

## ORIGINAL ARTICLE

### IMPACT OF MEDICAL STUDENT WELL-BEING WORKSHOP ON THE MEDICAL STUDENTS' STRESS LEVEL: A PRELIMINARY STUDY

*Muhamad Saiful Bahri Yusoff\* Ahmad Fuad Abdul Rahim\**

**\*Medical Education Department, School of Medical Sciences, Universiti  
Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.**

#### Abstract

**Objective:** Medical training has always been regarded as a highly stressful environment to students. This article described a preliminary data on impact of a stress-management programme on medical students' stress level. **Methods:** This is a quasi-experimental before after comparison study design. The programme was run over half-day and convenient sampling method was applied. Sample size as calculated for this preliminary study was 38. The 12 items General Health Questionnaire (GHQ-12) was administered prior to the programme and four months later. Data was analysed using SPSS version 12. **Results:** 34 participants were involved in this study. This study found that there was a significant difference in participants' GHQ-12 scores before and after the programme ( $p < 0.001$ ). It also found that the percentage of distressed participants to have significantly reduced after they went through the programme ( $p < 0.05$ ). **Conclusion:** This study showed that the programme is a promising stress-management programme with the evidence of positive impact on the medical students' mental health by improving and reducing their stress level. Apart from that it is a well accepted programme by the medical students. Perhaps similar approach can be considered relevant to be incorporated in other set up. *ASEAN Journal of Psychiatry, Vol.11 (1): Jan – June 2010: XX XX.*

**Keywords:** Medical students, stressors, stress, mental health, stress management

#### Introduction

Tertiary education environment has always been regarded as highly stressful to students. Medical training further adds to the already stressful environment. The stressors of medical training and associated negative consequences to the mental and physical health of medical students have been

described in many studies [1-10]. Several medical education constituencies have emphasized the importance of teaching stress management and self-care skills to medical students [11-12]. Accreditation standards for The Malaysian Qualification Agency (MQA) requires that each school must have programs that promote the well-being of students and facilitate their

adjustment to the emotional, spiritual, mental and physical demands of medical school [13] . A recent literature review discovered that, although more than 600 articles addressed the importance of stress management programs in medical curricula, only 24 reported intervention programs with accompanying data [14]. Although there is large literature on stress management in general, their specific application to medical education has been largely unexplored [14]. To fill this gap, we described in this article on the preliminary findings of the impact of a stress-management program known as the 'Medical Student Well-Being Workshop' in our medical school on medical students' stress level.

The purpose of this small scale pilot study was to gather initial data on possible impact of the workshop as well as acceptance of the medical students towards the workshop.

## **Methodology**

### *Study design and sample size*

A quasi-experimental before after comparison study design was applied in this preliminary study. Sample size was determined based on the Roscoe rules of thumb which recommended that 30 subjects were adequate for a preliminary study [15]. The study sample size calculated after taking 20 percent drop out rate into consideration was 38 subjects. Convenient sampling method was applied in selecting study subject.

### *Description of the workshop*

The workshop was run by staff from the Medical Education Department over half-

day (four hours). Prior to the workshop, investigators announced the workshop to medical students and participation was voluntary. It was open to students from all years of the medical course. The workshop objectives were to enable students to measure their stress levels by GHQ-12 [17-20], to recognize main stressors they are facing by Medical Student Stressor Questionnaire (MSSQ) [21] and to identify their main coping styles by Brief COPE questionnaire [22]. Participants were given some input regarding the problems related to stress in medical study as well as in the medical career, the relationship between stress level, stressors and coping methods. A discussion session was held to explore each topic further and to share experiences between participants.

### *Data collection*

The GHQ-12 was used to measure participants' stress level. The questionnaire was semi-structured and self-administered. It was administered to the students during face to face sessions in a hall prior to the workshop and after four months later. All data collection was done by investigators. The students were told to follow the instructions. 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 [16-20]. Its use in the local medical student population has also been validated [16]. 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 (23-24). 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% (16, 23-24). Participants who scored GHQ-12 equal to 4 and above were considered as having significant distress and taken as 'case' in this study.

At the end of the workshop, evaluation questionnaire were distributed to participants. The evaluation questionnaire solicited participants' ratings regarding the usefulness (1=not useful to 5=highly useful) of the introductory session, the three questionnaires, the discussion sessions, the facilitators and its overall usefulness. Participants were also asked to rate the success (1 = not successful to 5 = very

successful) of the workshop in achieving the objectives.

Verbal consent was obtained from the participants. Clearance was obtained from the school prior to the start of the study. Each data collection form was given ID.

#### *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. The investigators used alpha ( $\alpha$ ) at 0.05 and confidence interval of 95%. Descriptive statistics was applied for analysis of the demographic data and the percentage of distressed students was determined based on GHQ-12 score. Assumptions were made before running statistical tests. McNemar and Wilcoxon Signed Rank test were applied to determine significant difference between percentage of distressed participants and their GHQ score before and after the workshop.

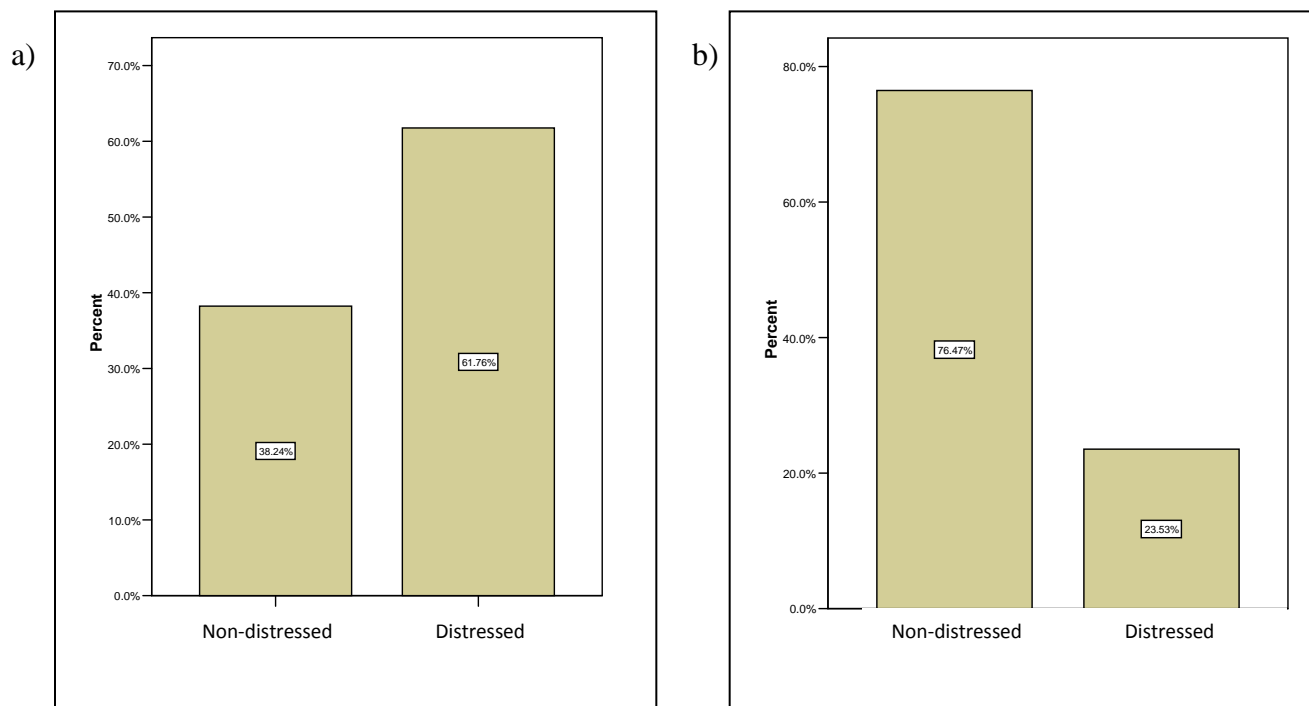
#### **Results**

A total of 34 participants were involved in this study, out of whom 30 (88.2%) were female. 20 students (58.8%) from years two and three, 12 (35.3%) from year four and 2 (5.9%) from year five. Majority of participants were Malays, 32 (94.1%), and the rest was Chinese (Table 1).

**Table 1: Summary of participants' profile.**

Variables	Workshop participants responded to follow up session, n (%)
<b>Year of study</b>	
2	13 (38.2)
3	7 (20.6)
4	12 (35.3)
5	2 (5.9)
Total	34 (100.0)
<b>Gender</b>	
Male	4 (11.8)
Female	30 (88.2)
Total	34 (100.0)
<b>Races</b>	
Malay	32 (94.1)
Chinese	2 (5.9)
Total	34 (100.0)

**Figure 1: Comparison of percentage of distressed participants (a) before and (b) after 4 months of workshop.**



p-value = 0.002\*;

(\*McNemar test, p-value of < 0.05 was considered as significance at 95% CI).

Figure 1 showed that there was significant reduction in percentage of distressed participants after four months of the

workshop ( $p < 0.05$ ). This is an evidence of its positive impact in improving the participants' stress condition.

**Table 2: Comparison of participants' GHQ scores before and after the workshop.**

Variables	GHQ-12 score Median (IQR)	Z-statistic	p-value
Before workshop	4.0 (4.0)	-3.776	< 0.001*
After workshop	1.5 (3.0)		

\*Wilcoxon Signed Rank test, p-value of  $< 0.05$  is considered as significance at 95% CI.

Table 2 showed that there was significant reduction in participants' GHQ scores four months after the workshop ( $p < 0.001$ ). This

finding is an evidence of positive impact of the workshop in reducing the participants' stress level.

**Table 3: Summary of workshop evaluation findings.**

Items	*Mean	Standard Deviation
Introduction session**	3.73	0.87
GHQ-12**	4.51	0.69
MSSQ**	4.60	0.63
Brief COPE Inventory**	4.69	0.57
Attainment of workshop objectives***	4.13	0.65
Overall usefulness**	4.30	0.65

\*Maximum mean score was 5; \*\*1 = not useful, 5 = highly useful; \*\*\*1 = not successful, 5 = very successful

The participants' perceptions of the usefulness of the workshop sessions as well as the achievement of objectives are given in Table 3. All sessions were rated as highly useful. Among the comments written in the open-ended section regarding the most

important thing participants learnt from the workshop, 40% wrote comments related to improved self-awareness. The importance of positive coping skills was commented by 27.5% of them. The fact that stress is related to one's perception was mentioned as most

important by 17.5% and another 15% appreciated the usefulness of increased knowledge such as identification of stressors. These findings were evidence of the programme being well accepted by the medical students.

## 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 appropriate sample size for the future study.

Considering the well-researched fact that medical study is highly stressful [1-10], the positive impact of the programme to the students' stress level can be understood. It was also reflected that the programme is a promising intervention programme with evidence of positive impact in improving and reducing medical students' stress level. In the year 2000, Shapiro et al [14] mentioned that so far there is no proven intervention program that can significantly reduce stress levels among medical students. From that notion, it is noteworthy that this study has provided some evidence to suggest positive impact of such intervention on the medical students' mental health. However, it should be remembered that this was a voluntary programme so the participants were motivated to attend and the positive impact of the program should be interpreted with caution and further research with better study design should be carried out in the future to confirm this finding. Eventhough

there is large literature on stress management in general; their specific application to medical education has been largely unexplored [14]. Therefore, it is difficult to make comparison of findings in present study with other studies.

The activities of the workshop were based on the premise that 'knowledge is power'. The use of screening instruments and providing students with the relevant knowledge about stress seemed to be an effective strategy. Discussions on coping styles seemed to be very highly appreciated by students. The effectiveness of this approach is reflected in the high ratings given during the questionnaire-filling sessions. A participant wrote:

*"I have learnt how to recognize the stressor that I have and how to cope positively with it."*

These are content areas that can be introduced to students at strategic time and places in the curriculum.

This study provided a short-term impact of such programme on the medical students' stress level. The actual long-term impact of it still remains to be seen. This could be confirmed through follow-up and prospective studies. Apart from that, more data is needed to ensure that the problem of stress in this medical school is addressed in an efficient and holistic manner [14].

In conclusion, this study showed that our programme is a promising stress-management programme with the evidence of positive impact on the medical students' mental health in the form of improvement

and reduction their stress level. Apart from that it is a well accepted programme by the medical students. Perhaps similar approach can be considered relevant to be incorporated in other medical schools.

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### **References**

1. Aktekin, M., Karaman, T., Senol, Y. Y., Erdem, S., Erengin, H. & Akaydin, M. Anxiety, depression and stressful life events among medical students: a prospective study in Antalya, Turkey. *Medical Education*, 2001; 35(1); 12-7.
2. Dahlin M, Joneborg N, Runeson Bo. Stress and depression among medical students: a cross sectional study, *Medical Education*, 2005; 39; 594-604.
3. Firth, J. Levels and sources of stress in medical students. *Br Med J (Clin Res Ed)*, 1986; 292(6529); 1177-80.
4. Guthrie, E., Black, D., Bagalkote, H., Shaw, C., Campbell, M. & Creed, F. Psychological stress and burnout in medical students: a five-year prospective longitudinal study. *J R Soc Med*, 1998; 91(5); 237-43.
5. Guthrie, E. A., Black, D., Shaw, C. M., Hamilton, J., Creed, F. H. & Tomenson, B. Embarking upon a medical career: psychological morbidity in first year medical students. *Med Educ*, 1995; 29(5); 337-41.
6. Ko, S.M, Kua, E.H, Fones, C.S.L. Stress and the undergraduate, *Singapore Med. J*, 1999; 40; 627-30.
7. Dyrbye L.N, Matthew, R. Thomas, and Tait, D.S. Medical students distress: causes, consequences, and proposed solutions, *Mayo Clin Proc*, 2005; 80 (12); 1613-22.
8. Saipanish, R. Stress among medical students in a Thai medical school. *Med Teach*, 2003; 25(5), 502-6.
9. Sherina MS, Lekhraj R, Nadarajan K. Prevalence of emotional disorder among medical students in a Malaysian university, *Asia Pacific Family Medicine*, 2003; 2; 213-217.
10. Zaid, Z. A., Chan, S. C. & Ho, J. J. Emotional disorders among medical students in a Malaysian private medical school. *Singapore Med J*, 2007; 48(10); 895-9
11. Steven R, Daine K.R, Jeffrey M. Greeson, George C., Brainard and Mohammadreza Hojat Mindfulness-based stress reduction lowers psychological distress in medical students, *Teaching & Learning in Medicine*, 2003; 15(2); 88-92.
12. Susan K., Redwood and Michael H.P. Student-lead stress management program for first-year medical students,

Teaching and Learning in Medicine, 2007: 19(1); 42-46.

13. Guidelines for the accreditation of basic medical education programmes in Malaysia, Malaysian Qualification Agency, Malaysia, 2007.

14. Shapiro, S.L., Shapiro, D.E. & Schwartz, G.E. Stress management in medical education: a review of the literature. *Acad Med*, 2000: 75(7); 748-59.

15. Roscoe J.T. *Fundamental Research Statistics for the Behavioral Sciences*, 2nd edn. Holt Rinehart & Winston, 1979.

16. Muhamad S.B.Y, Ahmad F.A.R and Yaacob M.J. the sensitivity, specificity and reliability of the Malay version 12-items General Health Questionnaire (GHQ-12) in detecting distressed medical students, *ASEAN Journal of Psychiatry*, in press.

17. Jackson C. *The General Health Questionnaire*, *Occupational Medicine*, 2007: 57, 59.

18. Banks M.H. Validity of the General Health Questionnaire in a young community sample, *Psychological Medicine*, 1983: 13; 349-54.

19. Radanovic Z, Eric L.J. Validity of the General Health Questionnaire in Yugoslav student population, *Psychological Medicine*, 1988: 13; 205-7.

20. Maniam T. Validation of the General Health Questionnaire (GHQ-30) for a Malaysian population, *Malaysian Journal of Psychiatry*, 1996: 4 (2); 25-31.

21. Muhamad S.B.Y, Ahmad F.A.R and Yaacob M.J. The development and validity of the Medical Student Stressor Questionnaire (MSSQ), *ASEAN Journal of Psychiatry*, in press.

22. Carver, C.S, Scheier, M.F, & Weintraub, J.K. Assessing coping strategies: A theoretically based approach, *Journal of Personality and Social Psychology*, 1989: 56; 257-283.

23. Goldberg D. *Manual of the General Health Questionnaire*. NFER Publishing Company, 1978.

24. Goldberg, D., Gater, R., Sartorius, N., Ustun, T. B., Piccinelli, M., Gureje, O. & Rutter, C. The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychol Med*, 1997; 27(1), 191-197.

**Corresponding Author:** *Muhamad Saiful Bahri Yusoff, Lecturer, Medical Education Department, School of Medical Sciences, Kubang Kerian, 16150 Universiti Sains Malaysia.*

**Email:** msaiful@kb.usm.my

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