely, 2014). The Health and Safety Executive (2019) reported that teachers have been highly influenced by stress at work. Kyriacou and Sutcliffe (1978) described the occupational stress in teachers as a response to the negative effect of the teacher's job, it constitutes a threat to the well-being and by coping mechanisms stimulated to lessen the perceived threat. Despite the "stress-free" inherent in academia previously, the academic staff in the tertiary education sector performs multiple roles include attending conferences, interacting with students, writing papers, and seeking funding (Singh, 2013; Bezuidenhout, 2015), which often lead to overwhelming stress and conflict (Ejue, 2013; Meng & Wang, 2018). The enormous revolutions and frequent restructuring also have contributed to burdens of teaching, research, and publication for academics in the higher education system in the 21st century (Carton & Fruchart, 2010; Quraishi, Aziz, & Siddiquah, 2018).

### 1.3 Coping Strategies in Academics

Coping strategies can play a regulatory role in the relationship between stress and its outcomes (Jiang, Du, & Dong, 2017); it refers to the cognitive effort used to manage the demands that an individual appraises as harm (Lazarus & Folkman, 1984; Carton & Fruchart, 2014). Coping strategies are considered adaptive when they are protective of health and well-being (Jiang & Yang, 2016), and maladaptive when health and well-being are threatened (Holton, Barry, & Chaney, 2016). However, coping responses are constantly changing, an adaptive coping strategy at one time can become maladaptive in a different situation (Bystritsky & Kronemyer, 2014). Academic staff cope with stress differently (Melancon, 2014); Positive methods such as listening to music, conviviality with friends, and psychological assistance were taken by academics (Fadel et al., 2019), passive approaches including problematic alcohol consumption, substances use, smoking and poor diet (Carton & Fruchart, 2014; Ruisoto, Vaca, López, Cacho, & Fernández, 2017) were also taken by some individuals. Using alcohol and drug has been recognised as an adverse coping method (Holton et al., 2016), it also can be a beneficial

adaption to moderate work stress conversely (Müller & Schumann, 2011; Sattler, Sauer, Mehlkop, & Graeff, 2013). However, there is a lack of evidence on this finding.

#### *1.4 Health and Well-Being of Academics*

Occupational stress contributes to ill-health among employees (Watts & Robertson, 2011; Ejue, 2013; Shaw, 2014), which has led to a high rate of absenteeism, high staff turnover, low productivity, early retirement and strikes (Basu et al., 2017; Aquino, Lee, Spawn, & Bishop, 2018). High levels of occupational stress also have been associated with increased risk of cardiovascular diseases (Basu et al., 2017), comparing to people with low work stress, people with high occupational stress had more than twice the chance of getting cardiovascular disease (Wilson, Conroy, & Dorevitch, 2014). Occupational stress has the most significant effect on mental health (Holton et al., 2016). Mental health refers to a state of well-being in which individuals realise their own abilities can cope with stress in life (Lombardo, 2018; WHO, 2018). According to the statistic in America (ADAA, 2016), there were nearly 40 million Americans experience mental disorder, especially anxiety disorder annually, and they were among the most susceptible populations to endure mental health disorders due to their stress at work and inability to cope with stressors (Fan, Blumenthal, Watkins, & Sherwood, 2015; Mérida-López, Extremera, & Rey, 2017; Alvarado, 2019). The Health and Safety Executive (2020) reports that 0.6 million employees in the UK developed occupational illnesses such as depression, anxiety, and nervousness between years from 2018 to 2019, and there was number of higher education staff accessing occupational health services because of poor mental health (Guthrie et al., 2018; Weale, 2019). Academics in Australia were suffering from poor mental health due to long working hours (Fontinha et al., 2019), while the impact of occupational stress on the health of academic staff at higher educational institutions is not fully explored (S. Dreyer, L. Dreyer, & Rankin, 2010). The general well-being of academics was decreased according to recent studies (Slišković & Maslić-Seršič, 2011). A survey in the UK reported low well-being and higher stress amongst academics when compared with other staff members (Qudah, Davies, & Deakin, 2019). High rates of stress-related health problem in work also impose a considerable social and financial burden on society (Skakon et al., 2010; Fontinha et al., 2019). The fact that millions of pounds have been paid out on teachers' mental and physical health in the UK (Mulholland, 2012); depression alone costs \$44 million in America yearly (Battams et al., 2014). Moreover, teachers in Queensland have increased mental health problems and claims which resulted in over \$10 million expenditure on them in five years (Worksafe Queensland, 2014).

#### *1.5 Rationale for Review*

Addressing occupational stress and promoting the health and well-being of academics are necessary for the sake of quality education (Quraishi et al., 2018). Although occupational stress has been studied in recent years, there is still an obvious lack of studies in higher education, especially in academics (Mark & Smith, 2012; Li & Kou, 2018). Furthermore, in recent years, there are many changes in the higher education environment, academic faculty face many new challenges in different countries; these issues are worthy of more systematic analysis and empirical research. In this circumstance, an up-to-date comprehensive review of the evidence is fundamentally imperative. TTSC will be used to guide the present study; it enables to organise the study topic. Hopefully, this study will lead to more future studies in the workplace of the university and develop policies and methods to improve the health and well-being of academics.

#### *1.6 Study Aims*

This integrative review aims to search, extract, appraise and synthesise recent evidence relating to occupational stress, coping strategies, health, and well-being of academics in higher education.

The review was guided by the following questions:

- (1) What are the sources and levels of occupational stress in these studies?
- (2) What are the main coping strategies used by academic staff to cope with occupational stress?
- (3) What is the status of health or well-being within university academic staff?
- (4) What is the relationship between occupational stress, health and well-being along with coping strategies?

## **2. Methodology**

The integrative review process proposed by Whittemore and Knafl (2005) was used to guide this review. This review method allows the inclusion of diverse study designs, and it helps to facilitate a fully understanding of certain study concerns (Whittemore & Knafl, 2005). According to them, the stages of an integrative review include problem identification, literature search, data evaluation, data analysis, and data presentation (Whittemore & Knafl, 2005). The Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) (Moher,

Liberati, Tetzlaff, Altman, & Group P, 2010) methodology provided a structure for searching and reporting results. The theoretical framework of the Transactional Model of Stress and Coping (TTSC) (Lazarus & Folkman, 1984) provided the structure to organise, analyse, and synthesise the findings of this integrative review.

## 2.1 Search Strategy

### 2.1.1 Databases

The systematic search was conducted in June 2020. Five electronic databases were used to search relevant studies: CINAHL, ERIC, PsycINFO, SCOPUS, and Web of Science. The coverage and time provided for each database shown in Table 1. The additional studies were identified with a search of relevant literature from the reference lists of selected studies.

Table 1. The focus and cover period of databases

Database	Focus	Cover period
CINAHL	General health and medicine	1961-2020
ERIC(Educational Resources Information Centre)	Education	1966-2020
PsycINFO	Behavioral science and psychology	1806-2020
SCOPUS	Health sciences	2004-2020
Web of Science	Science, social science	1970-2020

### 2.1.2 Search Terms and Boolean Operators

Search terms were derived from the analysis of key studies which included “stress”, “coping strategy”, “health”, “well-being”, “academics” and “university”, and their related search terms in various combinations. Table 2 shows the Example of the search strategy for CINAHL.

Table 2. Example of the search strategy for CINAHL

Search Number	Search String
S1	(MH “Stress, Occupational+”)
S2	stress N3 (work or work-related or occupational or job or academic)
S3	S1 OR S2
S4	(MH “Stress Management”)
S5	coping N3 (mechanism* or behavior* or strateg* or skill* or method*) OR “stress management”
S6	S4 OR S5
S7	health OR wellbeing OR well-being OR “life satisfaction” OR “quality of life”
	university N3 (staff or teacher* or lecturer* or professor* or researcher* or educator* or faculty or academician or employee*)
S8	OR college N3 (staff or teacher* or lecturer* or professor* or researcher* or educator* or faculty or academician or employee*)
	OR “higher education” N3 (staff or teacher* or lecturer* or professor* or researcher* or educator* or faculty or academician or employee*)
S9	S3 AND S8
S10	S3 AND S6 AND S8
S11	S3 AND S7 AND S8
S12	S6 AND S7 AND S8
S13	S3 AND S6 AND S7 AND S8

## 2.2 Inclusion and Exclusion Criteria

The inclusion criteria were: (a) full-text primary articles published in English in the period from 2010 to 2020, (b) studies published in peer-reviewed journals, (c) papers that used a qualitative, quantitative, or mixed-methods approach; for quantitative research, the study should explain the measurement tools, (d) studies including academics who worked only in higher education, and (e) studies clearly described findings related to occupational stress or stressors along with coping strategies, health or wellbeing of academic staff in higher education. This review excluded publications such as newspaper articles, conference papers, books, and dissertations. Papers that did not explicitly explore target themes (i.e., occupational stress, coping strategies, health, or wellbeing), and did not focus on academics in higher education settings were excluded.

### 2.3 Study Selection and Outcome

The reference management software Refworks® was used to sort the articles. The initial search of the electronic databases resulted in a sample of 1541 articles (CINAHL n=190, ERIC n=50, PsycINFO n=79, SCOPUS n=487, Web of Science=735). Nine articles were found through the search of relevant literature from the reference lists. After duplication, 682 articles were identified for title and abstract. In light of the inclusion and exclusion criteria, 17 studies remained in this review. The process used to select articles was shown in Figure 2.

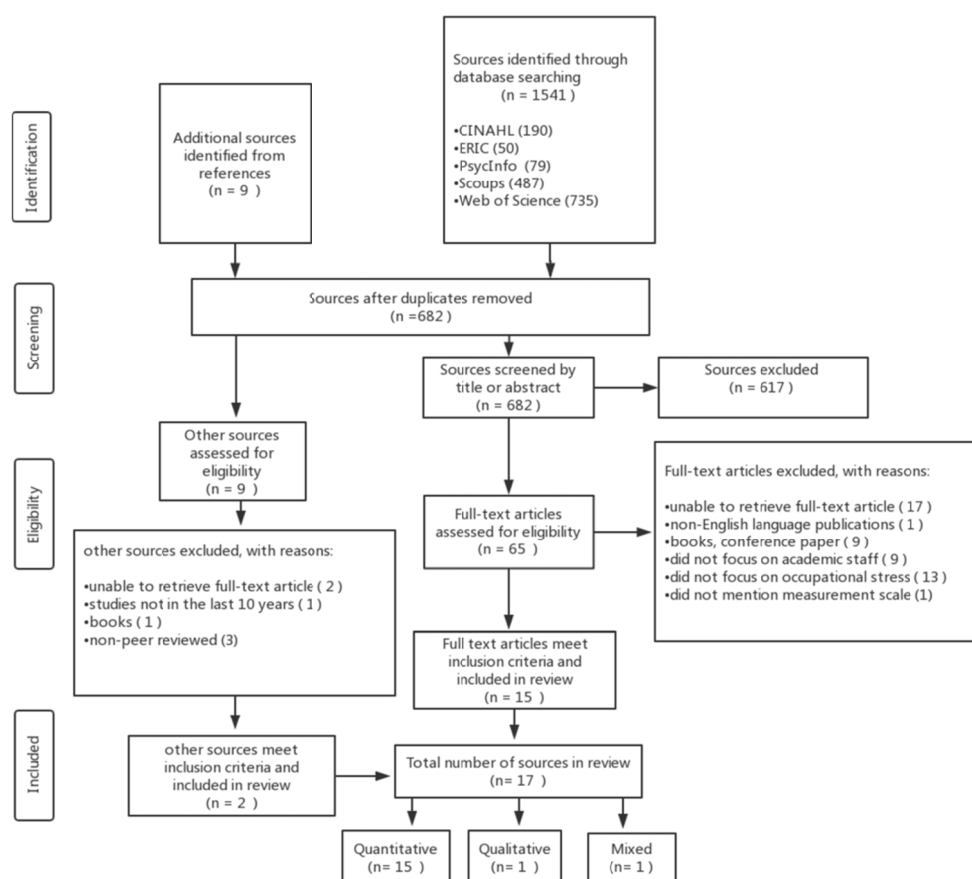


Figure 2. PRISMA diagram used for article selection

### 2.4 Quality Appraisal

Quantitative studies were systematically evaluated according to the cross-sectional studies checklist of STROBE (von Elm et al., 2007) as 15 out of 17 articles were employed a cross-sectional design. The items such as participants, sample size, statistical methods and results interpretation were appraised. Qualitative studies were appraised by the qualitative study checklist of Critical Appraisal Skills Programme (CASP) (CASP, 2018), items such as ethical issues, bias, and outcome analysis were evaluated.

### 2.5 Data Extraction and Synthesis

Extraction and synthesis of the studies were presented in Appendix A with consideration of author year, country, the purpose of study, methodology, population, sample size, setting, instrument, data collection method, main findings, and limitation. Main findings of included articles presented in Appendix B were sorted into the category of stress prevalence and level, stressors, coping strategies, health, and well-being.

### 2.6 Analytic Strategy

The data were analyzed with consideration of characteristics of the studies such as purpose, methods, and findings of the reviewed studies. Findings of selected studies were analysed within the framework of TTSC. Categories and themes were accomplished by organizing identified themes from the findings of each article within the TTSC.

### 3. Results

#### 3.1 Characteristics of Studies

There is an overview of the main characteristics of 17 studies included in this review (Appendix A), according to author, year, country, the purpose of study, methodology, population, sample size, setting, instrument, data collection method, and limitation.

##### 3.1.1 Setting

Studies included in this review were conducted in several different countries. Four studies were conducted in China (Jiang et al., 2017; Li & Kou, 2018; Meng & Wang, 2018; Shen et al., 2014). Three studies occurred in the UK (Darabi, Macaskill, & Reidy, 2017; Fontinha et al., 2019; Kinman, 2016). Two studies were from India (Priyadarshini, Ponnampal, & Banerjee, 2015; Sawhney & Bansal, 2013), and two studies were from Brazil (Fadel et al., 2019; Tavares, Beck, Magnago, Zanini, & Lautert, 2012). Australia (Bell et al., 2012), Canada (Catano et al., 2010), Saudi Arabia (Iqbal & Kokash, 2011), Pakistan (Khan, Yusoff, & Isa, 2016), Spain (Ruisoto et al., 2017) and Germany (Wiegel, Sattler, Göritz, & Diewald, 2016) were represented by one study each.

##### 3.1.2 Method and Design

15 (88.2%) studies utilised a quantitative approach, one (5.9%) study utilized a qualitative approach, and one (5.9%) study utilized a mixed-methods approach. Regarding the design adopted by the included studies; 15 studies were guided using a cross-sectional design, one study used an interview approach (Priyadarshini et al., 2015), and one study used both cross-sectional design and interview approach (Fadel et al., 2019).

##### 3.1.3 Sample Size and Sample Socio-demographics

Of these included studies, 15 quantitative studies with sample sizes ranging from 50 to 5,445 academic staff members. The sample size of academics of one qualitative study and one mixed-methods study was 64 and 161, respectively. Most studies were relatively more likely to report gender, age, education degree, academic rank, employment status, work experience and marital status of participants. Nevertheless, few studies reported ethnic group; and no study report a religious affiliation.

##### 3.1.4 Instrument

In quantitative studies, the Effort-reward imbalance scale (Siegrist et al., 2004), Faculty Stress Index (FSI) (Gmelch, Wilke, & Lovrich, 1986) and Perceived Stress Scale (PSS) (Cohen & Williamson 1988) were the most common instruments used to measure stress. The Brief COPE Scale (Carver, 1997), General Health Questionnaire (GHQ) (Goldberg, 1972), and The Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985) were commonly adopted to measure coping strategies, health, and well-being, respectively. In a qualitative study, data were collected through in-depth interviews.

##### 3.1.5 Quality Assessment

Most studies have clear aims, appropriate sample size, designs and outcome analysis. Some common limitations across the articles included a lack of consideration of confounders and existed bias. Some articles did not report ethical issues. The findings of most studies have the limitation of generalizability as the study is based on self-reporting in one single university in academics.

#### 3.2 Main Outcomes

Synthesis of main findings was categorised into stress prevalence and level, stressors, coping strategies, health, and well-being (Appendix B).

##### 3.2.1 Prevalence and Level of Stress

It can be inferred from ten papers that 22.3% (Shen et al., 2014) to 54.1% (Li & Kou, 2018) academics were experiencing stress in tertiary education institutions. Most of academics experienced moderate levels of stress in the universities of Australia, China and India (Bell et al., 2012; Meng & Wang, 2018; Sawhney & Bansal, 2013). Two studies from China and Brazil reported a high stress level of academics (Li & Kou, 2018; Tavares et al., 2012), and only one study showed moderate to very high stress levels experienced by academics in India (Priyadarshini et al., 2015). The variability in prevalence rates of stress may be due to the difference in measurement tools too.

##### 3.2.2 Stress in Relation to Socio-Demographics

A number of socio-demographic characteristics had an impact on stress. Gender, age, employment status, income, academic rank, and teaching experience were found to be associated with increased occupational stress. A survey



in Canadian universities found female academics have more risk of stress compared to male faculty (Catano et al., 2010), a similar result was also reported in higher education institutions in British (Fontinha et al., 2019). However, no differences in gender were identified on stress in the studies of Darabi et al. (2017), Li and Kou (2018) and Meng and Wang (2018) in some universities. Some findings reported age to be correlated with stress. This was supported by Meng and Wang (2018) who found that academics under 40 years old were suffering from a high level of occupational stress. In the studies of Catano et al. (2010) and Li and Kou (2018), academics between the ages of 36 and 45 were likely to experience higher stress. Older academic faculty (over 56) and younger academic faculty (below 35) were reported experienced a lower level of psychological stress (Fontinha et al., 2019; Li & Kou, 2018). Temporary workers were experiencing high levels of stress (Fontinha et al., 2019); conversely, the full-time or part-time employment factor was reported did not make a statistically significant difference in the stress experienced by academic staff in Darabi et al.'s (2017) study. The academic rank and teaching experience factors reported by Meng and Wang (2018) showed that assistant professors experienced a higher level of stress than the associate professors and professors; and those working over ten years at the institution reported more stress compared to those with less working experience. These results are consistent with Tavares et al.'s (2012) but diverged from the finding of Darabi et al.'s (2017) study, which revealed no significant differences were found in terms of the level of seniority on the stress in the university.

### 3.2.3 Stress Sources

Stress was affected by a number of internal and external factors. These include:

External factors: Heavy workload as the main factor contributed to stress among academics was identified by most studies (Catano et al., 2010; Iqbal & Kokash, 2011; Khan et al., 2016; Li & Kou, 2018). Women, ages between 30 and 59, assistant and associate professor, and tenure track faculty reported high levels of stressors on workload compared to other groups (Catano et al., 2010). Only one study found the stress level of teachers who worked more than ten hours per day was less than that of teachers working less than eight hours per day (Li & Kou, 2018). Administrative problems and unfair reward were identified as high levels of stressors among academics in a survey of Canadian university (Catano et al., 2010). Similarly, a study conducted by Fadel et al. (2019), Fontinha et al. (2019) and Meng and Wang (2018) also reported administrative affairs, salary and benefits issues were stressors in academics. Attending meetings, scientific research, publication targets and supervision of programs were recognised as stressors by several studies (Fadel et al., 2019; Iqbal & Kokash, 2011; Meng & Wang, 2018; Li & Kou, 2018; Priyadarshini et al., 2015; Tavares et al., 2012). Priyadarshini et al. (2015) conducted a qualitative study among 64 professors in business schools in India, found that academics stated more stressors on increased changes, expectations, and competition in institutions.

Internal factors: The emotion of academics reflected their stress status (Khan et al., 2016). The lack of job control, role conflict and role clarity led to added stress (Catano et al., 2010). Ineffective relationships and communication with colleagues in work were regarded as high levels of stressors in the universities of the UK (Fontinha et al., 2019), Pakistan (Khan et al., 2016) and Saudi Arabia (Iqbal & Kokash, 2011); only the study in Saudi Arabia drew that this source was the least pressured compared to other stressors.

### 3.2.4 Coping Strategies

Adaptive coping styles were used by academics in most studies. Academics were more likely to use problem-focused coping methods to manage stress in a British university Darabi et al. (2017). The positive cognitive appraisal was employed by the university academics in India (Priyadarshini et al., 2015), which aligned with the study of Darabi et al.'s (2017). One study showed that the psychological capital approach, which can be considered emotional-focused coping styles, was the preferred coping style in dealing with stress among academics in six Chinese universities (Shen et al., 2014). Transference such as exercise, attending activities and social interaction were the most popular coping strategies among academics in Brazil (Fadel et al., 2019), Saudi Arabia (Iqbal & Kokash, 2011) and India (Priyadarshini et al., 2015). Maladaptive coping styles were only reported in two studies. Alcohol consumption was used by 82% of professors in a private university in Spain (Ruisoto et al., 2017), 13.1% reported problematic alcohol drinking (Ruisoto et al., 2017). Male professors were more likely to have alcohol drinking than female professors (Ruisoto et al., 2017). As for drug use, Wiegel, Sattler, Göritz, and Diwald (2016) found that the academics in four German universities were using CE-drug to manage stress in work, but the prevalence of CE-drug use was very low.

### 3.2.5 Health

Health problems were the main outcomes of stress and negative coping strategies. The research of mental health of academics among these studies was more than physical health. 13% of academics reported psychological distress in Canadian universities (Catano et al., 2010). High levels of occupational stress of academics were correlated with

greater levels of mental health issues (Catano et al., 2010; Kinman, 2016); it was also supported by Tavares et al.'s (2012) study, which found that nursing professors with high stress levels in the university have a great chance of getting minor psychiatric disorders. 43% of academic staff was in poor mental health in China (Li & Kou, 2018); 50% academics experienced a mild level of anxiety, 49% had social dysfunction and depression symptoms in Pakistan (Khan et al., 2016). The prevalence of depressive symptoms (58.9%) was even higher among Chinese academics according to Shen et al.'s (2014) study. Some socio-demographic characteristics significantly contributed to the health problems among academics. Female academics have more physical and psychological health problems than male faculty (Catano et al., 2010). However, this result was not consistent with Khan et al.'s (2016), which found that single, male faculty members were suffering from higher anxiety, depression and social dysfunction problems than female faculty. However, Shen et al. (2014) found that differences in depression for gender and marital status were not statistically significant. Young faculty members (20–40 years old) were reported experienced higher mental health disorders than other age groups in a survey in 12 Pakistan universities, while the study in 56 Canadian universities found youngest and oldest age groups of academics reported the fewest number of health problems than the age of 30–59 (Catano et al., 2010). The result of the study in Canadian universities aligned with Shen et al.'s (2014), which found that teachers with the age of 31 and 40 in Chinese universities had higher levels of depression than other age groups. Professors were found had a lower level of mental disorders than other academic ranks (Catano et al., 2010; Shen et al., 2014; Khan et al., 2016).

### 3.2.6 Well-Being

Few papers investigated the stress-related well-being of academics in higher institutions. A higher level of occupational stress did contribute to poorer well-being among academics (Catano et al., 2010; Bell et al., 2012; Fontinha et al., 2019; Sawhney & Bansal, 2013). In an Indian university, college teachers reported had average life satisfaction levels (Sawhney & Bansal, 2013), a similar finding was also found in a cross-sectional survey among academics in Australia; academics experienced mild levels of well-being and low levels of ill-being (Bell et al., 2012). Academics in Canada had a decreased positivity towards their well-being in the university according to Catano et al. (2010). Some socio-demographic characteristics also contribute to well-being among academics. Male faculty was likely to express higher levels of positive well-being than female faculty in two studies (Catano et al., 2010; Fontinha et al., 2019). According to Catano et al.'s (2010) study, tenure-track faculty reported better well-being than contract academics in Canadian universities (Catano et al., 2010); however, academics with tenure track in British universities were more likely to have poorer well-being than temporary workers (Fontinha et al., 2019). The youngest and oldest age groups reported better well-being than other age groups, assistant professors reported the least positive well-being compared to other academic ranks in the Catano et al.'s (2010) study in Canada. Factors included gender, employment status and academic rank of academics were found had no effect on mental health and well-being measures in Darabi et al.'s (2017) study in the UK.

### 3.2.7 Relations

Occupational stress of university teachers has a significant positive impact on negative coping style and negative impact on positive coping style directly (Darabi et al., 2017; Jiang et al., 2017). Stress predicted poorer mental health (Catano et al., 2010; Darabi et al., 2017; Kinman, 2016; Shen et al., 2014; Tavares et al., 2012) and well-being (Bell et al., 2012; Catano et al., 2010; Fontinha et al., 2019; Sawhney & Bansal, 2013) among academics. Nevertheless, Jiang et al. (2017) supported that occupational stress can indirectly affect the mental health of academics through negative coping styles and positive coping styles. Problem-focused coping style was related to mental health and well-being positively (Darabi et al., 2017). Although emotion-focused coping has no association with mental health, it was positively correlated with the well-being of academics (Darabi et al., 2017). Conversely, dysfunctional coping style predicted poorer mental health while it has no relationship with well-being (Darabi et al., 2017). Overall, most studies addressed the relations of stress, coping, health, and well-being separately, there is no study that holistically investigate and synthesise their relationship.

## 4. Discussion

This integrative review aims to search, extract, appraise and synthesise recent evidence relating to occupational stress, coping strategies, health, and well-being of academics in higher education through the lens of TTSC. Most studies adopted the cross-sectional design and used a self-reported survey to collect data, while this method can limit the scope of the study, more current studies also employed it in the study. For instance, Soares et al. (2019) used a self-reported survey to collect the stress data of professors in a federal public university. The Faculty Stress Index (FSI) (Gmelch et al., 1986) was one of the most common instruments used to measure stress in the included studies. It was also used in the Moeller and Chung-Yan (2013) and Kang and Sidhu's (2015) studies to evaluate the stress in professors in Canadian university and Indian university, respectively. Standardization of an instrument to



measure stress among academics would help examine stress comparatively and provide a more accurate picture worldwide.

It was apparent that most of academics in higher education were experiencing moderate to high levels of stress. Female academics experienced higher levels of stress than male faculty in most included studies. Similarly, recent evidence showed work-related stress was more prevalent among female faculty than among male faculty at university (Imran et al., 2016; HSE, 2019). Heavy workload as the main factor that contributed to stress among academics was identified by most studies reviewed, which is consistent with the finding conducted by Jawabri et al. (2019) in academics in the United Arab Emirates. Workplace bullying was reported as a stressful phenomenon that impacts the health and wellness of academics in higher education (Giorgi et al., 2016; Pheko, 2018; Hollis, 2019). Nevertheless, this stress source was not reported in the included 17 studies. Although there were some common stressors among academics, differences also existed. This may be caused by the education model and cultural background (Bhurtun et al., 2019) of different sectors. Using alcohol and drugs as negative coping strategies were reported in two studies in this review. However, Müller and Schumann (2011) and Sattler et al. (2013) reported the use of drugs among academics can be a beneficial adaption to moderate occupational stress. Apart from the above two approaches, smoking and an unhealthy diet were also commonly adopted by academics to cope with stress (Carton & Fruchart, 2014). Occupational stress can indirectly affect the mental health and well-being of academics through negative coping style and positive coping style; high stress was related to greater levels of mental disorders and poor well-being. These findings were consistent with studies from Holton et al. (2016), Wenhua et al. (2016) and Achour et al. (2019), which showed that occupational stress has the most significant effect on mental health and well-being in academics in the higher education sector. Some included studies showed that socio-demographic characteristics such as gender, age and employment status significantly influence stress, coping strategies, health and well-being of academics, which aligned with the studies by Kataoka et al. (2014) and Kabito et al. (2020); their studies found that individual factors such as age, gender, education level, teaching experiences, position, and religious can potentially impact on stress in academics.

A few included studies used the TTSC model to study stress, coping styles and health among academics, while the findings of most studies supported the TTSC model that stress has an impact on health and well-being, and coping strategies play a regulatory role in the relationship between the stress and its outcomes.

## 5. Strengths and Limitations of the Study

This study contributed to the current understanding of occupational stress, coping strategies, health, and well-being among university academics. The search strategy and database selection were conducted after discussing with the librarian. This review followed a transparent and rigorous methodology, which can enhance the rigorousness of processing, reporting, integrating, and analysing the information. The construction of the results of the included studies was guided by the TTSC, which improve the clearness of the review. However, some limitations need to be considered. Potential selection and extraction bias can be resulted as the data extraction, quality evaluation, and analysis were conducted by one researcher. In the present study, only English language publications were included; some relative and valuable studies in non-English language may be potentially omitted. The present review included a large percentage of quantitative studies because of a lack of qualitative study in occupational stress in academics, which can limit the scope of the review. The dynamic nature of stress cannot be fully evaluated as most studies used a cross-sectional design. Further, recall bias and the risk of common method variance have resulted from the self-reported surveys in most articles. Small sample sizes in some included studies may threaten the generalisability of the findings. Additionally, the generalisability of the results also can be limited by the heterogeneity of tools and design in the studies reviewed. Subsequently, the relations of stress, coping, health, and well-being cannot be conducted easily, because there were only a few studies discussed them. Future research is needed to address these issues.

## 6. Implications for Future Research

The construct of the study is dynamic, the sole use of a cross-sectional approach and analysis could limit the scope of the study; employing a longitudinal design would be practical to track the development of occupational stress, coping, health, and well-being of academics. Sources of stress are more subjective, which differed from individuals; using the in-depth interview to collect data of stressors can help to understand the issues at hand and explore more aspects of stress experience from the subjective perception of academics. Guaranteeing an adequate sample size can enhance the ability to generalise the findings. There were few studies that investigated the specific occupational stress related socio-demographic characteristics, maladaptive coping strategies as well as mental health and well-being among university academic staff in the changing society. Their relationship has not been studied holistically. Therefore, a future study can be conducted under the guidance of these gaps.

## 7. Recommendations for Practice and Policy

The findings of this review highlight the importance of using adaptive coping styles to deal with stress; thus, advocating a positive approach in dealing with occupational stress is important for academics (Jiang et al., 2017). Higher education institutions need to balance the effort and reward in work according to the stressors of academics and provide adequate resources (Iqbal & Kokash, 2011). Investments and legislation of higher education should be addressed related to the benefits of academics (Khan et al., 2016).

## 8. Conclusion

This review expanded the current understanding of occupational stress, coping strategies, health, and well-being of academics in higher education. A majority of studies reported academics encountered moderate to high level of stress, and the heavy workload was one of the main stressors. Dealing with stress in work, academics were more likely to use problem-focused coping. Negative approaches such as drinking alcohol and using drugs were reported. Poor mental health and decreased well-being of academics were presented in most studies. Occupational stress can affect the mental health and well-being of academics through negative coping styles and positive coping styles. Socio-demographic characteristics such as gender, age and employment status can significantly influence stress, coping strategies, health, and well-being of academics. Future studies should investigate the specific occupational stress related socio-demographic characteristics, maladaptive coping strategies as well as mental health and well-being among university academics. This study can help to understand the work phenomenon of university academics and improve their health and well-being, which in turn can contribute to satisfaction and productivity within the educational institutes.

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## Appendix A

## Characteristics of included articles

Author and year	Country	Purpose	Methodology	Population, sample size, setting	Instrument	Data collection method	Limitation
Bell <i>et al.</i> (2012)	Australia	To investigate the relationship between perceived job stress and well-being/ill-being among Australian academics.	Quantitative Cross-sectional study	139 academic staff members  Universities in Australia from higher education and technical college divisions	<b>•Stress:</b> Stress in General scale (SIG) <b>•Well-Being and Ill-Being:</b> Multidimensional Health States Scale – Short Form	Online survey	The limitation of scope of the study as the sole use of quantitative data collection methods and analysis.
Catano <i>et al.</i> (2010)	Canada	To assess stress and its impact on health and work-related outcomes of University Teachers.	Quantitative Cross-sectional study	5,445 academic staff members  56 Canadian universities	<b>•Stressor and Stress:</b> Lack of Job Control; Work Load; Role Conflict; Role Clarity; Work-Life Conflict; Unfairness-Administration; Unfairness-Chairperson; Unfairness-Rewards; Skill Use and Work Schedule Scale <b>•Health:</b> Physical Health Questionnaire; General Health Questionnaire <b>•Well-being:</b> Positive Well-Being	Online survey	<b>•The low response rate (27%);</b> <b>•The proportion of females was higher and the number of contract staff lower than among Canadian academics as a whole.</b>
Darabi <i>et al.</i> (2017)	UK	To identify coping styles of UK academics and manage to preserve their well-being and mental health.	Quantitative Cross-sectional study	216 academic staff members  1 British university	<b>•Stress:</b> The Perceived Stress Scale <b>•Coping:</b> The Brief COPE <b>•Mental Health:</b> The General Health Questionnaire <b>•Well-being:</b> The Satisfaction with Life Scale; The Positive and Negative Affect Scale	Online survey	<b>•The results may not be generalised to other university employees;</b> <b>•Direct causation cannot be ascertained as the cross-sectional study;</b> <b>•The factor structure of the Brief COPE Scale is slightly problematic as is its internal reliability.</b>
Fadel <i>et al.</i> (2019)	Brazil	To explore the relationship between stress disposition and the work process among university professors.	mixed	161 university professors  1 public university in the south of Brazil	<b>Quantitative</b> <b>•Stress:</b> Inventory of Stress Symptoms for Adults of Lipp' - ISSL <b>Qualitative</b> <b>•To identify the professor's conception about stress and their perception about the presence of this phenomenon at work: unpublished self-applied instrument.</b>	Phase1- survey Phase2- interview	The factors includes the approach to the interview of professors, minutes before or shortly after the development of their activities and the experience of a phase of interventionism of union relations and striking movements, present in the investigated institution may have hindered the trustful apprehension of answers among some professionals.

Author and year	Country	Purpose	Methodology	Population, sample size, setting	Instrument	Data collection method	Limitation
Fontinha <i>et al.</i> (2019)	UK	To compare academics and non-academics' working in higher education regarding their quality of working lives.	Quantitative Cross-sectional study	1,474 (43%) academics; 1,953 (57%) non-academics  9 British Higher educational institutions (HEIs)	<b>Quality of life:</b> Quality of working life (Stress at work; General well-being)	Online survey	<ul style="list-style-type: none"> <li>• Direct causation cannot be ascertained as the cross-sectional study;</li> <li>• The risk of common method variance due to using self-reported data;</li> <li>• Data were only collected in HEIs in the United Kingdom.</li> </ul>
Iqbal and Kokash (2011)	Saudi Arabia	To investigate the occupational stress experienced by university faculty and seek faculty's opinions on the managing occupational stress.	Quantitative Cross-sectional study	68 faculty members  1 universities of Saudi Arabia	<ul style="list-style-type: none"> <li>•<b>Stress:</b> Faculty Stress Index (FSI)</li> <li>•<b>Coping:</b> Coping Stress Strategies</li> </ul>	Online survey	<ul style="list-style-type: none"> <li>• Small sample size;</li> <li>• Participants were from a particular university and do not represent all faculty members from Kingdom.</li> </ul>
Jiang <i>et al.</i> (2017)	China	To investigate the relationship between occupational stress, coping style, and mental health of university teachers.	Quantitative Cross-sectional study	1,390 academic staff members  30 colleges and universities in Shaanxi Province in China	<ul style="list-style-type: none"> <li>•<b>Stress:</b> occupational stress scale prepared by Li (2005)</li> <li>•<b>Coping:</b> simple coping style questionnaire prepared by Xie (1998)</li> <li>•<b>Mental health:</b> mental health scale: symptom self-rating scale prepared by Wang (1984)</li> </ul>	Online survey	<ul style="list-style-type: none"> <li>• The sample are limited to colleges and universities in Shaanxi Province which makes sample representativeness;</li> <li>• The cross-sectional data cannot fully reflect the dynamic changes of influence of occupational stress and coping style on the university teachers' mental health.</li> </ul>
Khan <i>et al.</i> (2016)	Pakistan	To examine the linkages between prevalent workplace stressors and psychological health problems in Pakistan's academia.	Quantitative Cross-sectional study	1,189 academic staff members  12 universities of Pakistan	<ul style="list-style-type: none"> <li>•<b>stress and stressor:</b> Faculty Stress Index; Emotion Work Requirements Scale;</li> <li>•<b>Mental health:</b> Organizational Stress Scale General Health Questionnaire (GHQ)</li> </ul>	Online survey	It relied on cross-sectional correlational data, thus the direction of causality cannot be established.
Kinman (2016)	UK	To examine relationships between effort-reward imbalance and mental health problems in academics in UK universities.	Quantitative Cross-sectional study	649 teaching and research members  UK universities	<ul style="list-style-type: none"> <li>•<b>Effort-reward imbalance:</b> ERI questionnaire</li> <li>•<b>Mental health problems:</b> The General Health Questionnaire-12</li> </ul>	Online survey	Employees' perceptions of equity between efforts and rewards are not likely to be based on simple judgements of cause and effect.
Li and Kou (2018)	China	To investigate the levels of stress and associated factors in university teachers.	Quantitative Cross-sectional study	603 university teachers  1 university in China	<b>Psychological stress:</b> 10-item Kessler Psychological Distress Scale (K10)	Online survey	<ul style="list-style-type: none"> <li>• Unable to infer any causal associations between the risk factors and stress as cross-sectional design;</li> <li>• Results were based on one university; thus, results may not be generalised to other university employees.</li> </ul>

Author and year	Country	Purpose	Methodology	Population, sample size, setting	Instrument	Data collection method	Limitation
Meng and Wang (2018)	China	To investigate the stress level, sources and the implications of university faculty members.	Quantitative Cross-sectional study	240 faculty members a Chinese university	<b>Stress and stressor:</b> University faculty occupational stress Scale	Online survey	<ul style="list-style-type: none"> <li>•The participants were from one university, this made it difficult to generalize the results.</li> <li>•In-depth interviews with selected participants would be helpful for understanding the issues instead of scale measurement.</li> </ul>
Priyadarshini <i>et al.</i> (2015)	India	To explore the determinants of stress and coping strategies amongst business school professors in India.	Qualitative semi-structured interviews	64 professors 11 public business schools 18 private business schools in India	<b>Interview schedule:</b> (a) the work-related stress experienced by the academicians; (b) their perceptions about the causes of stress in the business schools; (c) the coping strategies followed by them; (d) the changes they want the university management to make in the policies and norms to reduce the workplace stress.	interview	The sample of the study is restricted to India.
Ruisoto <i>et al.</i> (2017)	Spain	To assess the level of problematic alcohol consumption among male and female university professors and associated psychosocial variables.	Quantitative Cross-sectional study	360 professors a private university	<ul style="list-style-type: none"> <li>•<b>Stress:</b> Perceived Stress Scale</li> <li>•<b>Coping:</b> Alcohol consumption: Alcohol Use Disorders Identification Test (AUDIT)</li> </ul>	Survey	Results should be generalized with caution, since this is a cross-sectional study based on self-reporting in a single large university in Ecuador.
Sawhney and Bansal (2013)	India	To study the life satisfaction and stress level of professional of college teachers.	Quantitative Cross-sectional study	50 teachers 1 college in India	<ul style="list-style-type: none"> <li>•<b>Stress:</b> Subscale of Anxiety, Depression and Stress Scale</li> <li>•<b>Well-being:</b> Life Satisfaction Scale by Alam and Srivastava</li> </ul>	Paper survey	<ul style="list-style-type: none"> <li>•Small sample size;</li> <li>•The results may not be generalised to other university employees.</li> </ul>
shen <i>et al.</i> (2014)	China	•To explore the association between occupational stress and depressive symptoms in a group of university teachers; To assess the mediating role of psychological capital between these variables.	Quantitative Cross-sectional study	1,500 full-time teachers 6 universities in China	<ul style="list-style-type: none"> <li>•<b>Stress:</b> effort-reward imbalance (ERI) model</li> <li>•<b>Emotional-focus coping:</b> Psychological Capital Questionnaire (PCQ)</li> <li>•<b>Depression(mental health):</b> Chinese version of Center for Epidemiologic Studies Depression Scale (CES-D)</li> </ul>	Survey	<ul style="list-style-type: none"> <li>• Relied on self-report of participants, which risks response bias from negative affect or social desirability;</li> <li>•Results were based on one university; thus, results may not be generalised to other university employees;</li> <li>•Unable to draw conclusions about cause and effect as cross-sectional study.</li> </ul>

Author and year	Country	Purpose	Methodology	Population, sample size, setting	Instrument	Data collection method	Limitation
Tavares <i>et al.</i> (2012)	Brazil	To investigate the dimensions of 'psychological demand' and 'decision latitude' and their association with Minor psychiatric disorders (MPDs) experienced by nurses teaching in Federal Universities In Rio Grande do Sul, Brazil.	Quantitative Cross-sectional study	177 nursing faculty members  6 federal universities in Rio Grande do Sul, Brazil.	<b>•Stress:</b> Job Stress Scale (JSS) <b>•Mental health:</b> Self-Report Questionnaire 20 (SRQ-20)	Survey	<b>•The large magnitude of confidence intervals may overestimate the odds ratio;</b> <b>•It is not possible to confirm the presence of causal relationships with certainty since cross-sectional studies.</b>
Wiegel <i>et al.</i> (2016)	Germany	To investigate whether work-related stress is associated with the use of prescription drugs for cognitive enhancement (CE) as a response to work-related stress.	Quantitative Cross-sectional study	Three web-based surveys (n1 = 1,131; n2 = 936; n3 = 906) university teachers  4 German universities	<b>•Stress:</b> Work-related stress-scale <b>•Coping:</b> CE-drug use willingness scale	Online survey	<b>•Biased answers is lack of anonymity.</b>

## Appendix B

## Main findings of included articles

Author and year	Country	Stress prevalence and level	Stressor	Coping strategies	Health	Well-being
Bell <i>et al.</i> (2012)	Australia	Most of the faculty members are experiencing low to moderate stress level.				<ul style="list-style-type: none"> <li>• Academics experienced moderate levels of well-being and low levels of ill-being;</li> <li>• Perceived job stress was moderately and negatively related to well-being, but weakly and positively to ill-being;</li> <li>• Perceived job stress did lead to poorer well-being and higher ill-being among academics.</li> </ul>
Catano <i>et al.</i> (2010)	Canada	<ul style="list-style-type: none"> <li>• A large number of Academics experienced a substantial amount of stress;</li> <li>• Female academics between the ages of 30 and 59, and faculty in tenure-track positions have more risk of stress.</li> </ul>	<ul style="list-style-type: none"> <li>• Five high levels of stressors: Work Load (85%), Role Conflict (82%), Work-Life Conflict (76%), Unfairness-Administration (55%), and Unfairness-Rewards (51%);</li> <li>• Three potential stressors: Lack of Job Control (14%), Role Clarity (24%), and Unfairness-Chairperson (21%);</li> <li>• Women had more stress, on Work Load, Work-Life Conflict, Unfairness-Administration, and Unfairness-Rewards than did men;</li> <li>• Both the youngest (20–29 years) and oldest (60+ years) respondents tended to report lower levels of the stressors on Work Load, Role Conflict, Work-Life Conflict, and Unfairness-Rewards than those between 30 and 59;</li> <li>• Associate and Full Professors reported having greater levels of Role Conflict. Assistant and Associate ranks expressed more concerns over Work-Life Conflict than did either Instructor/Lecturers or Full Professors;</li> <li>• Tenure Track faculty had the highest levels for Work Load and Work-Life Conflict than contract faculty.</li> </ul>		<ul style="list-style-type: none"> <li>• 13% of respondents reported psychological distress and 22% reporting high rates of physical health symptoms;</li> <li>• Female academics reported more physical and psychological health issues than male faculty;</li> <li>• Youngest and oldest age groups reported the fewest number of physical and psychological health symptoms compared to those in the 30–59 categories;</li> <li>• Assistant Professors reported the most physical and psychological health symptoms related to their job compared to the other faculty ranks;</li> <li>• Faculty members in tenure-track positions reported the most physical and psychological health symptoms compared to the contract Academic Staff;</li> <li>• Among the demographic predictors, Age was a significant, negative predictor of physical health;</li> <li>• Greater levels of the stressors were related to greater levels of health problem;</li> </ul>	<ul style="list-style-type: none"> <li>• 26% of respondents reported that their well-being was not as positive as it was in the immediately preceding year;</li> <li>• Men expressed positive well-being than women.</li> <li>• The youngest and oldest age groups reported more positive well-being than other age groups;</li> <li>• Assistant Professors reported the least amount of positive well-being compared to the other faculty ranks;</li> <li>• Tenure Track faculty reported better well-being than Contract Academic Staff;</li> <li>• Among the demographic predictors, Gender was a significant, negative predictor;</li> <li>• High levels of the stressors were related to high levels of poor well-being.</li> </ul>



Author and year	Country	Stress prevalence and level	Stressor	Coping strategies	Health	Well-being
Darabi <i>et al.</i> (2017)	UK	No significant differences were found in terms of gender, full-time or part-time employment, and level of seniority within the university on the stress measures.		<ul style="list-style-type: none"> <li>• Problem-focused coping was predictive of lower stress scores;</li> <li>• Emotion-focused coping was not a predictor of lower stress;</li> <li>• Denial coping was not associated with higher stress levels;</li> <li>• Dysfunctional coping predicted higher stress scores;</li> <li>• Academics are more likely to report using problem-focused coping.</li> </ul>	<ul style="list-style-type: none"> <li>• Stress was negatively correlated with mental health;</li> <li>• Problem-focused coping was positively associated with mental health;</li> <li>• Emotion-focused coping was found has no relationship with mental health;</li> <li>• Dysfunctional coping was negatively associated with mental health;</li> <li>• No significant relationship was found between denial coping and mental health;</li> <li>• No significant differences were found in terms of gender, full-time or part-time employment, and level of seniority within the university on the mental health measures.</li> </ul>	<ul style="list-style-type: none"> <li>• Stress was negatively correlated with subjective well-being (SWB);</li> <li>• Problem-focused coping was positively associated with SWL;</li> <li>• Emotion-focused coping was positively associated with SWL;</li> <li>• Dysfunctional coping has no relationship with SWL;</li> <li>• No significant differences were found in terms of gender, full-time or part-time employment, and level of seniority within the university on the well-being measures.</li> </ul>
Fadel <i>et al.</i> (2019)	Brazil	<ul style="list-style-type: none"> <li>• The prevalence of stress found among professors was 35%;</li> <li>• No demographic condition had shown a significant relationship with stress.</li> </ul>	<ul style="list-style-type: none"> <li>• Meetings, deadlines, bureaucracy, collections, administrative problems (48%);</li> <li>• Attrition with students and teachers (31%);</li> <li>• Lack of infrastructure and staff (8%);</li> <li>• Injustice (5%);</li> <li>• Routine activities, lifestyle (1%).</li> </ul>	<ul style="list-style-type: none"> <li>• Leisure activities: Rest, go out, go to see movies (33%); Listening to music, playing hobbies, playing video games (19%);</li> <li>• Social interaction: Conviviality with family/friends (62%);</li> <li>• Physical activities: Practices of body awareness: pilates, yoga, meditation, dance class (76%), Sports practices (24%);</li> <li>• Professional help: Medical assistance (21%), Psychological assistance (45%);</li> <li>• Personal skills: Increasing the capacity of planning and organizing actions (30%).</li> </ul>		<ul style="list-style-type: none"> <li>Optimizing the relationship with the students (29%), Searching for solutions to problem (21%), Expanding the dialogue (20%).</li> </ul>

Author and year	Country	Stress prevalence and level	Stressor	Coping strategies	Health	Well-being
Fontinha <i>et al.</i> (2019)	UK	<ul style="list-style-type: none"> <li>Academics are more likely to report higher levels of stress at work than non-academics in higher education;</li> <li>Women, temporary workers and a longer tenure with the HEI were reported significantly higher levels of stress at work;</li> <li>Older workers reported lower levels of stress.</li> </ul>	<p>Work relationships; Job security; Job resources; Communication; Pay and benefits.</p>	<ul style="list-style-type: none"> <li>Faculty members felt high pressure with insufficient recognition for teaching performance, attending meetings, heavy workload, job demands, high self-expectations, and teaching inadequately prepared students;</li> <li>The least pressured were being drawn into conflict between colleagues, not having clear criteria for evaluating service activities, unclear scope and responsibilities at jobs, and making class presentations.</li> </ul>		<ul style="list-style-type: none"> <li>Academics tend to report higher levels of general well-being than non-academics;</li> <li>Women reported significantly higher levels of well-being;</li> <li>A longer tenure with the HEI is associated with a poorer general well-being (GWB);</li> <li>Temporary workers reported a better GWB.</li> </ul>
Iqbal and Kokoah (2011)	Saudi Arabia		<ul style="list-style-type: none"> <li>Faculty members felt high pressure with insufficient recognition for teaching performance, attending meetings, heavy workload, job demands, high self-expectations, and teaching inadequately prepared students;</li> <li>The least pressured were being drawn into conflict between colleagues, not having clear criteria for evaluating service activities, unclear scope and responsibilities at jobs, and making class presentations.</li> </ul>	<ul style="list-style-type: none"> <li>Exercises: 64%</li> <li>Spirituality: 57%</li> <li>Time Management: 57%</li> <li>Spend Time with Family: 57%</li> </ul>		
Jiang <i>et al.</i> (2017)	China			occupational stress can have a significant positive impact on negative coping style and negative impact on positive coping style directly.	Occupational stress can produce significant indirect effect on mental health through negative coping style and positive coping style.	
Khan <i>et al.</i> (2016)	Pakistan		Interpersonal demands; Emotional demands; and Workload.		<ul style="list-style-type: none"> <li>50% respondents had Anxiety symptoms, while 49% respondents had Social Dysfunction and Depression symptoms;</li> <li>Respondents experienced a mild level of anxiety, social dysfunction and depression related symptoms;</li> <li>The symptoms of anxiety, depression and social dysfunction were prevailing high among male faculty members, single faculty members, 20 to 40 years old (young) faculty members having 5 to 10 years work experience (less experienced) and holding positions of Lecturer or Assistant Professors (junior faculty members);</li> <li>The prevalence of psychological health problem varied in accordance with socio-demographic characteristics;</li> </ul>	

Author and year	Country	Stress prevalence and level	Stressor	Coping strategies	Health	Well-being
Kimman (2016)	UK				<ul style="list-style-type: none"> <li>• Academics' work more effortful tended to report poorer mental health;</li> <li>• Esteem and support rewards are critical for the mental health of academics.</li> </ul>	
Li and Kou (2018)	China	<ul style="list-style-type: none"> <li>• 54.06% of university teachers experienced high stress levels.</li> <li>• Compared to participants aged less than 35 years, 36–45-year-old teachers experienced higher stress; teachers over the age of 56 experienced lower psychological stress;</li> <li>• Higher income levels resulted in lower stress levels;</li> <li>• Gender, ethnic group, marital status, and highest degree achieved did not correlate with stress.</li> </ul>	<ul style="list-style-type: none"> <li>• Academic title, teaching tenure, subject taught, workload and daily working hours;</li> <li>• The stress level of teachers who worked more than 10 h a day was less than that of teachers working less than 8 h a day;</li> <li>• Main stressors: lack of research funding, lack of normal holiday breaks and exercise;</li> <li>• The lowest stress level was observed in teachers who were in charge of more than four current research projects; teachers who never or sometimes exercised perceived more stress than those who exercised regularly</li> </ul>		<p>4.98% of teachers reported a poor mental health status, 38.31% reported their mental health was not good, and only 56.71% reported a positive attitude toward their mental health.</p>	
Meng and Wang (2018)	China	<ul style="list-style-type: none"> <li>• Most of the faculty members are experiencing moderate stress;</li> <li>• Assistant professors experienced higher level of stress than the associate professors and professors;</li> <li>• Under 40 years old are suffering from a high level of occupational stress;</li> <li>• Age, professional ranking, and teaching experience were highly related to occupational stress;</li> <li>• No significant correlation between gender, degree, major and occupational stress.</li> </ul>	<p>Scientific research; Professional development; Teaching support; and Administrative affairs.</p>			

Author and year	Country	Stress prevalence and level	Stressor	Coping strategies	Health	Well-being
Priyadarshini et al. (2015)	India	Professors reported experiencing moderate to very high levels of stress at their workplace.	Pedagogical changes; Annual publication targets; Increased expectations; Increased competition.	<ul style="list-style-type: none"> <li>• Prioritizing work;</li> <li>• Advance preparation for the class;</li> <li>• Enjoying the work through positive cognitive appraisal;</li> <li>• Seeking help whenever required;</li> <li>• Withdrawal from taking work home;</li> <li>• Practicing therapies like meditation for stress relief;</li> <li>• Taking out time for non-work related interests and going for recreational activities on weekends;</li> <li>• Reading spiritual books.</li> </ul>		
Ruisoto et al. (2017)	Spain			<ul style="list-style-type: none"> <li>• 68.9% (n = 248) academics reported non-problematic alcohol consumption; 13.1% (n = 47) academics reported problematic alcohol consumption levels;</li> <li>• Professors (both males and females) with higher stress reported higher levels of problematic alcohol consumption.</li> <li>• Alcohol consumption was significantly higher in male than female professors; with a ratio 3:1 among males and females;</li> <li>• Male professors with higher stress reported 5 times more risk of problematic alcohol consumption than those with lower stress.</li> </ul>		

Author and year	Country	Stress prevalence and level	Stressor	Coping strategies	Health	Well-being
Sawhney and Bansal (2013)	India	College teachers reported experiencing the mild stress level.				<ul style="list-style-type: none"><li>College teachers had average life satisfaction level;</li><li>Correlation between stress and life satisfaction was negative and significant;</li></ul>
Shen <i>et al.</i> (2014)	China	Occupational stress was observed in 22.3% of university teachers.		<ul style="list-style-type: none"><li>• PsyCap is considered as a positive resource to combat stress;</li><li>• PsyCap was negatively correlated with depressive symptoms. PsyCap played a partial mediating role in the association of depressive symptoms with occupational stress;</li></ul>	<ul style="list-style-type: none"><li>• There was a high prevalence of depressive symptoms (58.9%) among university teachers;</li><li>• Teachers aged between 31 and 40 years old had significantly higher levels of depressive symptoms than other age groups;</li><li>• Professors had lower level of depression than all other;</li><li>• Differences in depression for gender, marital status, and education categories were not statistically significant;</li><li>• Occupational stress was positively associated with depressive symptoms;</li></ul>	
Tavares <i>et al.</i> (2012)	Brazil	<ul style="list-style-type: none"><li>• 37.7% (N=49) nursing faculty members were most frequently classified in the 'high strain jobs';</li><li>• Those with a doctoral degree or postgraduate experience (47.4%, N=37), professors (50.8%, N=33), those working from 11 to 20 years at the institution (58.6%, N = 17) were classified in the 'high strain jobs'.</li></ul>	Teaching in the undergraduate and graduate programs, and advising from six to 12 undergraduate research students.		Nursing professors developing activities within 'high strain jobs' have a greater chance of developing an MPD.	
Wiegel <i>et al.</i> (2016)	Germany			<ul style="list-style-type: none"><li>• The prevalence of CE-drug use is very low;</li><li>• Higher work-related stress was associated with a higher willingness to use enhancers;</li><li>• The declared willingness to use such drugs in the future was higher than the current use;</li><li>• Men and younger university have stronger incentives to use CE-drug.</li></ul>		

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