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Research Article

Occupational Stress and Mental and Musculoskeletal Health Among University Teachers

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Abstract

Objectives: The aim of the present study was to investigate potential relationships between occupational stress and mental and musculoskeletal health among university teachers in Pakistan, a developing country, and in Finland, a modern Western democracy.

Methods: A total of 610 university teachers, 329 from Pakistan and 281 from Finland, participated in the study. Of the respondents, 262 were female and 348 were male. Occupational stress was measured with the Work Stress Symptom Scale, mental health was assessed using the 12-item General Health Questionnaire, and musculoskeletal health was evaluated with the Nordic Musculoskeletal Questionnaire.

Results: According to a multivariate analysis of variance, differences between males and females were found on all 3 variables. Female university teachers experienced more stress and health issues than males. Pakistani university teachers scored considerably higher on all of the scales than their Finnish counterparts. Interaction effects existed at the multivariate level, but could not be identified at univariate levels.

Conclusion: A clear relationship between occupational stress and both mental and musculoskeletal health was found in both countries. Thus, occupational stress appears to be a risk factor for mental and musculoskeletal health, regardless of the level of development of the country in question.

Keywords: Finland, mental health, musculoskeletal health, occupational stress, Pakistan, university teachers

Occupational stress occurs due to workplace conditions which negatively affect physical and mental health, abilities, and performance of employees [4]. It has a significant effect on their quality of life, health, job satisfaction, absenteeism, and turnover from work [5]. It is commonly believed that teachers experience more general mental health problems such as anxiety, depression, somatization disorders, and burnout than people with other professions [6-10].

Teachers continuously need to put enormous effort into justifying their job, a circumstance that may cause tension between occupational and personal life, which in turn may lead to distress [11]. Due to increased job demands and work stress, teachers are more at risk of mental health issues than people from most other occupations [12-16]. It was found that 34.9% of Lithuanian school teachers experience high levels of emotional exhaustion [17].

Reasons mentioned for teachers' threat of mental health problems contain a heavy workload, lack of control, low salary, and pressure to perform [18, 19].

The present study aims at empirically identifying relationships between occupational stress and mental and musculoskeletal health among teachers of higher education institutions in Pakistan and Finland. The reason behind this comparison is that Finland supposedly has one of the best work environments in comparison with other countries. According to different life indices, Finland performs better in many measures of well-being: it is placed amongst the

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best in education, personal safety, and work-life balance [20]. In terms of health, life expectancy in Finland is about 81 years, whereas the OECD average age is 80 years [20]. Higher life expectancy is usually related to higher health care expenditure per person, though there are many other reasons such as living standards, education, and environmental factors. Generally, Finns are more content with their lives as compared to the OECD average [20].

Still, in Finland, musculoskeletal, memory, and mental disorders are important chronic illnesses [21]. Pakistan, on the other hand, as a developing country, is striving in different fields: one of them is the health system, where it has been ranked as 122 out of 190 countries [22]. In Pakistan, the life expectancy is about 66 years for women and 64 years for men [23]. In 2008, the most commonly identified mental disorders in Pakistan were mood disorders and neurotic disorders [24]. The World Health Organization estimated that there are 322 million individuals in the world suffering from depression. Almost half of them live in the Western Pacific Region and the South-East Asia Region [25].

Statistics highlight that depression and anxiety are on the rise in Pakistan: in 2005-2006, 34 % of the population were suffering from depression and anxiety disorders [26]. In 2017, depression affects 44% of the entire population in Pakistan, and it is more common in females (57.5%) than in males (25%) [27]. The number of trained psychiatrists in the country are only 750, which means that there is only one psychiatrist for every 10.000 patients experiencing mental disorders. This is an alarming situation [26].

The distressing situation in Pakistan demands immediate steps to be taken to resolve the situation. It is the time that developing countries like Pakistan should not only explore effective practices of the developed countries but also benefit from them by adopting their useful practices in various contexts. It is essential to recognize the strengths and weaknesses of the educational systems of developing countries and improve their weak areas [28]. Therefore, comparisons between developed and developing countries are important.

Stress and Health

According to WHO, health is considered as physiological, psychological, and social adjustment [29]. Stress is a complicated pattern of emotional conditions, physiological reactions, and associated thoughts resulting from external demands [30]. Symptoms which have been found to be related to stress, ranging from mild rashes to severe cardiovascular disease included behavioural ones such as reduced work performance and worsened relationships, and psychological ones such as anxiety, panic, phobias, confused thinking, and feelings of hopelessness [31].

Stress is also considered to have an impact on absenteeism and early retirement from work [32-37]. Recent studies indicate that psychological distress among teachers is on the increase; teachers are suffering from depression, anxiety, and low self-esteem, which negatively affect their job performance [38-41]. Teachers' depression may also affect the whole learning environment and the academic achievement of students [42]. The UK Health and Safety Executive assessed an economic loss of $5.4 billion per annum due to work-related stress [43].

A report by the European Agency for Safety and Health at Work mentions that work-related stress is common throughout Europe [44]. In order to enhance living and working conditions, the European Foundation conducts surveys every five years. Survey results show that stress is the second most common threat to the work environment. According to the fourth European Survey of Working Conditions in all Member States, an average of 22% of the working population in Europe experienced stress in their work environment in 2005 [44].

Mental Health

According to the World Health Organization, mental health is "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" [45]. The WHO also supports the view that mental health problems are a result of complex interactions between psychological, biological, environmental, and social factors.

Poor mental health is a serious global health issue [46] and the most common form of illness among employees [47]. Poor mental health may reduce the performance of employees, resulting in loss of their jobs, and economic hardship [48].

It is estimated that 14% to 18% of individuals across populations are facing mental health problems [49]. Moreover, mental health problems represent as much as one fifth of the total global ailment, including substance abuse [50, 51]. According to OECD, 30% to 40% of all work disability cases and sickness absence within the member states of OECD were related to mental health problems [20].

Research confirms that the work place environment plays a very important role for the occurrence of mental health problems among employees [52]. There is a significant relationship between occupational stress and mental health [53]. Physical health can also be damaged by poor mental health, mental health problems are more frequent among some specific occupations because of the serious psychosocial nature of the jobs [54-57].

Musculoskeletal Health

According to the European Agency for Safety and Health at Work, the category of musculoskeletal disorders (MSDs) refers to health issues related to the locomotor apparatus (nerves, tendons, muscles, ligaments, cartilage, and skeleton). They may range in severity from minor temporary complaints to major irreparable injuries [58].

In developing countries, MSDs are a matter of concern due to increased industrialization and urbanization [59]. MSDs are a global health issue affecting the working population not only in developing countries, but also in for instance the European Union, where they are a very common occupational illness [58]. Throughout Europe, 54% of the individuals who reported MSDs considered them to be the most serious work-related health issue, and they formed as much as 38% of the total of occupational illnesses. MSDs are a major cause of absenteeism from work [60]. It is the one of the most commonly reported work-related complaints in the US, Canada, England, Sweden, and Finland [61-68]. Thus, work-related MSDs not only add to the distress of employees, but they also have a significant impact on business and social costs in European countries [69].

Research has shown that MSDs usually are caused by physical factors like uncomfortable postures or the uplifting of heavy loads [70]. Less attention has been given to the role played by psychosocial factors for the development of MSDs, whereas recently, it has been established that there is a strong association between the two. Job dissatisfaction, lack of control and social support, excessive workload, job insecurity, and high mental pressure increase the risk for work-related MSDs, especially when there are few rewards [71-75]. Repeated and continuous exposure to stressors trigger the biological stress response, which may lead to chronic stress and stress-related health disorders [76].

Studies indicate that psychological complaints like depression and anxiety can lead to MSDs [77, 78]. In developing and developed countries alike, musculoskeletal pain is an everyday health issue among teachers. The pain is usually reported to occur in the regions of the neck, shoulders, lower back, or the upper limbs [79].

Aim of the Study

The present study aims at investigating whether there is an association between occupational stress and mental and musculoskeletal health among teachers in higher educational institutions in Pakistan and Finland, and whether there are any sex differences and differences due to country belonging (Pakistan vs. Finland).

Hypotheses of the Study

The following hypotheses were set up for this study:

H1: There is significant positive correlation between occupational stress and poor mental health and poor musculoskeletal health among university teachers in Pakistan and Finland.

H2: It is expected that university teachers in Pakistan are experiencing more occupational stress than university teachers in Finland [80].

H3: University teachers in Pakistan are facing more mental and musculoskeletal health problems as compared to university teachers in Finland.

H4: Female teachers are more under stress and experiencing more health issues as compared to their male counterparts [80].

Methods

Sample

To collect the data, official lists of e-mail addresses of permanent/full-time teachers, lecturers, and professors were obtained from the websites of 29 public universities in Pakistan and Finland. The selection of universities was made by a convenience procedure, though striving to reach a representative distribution within the two countries. In total, 610 university teachers participated in the online survey; of the respondents, 262 were female, and 348 were male (Table 1). An exact response rate is difficult to estimate since there is no way to certify how many of the e-mail addresses used were valid and active. The majority of the respondents were between 36 and 40 years old. The mean age was 42 years (SD 10.1) for females, and 42 years (SD 10.0) for males; there was no age difference between the sexes. The mean age was 37 years (SD 7.61) for the Pakistani university teachers and 48 years (SD 9.4) for the Finnish teachers; the age difference, in this case, was significant ($p<.001$).

Instrument

Stress among university teachers was assessed with the Work Stress Symptoms Scale [1]. GHQ 12 was used to measure mental health among the respondents [2]. For the

Table 1. Number of female and male university teachers in Pakistan and Finland taking part in the study

	Females (n)	Males (n)	Total
Pakistan, %	50.8 (133)	56.3 (196)	329
Finland, %	49.2 (129)	43.7 (152)	281
	42.9 (262)	57 (348)	610

measurement of musculoskeletal disorders, the Nordic Musculoskeletal Questionnaire was adopted [4]. The questionnaire was published online, and the link was e-mailed to the respondents, with the purpose of the study explained in an instruction. Confidentiality was guaranteed. The reliability (internal consistency) scores and the items of the scales are presented in Table 2. Response alternatives were in all cases on a five-point scale, ranging from 0 (never) to 4 (very often).

Table 2. Items and Cronbach's alphas of the scales of the study

Work Stress Symptoms (12 items) α = .94
Exhaustion
Difficulties to concentrate
Weariness and feebleness
Insomnia (disturbed sleep)
Nervousness
Irritation
Tension
Depression
Indifference towards everything
Reduced work performance
Reduced self-confidence
Memory loss
GHQ (12 items) α = .90
Been able to concentrate on your work
Lost much sleep over worry
Felt that you were playing a useful part in things
Felt capable of making decisions about things
Felt constantly under strain
Felt you couldn't overcome your difficulties
Been able to enjoy your normal day to day activities
Been able to face up to your problems
Been feeling unhappy and depressed
Been losing confidence in yourself
Been thinking yourself as a worthless person
Been feeling reasonably happy, all things considered
Musculoskeletal health scale (9 items) α = .92
Within the past 12 months have you experienced any recurring symptoms such as pain in
Neck
Shoulders
Lower back
Upper back
Hips/thighs
Elbow
Wrist/hands
Knee
Ankles/feet

Ethical Considerations

Participation was entirely voluntary, respondents were all adults, and complete confidentiality was ensured. The study adheres to the principles relating to human research ethics of the Declaration of Helsinki [81], as well as instructions for reliable conduct of research of The Finnish Advisory Board on Research Integrity [82].

Results

There were high and significant positive correlations between all scales. The highest correlations were found between Occupational Stress and Mental Health (Table 3).

A multivariate analysis of variance (MANOVA) was conducted with country and sex as independent variables, the three scales related to occupational stress, mental health, and musculoskeletal health as dependent variables, and age as a covariate. The results are presented in Figure 1 and Table 4.

The multivariate analysis was significant for country, sex, and the interaction between country and sex. Female teachers experienced more health issues and stress than male teachers. Pakistani teachers were facing more occupational stress and health issues than Finnish university teachers. The univariate analyses showed that occupational stress, mental health, and musculoskeletal health all were rated as

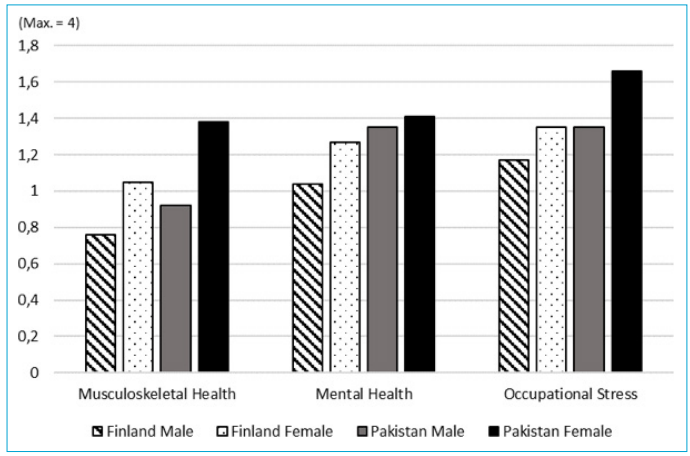

Figure 1. Mean scores of respondents for Occupational Stress, Mental Health, and Musculoskeletal Health by sex and country (n=610). Cf. Table 3.

Table 3. Correlations between the Scales of the Study (n=610)

	1	2
1 Occupational Stress		
2 Mental Health	.71***	
3 Musculoskeletal Health	.63***	.58***

***p≤.001; **p≤.01; *p≤ .05.

Table 4. Results of a multivariate analysis of variance (MANOVA) with country and sex as independent variables and the three scales of the study as dependent variables (n= 610). Cf. Fig. 1.

	F	df	p ≤	ηp2	Group differences
Effect of Country					
Multivariate Analysis	8.763	3.604	.001	.042	Pk>Fi
Univariate Analyses					
Occupational Stress	3.86	1.606	.050	.006	Pk>Fi
Mental Health	17.05	"	.001	.027	Pk>Fi
Musculoskeletal Health	16.37	"	.001	.026	Pk>Fi
Effect of Sex					
Multivariate Analysis	14.471	3.604	.001	.067	Female>Male
Univariate Analyses					
Occupational Stress	22.40	1.606	.001	.036	Female>Male
Mental Health	6.91	"	.009	.011	Female>Male
Musculoskeletal Health	37.63	"	.001	.058	Female>Male
Interaction Effect of Country and Sex					
Multivariate Analysis	2.45	3.604	.027	.015	
Univariate Analyses					
Occupational Stress	0.27	1.606	ns	.001	
Mental Health	1.91	"	ns	.003	
Musculoskeletal Health	2.04	"	ns	.003	

significantly higher in Pakistan than Finland. With respect to interaction effects between sex and country, the multivariate analysis revealed the existence of such effects, but the univariate analyses were not able to identify any. Pakistani females scoring highest and Finnish males scoring lowest of the groups, but these findings were not significant.

Discussion

Previous research has shown that teachers experience an immense amount of psychological distress and poor mental health in comparison with other professions [6, 8].

In this study, experiences of occupational stress and health concomitants of university teachers in Pakistan and Finland were investigated. These two countries were selected as representatives of a developing and a developed country. The correlations between the scales were highly significant; overall, the results indicate a clear relationship between occupational stress and poor mental and musculoskeletal health. H1 was thus supported.

Results of the MANOVA indicated that there was a significant difference between both countries and the two sexes. Teachers in Pakistan were facing more occupational stress (H2) and had poorer mental and musculoskeletal health than Finnish teachers (H3). The findings corroborate previous studies indicating that there is a strong positive relationship between stress and musculoskeletal disorders within various working populations [83] including teachers [84-86].

Poor health related to occupational stress among teachers is indeed not a new phenomenon. It is commonly accepted that female teachers experience more occupational stress and health problems than male teachers. Male teachers in the current study were less likely to report occupational stress than females (H4). The finding of this study is thus in line with previous ones [87-93] as female teachers scored significantly higher than male teachers on the GHQ-12 (H4). All four hypothesis of the study were corroborated.

This study has theoretical and practical implications. Theoretically, the findings suggest that occupational stress in higher educational institutions may decrease mental and musculoskeletal health. Therefore, the results suggest that there is an urgent need to reduce occupational stress from the university work environment. It is likely that the poor mental and musculoskeletal health among Pakistani teachers as compared to Finnish teachers is largely the result of exposure to more stressful experiences.

Limitations

This study has some limitations which need to be pointed out. First, the study used cross-sectional data from two countries. Longitudinal studies are highly recommended; however, they require a larger research budget than was available for the present research project. Occupational stress may vary between professions, and the findings may not be generalised to other professions than university teachers. Furthermore, this study only included two aspects of health (mental, and musculoskeletal); future research should preferably examine also other health issues.

The data were collected with an e-survey. It was found that e-surveys provide results which are equivalent to manual ones with slight exceptions, and e-surveys may therefore safely be used as an alternative to paper-and-pencil versions. Both techniques have similar response rates [94]. In the present study, however, it was impossible to assess the response rate as there is no way to find out the number of authentic e-mail addresses to which the electronic questionnaire was sent.

In sum, the results of the present study add to the broader literature on stress and health among teachers, with a special focus on university teachers. The observed levels of stress suggest that university administrations should be concerned about these aspects and prepare teachers to face the challenges they will meet in their work environment.

Conclusion and Recommendations

Despite its limitations, this study provides insights into the nature of stress experiences among university teachers. Intervention programs informing and teaching appropriate coping strategies may help to alleviate the stress experienced by teachers.

It is believed that changes in the teaching profession have produced a lot of strain and burnout [95, 10, 96]. Therefore, counseling should be provided to teachers with symptoms of depression and anxiety. Workshops and seminars on stress management should regularly be conducted as a preventive measure. Physical activity in the workplace should be introduced as it may improve mental health and reduce MSDs [97, 98].

Disclosures

Ethics Committee Approval: The study was approved by the Local Ethics Committee.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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