ORIGINAL ARTICLE

PREVALENCE AND SOURCES OF STRESS AMONG POSTGRADUATE MEDICAL TRAINEES: INITIAL FINDINGS

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Abstract

Objective: **Postgraduate medical training has always been regarded as a highly stressful environment to students. This article described an initial finding on prevalence and sources of stress among postgraduate students.** ***Method:*** **This is a cross-sectional study conducted on postgraduate students in the School of Medical Sciences, Universiti Sains Malaysia. Sample size as calculated for this preliminary study was 38 and convenient sampling method was applied. The 12 items General Health Questionnaire (GHQ-12) and Postgraduate Stressors Questionnaire (PSQ) were administered during a workshop involving postgraduate students. Data was analysed using SPSS version 12.** ***Results:*** **Thirty three participants participated in this study. This study found that the prevalence of distressed postgraduate students was 36.4%. The top ten stressors were tests and examinations, large amount of content to be learnt, time pressure to meet deadlines, doing work beyond ability, work overload, unfair assessment by superior, fears of making mistakes that can lead to serious consequences, doing work that mentally straining, work demands affect my personal and home life, and lack of time to review what have been learnt.** ***Conclusion:*** **This study found that there was a high prevalence of distressed postgraduate students. It also found that the major stressors were related to academic and performance pressure. ASEAN Journal of Psychiatry, Vol.11 (2): July – Dec 2010: XX XX.**

Keywords: **Postgraduate medical students, stressors, stress, mental health**

Introduction

Postgraduate medical training environment has always been regarded as highly stressful to students. The stressors of medical training and its associated negative consequences to the mental, emotional and physical health, particularly for undergraduate medical students, have been described in many studies [1-10], however, for postgraduate students there is very limited data on this. It is noteworthy that generally excessive and

chronic stress was associated with many unwanted consequences on one's wellbeing.

Stress is defined as the body's nonspecific response or reaction to demands made on it, or to disturbing events in the environment [11-12]. It is not just a stimulus or a response but it is a process by which we perceive and cope with environmental threats and challenges [13]. Personal and environmental events that cause stress are known as stressors [14]. Stress is simply defined as emotional disturbances or changes caused by stressors. Linn & Zeppa [15] stated that some stress in medical training is needed for learning. Stress which can promote and facilitate learning is called 'favourable stress' and stress which can inhibit and suppress learning is called 'unfavourable stress'. The same stressors may be perceived differently by different medical students, depending on their cultural background, personal traits, experience and coping skills. An optimal level of stress, referred earlier as 'favourable stress', can enhance learning ability [16]. However, excessive stress can lead to physical, emotional and mental health problems [17], reduce self-esteem [16, 18] and may affect postgraduate students academic achievement, personal and professional development [9].

Stressors, among postgraduate generally can be grouped into six groups: nature of job related stressor, interpersonal relationships related stressors, organizational working environment related stressor, work-family conflicts related stressors, and profession prospects related stressor [19]. Another possible group of stressor particularly for postgraduate medical trainees was related to academic training. It is noteworthy that the stressors may vary between institutions. Therefore, understanding the nature of stressors of postgraduate students may help medical teachers find ways to reduce the unwanted consequences of the stressors on the students' wellbeing in the future.

Based on previous studies, prevalence and sources of stress among undergraduate medical students was well established [1-10], however, for postgraduate medical trainees there is very limited data on this. Thus, the purpose of this small scale pilot study was to gather initial data on prevalence and sources of stress among postgraduate students.

Methodology

Study design and sample size

A cross-sectional study design was used in this preliminary study. Sample size was determined based on the Roscoe rule of thumb which recommended that 30 subjects were adequate for a preliminary study [20]. The study sample size calculated after taking 20 percent drop out rate into consideration was 38 subjects. Non-probability convenient sampling method was applied in selecting study subject. The study population was the postgraduate students of School Medical of Medical Sciences, Universiti Sains Malaysia. Study subjects were selected from three main fields; basic sciences, surgical-based and medical-based master programmes.

Data collection

The GHQ-12 was used to measure participants' stress level and the PSQ was used to identify sources of stress. The questionnaire was self-administered. It was administered to all postgraduate students during face to face session in a hall during the postgraduate personal and professional development workshop. The total number of workshop participant was thirty seven. . The students were told to follow the instructions written in the questionnaire. All data collection was done by two investigators. The process to fill in the questionnaire took about 15 minutes to finish and they were to be returned on the same day.

The GHQ-12 is a well-validated instrument used to measure overall emotional wellbeing and commonly used in studies looking into distress in populations [21-26]. It is one of the most widely used measurement tool to measure stress level. Reliability coefficients of the questionnaire have ranged from 0.78 to 0.95 in various studies. The items of GHQ-12 represent 12 manifestations of stress and respondents were asked to rate the presence of each of the manifestations in themselves during recent weeks. This is done by choosing from four responses, typically being 'not at all', 'no more than usual', 'rather more than usual' and 'much more than usual'. The scoring method is a binary scoring method where the two least symptomatic answers score 0 and the two most symptomatic answers score 1 – i.e. 0-0-1-1. The GHQ-12 scores range from 0 to 12. Caseness was considered as a score of 4 or more [26, 27]. The sensitivity and specificity of the GHQ-12 score at cut-off point of 4 were 81.3% and 75.3% respectively with positive predictive value of 62.9% [21, 26, 27]. Participants who scored GHQ-12 equal to 4 and above were considered as having significant distress and taken as 'case' in this study.

The PSQ is a modified stressor questionnaire developed based on two validated stressor questionnaire designed by Chan et al. [19] and Muhamad et al. [28]. The modification was done to ensure suitable and relevant items included in the PSQ to measure the postgraduate stressors. The PSQ have 28 items with 7 domains; academic, performance pressure, work-family conflicts, bureaucratic constraints, poor relationship with superior, poor relationship with colleagues and poor job prospect. Each of these domains consists of four items. The items of PSQ were rated under 5 categories of responses (causing no stress at all, causing mild stress, causing moderate stress, causing high stress, causing severe stress) to indicate intensity of stress caused by them.

Verbal consent was obtained from the participants. Permission and ethical approval was obtained from the School of Medical Sciences, Universiti Sains Malaysia prior to the start of the study. The questionnaires were permitted to be used in this study.

Statistical analysis

The collected data was analysed using Statistical Package for Social Sciences (SPSS) version 12. Data were entered, checked for data entry errors, explored and cleaned. Reliability analysis was applied to

test the internal consistency (reliability) of the PSQ; it is considered as having high internal consistency if the Cronbach's alpha value is more than 0.7 [29]. Descriptive statistics was applied for analysis of the demographic data, the percentage of distressed students was determined based on GHQ-12 score, and stress intensity caused by the stressors.

Results

A total of 33 participants were involved in this study, out of whom 19 (57.6%) were female. Majority of participants were Malays, 32 (97%), and the rest was Chinese. The participants come from various field of study; basic sciences, surgical-based and medical-based master programmes.

Reliability analysis shows that the Cronbach's alpha value for The PSQ was 0.95. Whereas, Cronbach's alpha values for academic, poor relationship with superior, bureaucratic constraints, work-family conflicts, poor relationship with colleagues, performance pressure, and poor job prospect domains were 0.63, 0.84, 0.81, 0.65, 0.73, 0.78, and 0.70 respectively. The analysis shows the PSQ is a reliable tool in identifying postgraduates' stressors. The percentage of distressed participants was 36.36% which is in the high side.

Table 1 lists the stressors rated by participants. The top ten stressors were tests and examinations, large amount of content to be learnt, time pressure to meet deadlines, doing work beyond ability, work overload, unfair assessment by superior, fears of making mistakes that can lead to serious consequences, doing mentally straining work, work demands that affect personal and home life, and lack of time to review what have been learnt. Most of the stressors were related to academic and performance pressure as shown in table 2.

Table 1: Ranking of stressors according to the stress intensity perceived by postgraduate medical trainees.

Rank	Item	Stress intensity by postgraduate students*	
		Mean	Standard Deviation
1	Tests/examinations	2.91	0.80
2	Large amount of content to be learnt	2.48	1.39
3	Time pressures and deadlines to meet	2.42	1.06
4	Having to do work outside of my competence	2.36	1.62

5	Work overload	2.21	0.93
6	Unfair assessment from superior	2.12	1.65
7	Fear of making mistakes that can lead to serious consequences	2.15	1.12
8	My work is mentally straining	2.15	1.58
9	Work demands affect my personal/home life	1.97	0.77
10	Lack of time to review what have been learnt	1.94	0.83
11	Absence of emotional support from family	1.88	1.85
12	Advancing a career at the expense of home/personal life	1.82	1.01
13	Feeling of being underpaid	1.79	1.71
14	Having difficulty understanding the content	1.79	1.60
15	Lack of promotion prospects	1.76	1.60
16	Working with uncooperative colleagues	1.70	1.26
17	Relationship problems with colleagues/subordinates	1.67	1.67
18	My beliefs contradict with those of my superior	1.61	1.68
19	Cannot participate in decision making	1.58	1.58
20	Unable to make full use of my skills and ability	1.58	0.66
21	My life is too centered on my work	1.58	1.03
22	Lack of support from superior	1.52	1.12

23	Lack of authority to carry out my job duties	1.48	1.03
24	Working with incompetence colleagues	1.45	1.00
25	Competition among colleagues	1.39	1.56
26	Difficulty in maintaining relationship with superior	1.27	0.94
27	Feeling insecure in this job	0.97	1.01
28	Society does not think highly of my profession	0.61	0.61

*0.00 – 1.00 = Causing none to mild stress, 1.01 – 2.00 = Causing mild to moderate stress,

2.01 – 3.00 = Causing moderate to high stress, 3.01 – 4.00 = Causing high to severe stress

Table 2: Ranking of stressor domains according to the stress intensity perceived by postgraduate medical trainees.

Stressor domain	Stress intensity perceived by postgraduate students*	
	Mean	Standard Deviation
Academic	2.16	0.79
Performance pressure	2.13	0.82
Work-family conflicts	1.70	0.71
Bureaucratic constraints	1.56	0.71
Poor relationship with superior	1.50	0.85
Poor relationship with colleagues	1.40	0.79
Poor Job prospect	1.12	0.59

*0.00 – 1.00 = Causing none to mild stress, 1.01 – 2.00 = Causing mild to moderate stress,

2.01 – 3.00 = Causing moderate to high stress, 3.01 – 4.00 = Causing high to severe stress

Discussion

The sample size in this pilot study was relatively small and not representing the actual distribution of the study population in term of gender, ethnic groups, years of study and religion. Therefore, the findings should be interpreted cautiously. Apart from that,

this pilot study has provided a useful data in order to calculate an appropriate sample size for future studies.

The prevalence of distressed postgraduate students was relatively high compared to the normal population which is less than 10% as reported by Firth [3]. However, the prevalence is relatively similar to the stress prevalence in undergraduate medical students' population which was 30% to 50% as reported in many studies [1-10]. The similarity is perhaps due to similar training environment that both undergraduate and postgraduate medical students faced. This prevalence of distress is also relatively higher compare to the prevalence in non-medical students: 29.2% in economic and physical education students as reported by Aktekin et al. [1].This alarming finding suggested a sense of growing pressure among the postgraduate students. However, since this a preliminary data, further study with larger sample size should be done to confirm this finding.

This present study found that the major stressors in postgraduate medical training were related to academic and performance pressure. The sources of stress among postgraduates were relatively similar to the stressors in the undergraduate medical students which were also related to the academic demands as reported by previous studies [1-10, 30, 31].

This present study also shows that test and examination, too much content to be learnt, time pressures are the three most stressful events perceived by the postgraduate student followed by other stressors as shown in table 1. It is noteworthy that the stressors rated highly by postgraduate were relatively similar to those rated highly by undergraduate medical students such as test and examinations, too much content to be learnt, lack of time to do revision, and time pressures as reported by previous studies [1-10, 30, 31]. The similarity is perhaps due to similar training environment that both undergraduate and postgraduate medical students faced.

It is interesting to highlight that, compared to undergraduate medical students, unfair assessment by superiors (supervisors) and doing work that is out of their ability were perceived as stressful events by the postgraduate students. It highlights that supervisor assessment and the kind of tasks given influence the stress level of postgraduate students. It follows that fair assessment, appropriate and clear task given to the students will reduce their stress level. Further studies should be conducted to confirm this hypothesis and to explore further the risk factors that contribute to postgraduates' stress level.

In conclusion, this small study has shown that the prevalence of distressed postgraduate medical students is high and alarming. The major stressors that have been faced by the students were related to academic and performance pressure.

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