

# Emotional disorders among medical students in a Malaysian private medical school

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## ABSTRACT

**Introduction:** A study was done between December 2005 and January 2006 to determine the prevalence of emotional disorders among medical students in a private medical school in Ipoh, Perak, Malaysia and to determine the demographical characteristics, contributing factors and the key person consulted for emotional problems.

**Methods:** Medical students in the private medical school completed the 12-item English version of the General Health Questionnaire (GHQ-12) and a demographical questionnaire. A cut-off point of 3/4 for the GHQ was used to determine negative and positive scores for emotional disorders.

**Results:** Out of 292 medical students, 86.6 percent completed the questionnaires. A total of 117 students (46.2 percent) were found to have emotional disorders. There was no significant association of ethnicity, gender, age group, number of examinations sat, examination performances, past medical conditions and relationships with parents, siblings, course-mates and lecturers with positive GHQ scores. A significant association, however, was found between positive GHQ scores for emotional disorders and the year of study, pressure faced due to examinations, and not having a love relationship. 39 percent of the students stated friends as their main preference for consultation of any emotional problem.

**Conclusion:** The prevalence of emotional disorders among medical students was high. Further studies and diagnostic measures are recommended, including a more systematic screening and counselling programme by the medical school for early diagnosis and treatment to prevent complications.

**Keywords:** emotional disorders, General Health Questionnaire, medical students

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## INTRODUCTION

Tertiary learning institutions in Malaysia offering medical degrees have increased in numbers in the past few years to meet the country's demand for more graduate doctors and medical personnel. Nevertheless, the environment of medical education and practice has long been considered a stressful one.<sup>(1)</sup> This stressful environment may lead to various emotional disorders. Emotional disorders can be defined as feelings of sadness and tiredness in response to life events, such as disappointments.<sup>(2)</sup> Medical students have been shown to be more prone to emotional disorders, especially stress and depression, as compared to their non-medical peers. In the United States, a study among students at the country's top ranking academic centres showed that 26% of medical students had reported scores on the depression scale that may well be indicative of depression as compared to 22% of pharmacy students.<sup>(3)</sup> Using the General Health Questionnaire (GHQ), 47.9% of year two medical students in Antalya, Turkey, were found to have emotional disturbances, higher than the percentage of students studying economics (29.2%) and physical education (29.2%).<sup>(4)</sup>

A study in Sweden demonstrated that the prevalence of depressive symptoms among medical students was 12.9%, significantly higher than in its general population.<sup>(5)</sup> In Malaysia, 41.9% of medical students were found to have emotional disorders as reported by a previous study conducted at a local public university in 2002, using the GHQ-12 questionnaire.<sup>(2)</sup> Emotional problems can cause serious mental suffering, which in turn lead to work disability and economic loss. The related economic costs soared in 1999 to 120 billion dollars in North America and Europe, with over 60 billion dollars assigned to stress-related disorders.<sup>(6)</sup> Among adolescents and young adults, emotional disorders are a serious risk to mental health which could lead to the further development of depression episodes, and sometimes even influence them negatively during crucial phases of their life, in which many major decisions are made.<sup>(7)</sup> Emotional problems are closely associated with substance abuse, comorbidity,

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personality changes,<sup>(8)</sup> and even suicide attempts.<sup>(5)</sup> Similar consequences have been shown among medical undergraduates and new house officers.<sup>(1,3,5)</sup> These could affect medical students' academic performance as well as their functionality as future doctors.

The objective of this study was to determine the prevalence of emotional disorders among medical students at a private medical school in the state of Perak, and to look into its demographic characteristics and contributing factors, using the GHQ-12 questionnaire as its screening tool. The GHQ measures the current psychological well-being of a person.<sup>(9)</sup> This instrument was chosen as its validity is well-established internationally and locally.<sup>(9-11)</sup> It is also simple and easy to understand. The results would enable us to have a better view and understanding of emotional disorders among medical students in Malaysia, especially undergraduates from a private tertiary learning institution, and to enable us to take appropriate measures to overcome this problem.

## METHODS

A cross-sectional descriptive study was conducted on all undergraduate medical students in a private higher learning institution in Ipoh, Perak, Malaysia from December 2005 to January 2006. Prior approval from the ethical committee of the institution was obtained. Participation in the study was on a voluntary basis, and in order to guarantee confidentiality, the participants were not identified. These criteria were documented on the introductory page enclosed with the questionnaire papers. Students were being gathered at their respective classes and lecture theatres, and verbal consents were then obtained. The students were then required to complete the 12-item English version of the GHQ-12, and a demographical questionnaire. The GHQ-12 was used as a screening tool because it has been validated locally,<sup>(11)</sup> and had been used in local studies on emotional disturbances.<sup>(2,11)</sup>

For this study, each question from the GHQ-12 questionnaire had four responses, and was scored as 0-0-1-1. The total score was determined by adding the score obtained for each answer in the questionnaire. Based on the GHQ-12 guidelines, scores of 4 and above were considered to be positive for emotional disorders. The same scoring system and cut-off point was also used by a previous study conducted among medical students at a local public university.<sup>(2)</sup> The demographical questionnaire covered questions such as gender, ethnicity, age, year of study, past medical conditions, examination performances and their relationships with family members, lecturers, course-mates and also had questions pertaining to their love life.

These questionnaires were pre-tested on five students doing a Diploma in Pharmacy in the same institute of higher learning. All the data were compiled into a

computerised database and analysed using the Statistical Package for Social Sciences version 11.0 for Windows (SPSS Inc, Chicago, IL, USA). Chi-square tests were applied to the variables studied to determine any significant association with the GHQ scores (significant at p-value of < 0.05). Factors with p-value of 0.20 or less (gender, medical disorder, phase of study, being in a romantic relationship, relationship with lecturers and perceived pressure) were also entered into a forward stepwise logistic regression model.

## RESULTS

Out of 292 undergraduate medical students, a total of 253 students completed the questionnaires, giving a response rate of 86.6%. 59% of the respondents were pre-clinical students. There were 92 males (36%) and 161 females (64%). Their mean age was 21 years (SD 1.79), with 16% aged 19 years and below, 66% aged 20–22 years, and 17% aged 23–30 years. The majority of students were Malays (86.2%), followed by Chinese (7.9%), Indians (4.7%) and other races (1.2%). 17% of the respondents had past medical conditions or diseases, such as asthma and migraine. None of them had any history of psychiatric disorder. Only 18 students (7.1%) were on prescribed medications or drugs at the time of the study. In relation to frequency of having acute illnesses, the majority of students (42.7%) had acute sicknesses, such as upper respiratory tract infections occurring one to two times in the past six months. 49% of respondents did not seek any medical treatment during the last six months, while 34.8% visited the doctor one to two times and 12.3% visited the doctor three times or more during the same period.

39% of the students stated friends as their main preference for consultation regarding any emotional problem, while 36% opted to consult their parents and another 17% preferred not to consult anyone but chose to keep the problems to themselves or write into their diaries. A small percentage of respondents (8.3%) would consult their siblings or a counsellor. 59% of students sat for one examination/test in the past six months, while 41.5% sat for two or more examinations/tests during the same period. 70% of the total respondents passed all the examinations or tests that they had taken during that period. The majority of students (34.8%) regarded their examination performances as less than satisfactory and 40.4% had experienced moderate pressure due to examinations. The majority of students stated they had excellent relationships with their parents (53.8%) and siblings (46.6%). 46% of respondents considered their relationship with the lecturers as satisfactory and 51% said they had good relationships with their course-mates. Only 100 students (39.5%) were involved in a romantic relationship, with 59.6% of them considering it as excellent.

A total of 117 respondents (46.2%) scored 4 and above in the GHQ scores, which was considered as positive for emotional disorders. There was no significant association between ethnicity, gender, age group, number of examinations taken, examination performances, past medical conditions and relationships with parents, siblings, course-mates or lecturers with high GHQ scores. Based on logistic regression, associations with positive GHQ scores for emotional disturbance were perceived pressure related to examinations, being in the first year and not being romantically involved. The prevalence of emotional disorders was higher in medical students in Phase 1 (50%) and Phase 3B (62.7%), but lower among students in Phase 2 (40.5%) and Phase 3A (28.3%). This produces an initial decreasing trend and a subsequent upward trend in the final phase. This study also found a higher prevalence of emotional disturbances among students who stated that they faced severe and extreme pressure due to examinations (68.3%), as compared to students who experienced less pressure. Respondents who were not involved in a romantic relationship were found to be more likely have having positive GHQ scores (51.7%) as compared to those who did (Table I).

## DISCUSSION

Stress during tertiary education and advanced academic training is inevitable.<sup>(3)</sup> Medical students will certainly need to be assessed to meet the minimum requirements. This assessment is unavoidably associated with some level of stress and anxiety.<sup>(12)</sup> Nonetheless, studies have shown that constant pressure and untreated emotional problems are associated with various negative complications including development of adulthood depression and behavioural disorders. Dahlin et al reported 5.4% of medical students in a Swedish university had suicidal thoughts during the previous year of the study, and 2.7% of students had made suicide attempts before.<sup>(5)</sup>

This study found that the prevalence of emotional disorders among the medical students was 46.2%, based on positive GHQ scores. Although it is slightly lower compared to the study by Aktekin et al, who reported that 47.9% of year two medical students at Antalya, Turkey had positive GHQ scores,<sup>(4)</sup> it is still higher than the results (41.9%) reported by a study done at another local public university,<sup>(2)</sup> as well as results obtained in studies from Spain and the United Kingdom, where 30% and 31.2% of medical students in the respective countries had emotional

**Table I. Factors (p-value and adjusted p-value) significantly associated with emotional disorders among medical students in Ipoh, Perak, Malaysia (n = 253).**

Associated factors	Positive GHQ score (%) (≥ 4)	Negative GHQ score (%) (≤ 3)	p-value	Adjusted p-value
Year of study (MBBS phases)				
Phase 1	37 (50.0)	37 (50.0)	0.003	0.041
Phase 2	30 (40.5)	44 (59.5)		0.88
Phase 3A	13 (28.3)	33 (71.7)		0.58
Phase 3B*	37 (62.7)	22 (37.3)		0.00
Past medical conditions or diseases				
Yes	26 (61.9)	16 (38.1)	0.026	ns
No	91 (43.1)	120 (56.9)		
Pressure faced due to exams or tests				
No pressure and some pressure*	21 (31.3)	46 (68.7)	0.000	0.000
Moderate pressure	37 (36.6)	64 (63.4)		
Severe pressure and extreme pressure	56 (68.3)	26 (31.7)		
Relationship with lecturers				
Poor and very poor	14 (66.7)	7 (33.3)	0.015	ns
Satisfactory	61 (52.6)	55 (47.4)		
Good	35 (35.0)	65 (65.0)		
Excellent	7 (43.8)	9 (56.2)		
In a romantic relationship				
Yes	37 (37.0)	63 (63.0)	0.023	0.042
No	78 (51.7)	73 (48.3)		

Gender and age not significant

ns: not significant

\* reference value

disturbances.<sup>(13,14)</sup> Likewise, another study in Manchester demonstrated that 36% of medical students had scores exceeding the GHQ threshold.<sup>(15)</sup>

First year medical students (Phase 1) and final year students (Phase 3B) were found to have high GHQ scores. Stiff competition to enter medical schools had been highlighted by Sherina et al,<sup>(2)</sup> and Dahlin et al has also stated that the first year students also need to face the process of adjusting themselves to the medical education setting.<sup>(5)</sup> These factors might have contributed to emotional disturbances among the Phase 1 students. As for the senior students, they face high expectations to become competent doctors and to acquire good academic results to enable them to obtain places for postgraduate training.<sup>(16)</sup> Other studies have also demonstrated a high prevalence of emotional disorders among first year medical students,<sup>(5,15)</sup> senior students in the later stage of medical training and final year students.<sup>(16,17)</sup>

A study among new medical residency training doctors in Sao Paulo, Brazil, demonstrated that female doctors had higher levels of anxiety and depression.<sup>(4)</sup> Similarly, studies done in Sweden, Spain and Iran found that female medical students, on the whole, also reported higher levels of emotional disorders compared to male students<sup>(5,13,18)</sup> This present study did not find any significant direct association between gender and positive GHQ scores. A systemic review of emotional disturbances among US and Canadian medical students suggested psychological distress was probably higher among female students.<sup>(19)</sup> Nevertheless, the review concluded that information currently available was insufficient to draw a firm conclusion, as their results might have been influenced by other factors, and therefore further investigations were recommended. Studies done among the general population have also shown the association of certain chronic medical conditions with emotional problems.<sup>(20,21)</sup> A study in Finland found that prevalent asthma decreases life satisfaction and increases neuroticism, which may subsequently result in depression.<sup>(22)</sup> In this present study, it was found that medical students with a medical history of chronic diseases had higher GHQ scores (61.9%). Asthma and migraine were among the past medical conditions or diseases commonly stated by the students. Nonetheless, upon logistic regression analysis, the results did not show any significance (Table I).

Academic factors, particularly increased academic workload and fear of failure, are some of the sources of stress in a medical school. In the present study, students who experienced severe and extreme pressure due to examinations had a higher percentage of emotional disorders compared to those who perceived some pressure or no pressure at all because of examinations. This finding corresponds to the result of another local study.<sup>(2)</sup> Sender et al had also reported a significant association between

high GHQ scores and strain in an academic environment.<sup>(13)</sup> Furthermore, the present study demonstrated that the majority of students considered their examination performances as less than satisfactory, which might have contributed to their level of emotional pressure pertaining to examinations. In terms of relationships, students who did not have a good relationship with their lecturers had reported high GHQ scores, which is consistent with the result attained by Sherina et al.<sup>(2)</sup> Good rapport and interaction with the academic staff are important for the students in obtaining support and help with regard to their academic performances, which might be lacking in those with high GHQ scores. However logistic regression did not show any significance (Table I).

Emotional disorders were also significantly associated with students who were not involved in a romantic relationship. For those who were involved, they probably had the option of disclosing their problems to their partners and seeking advice or support from them. A study in Iran also found that single medical students experienced higher levels of anxiety as compared to married students.<sup>(18)</sup> The other important finding was that the majority of students preferred to consult their friends when they had emotional problems, while 17% of them chose not to consult anyone. This finding corresponds to the result of a local study done among Malaysian adolescents.<sup>(23)</sup> For this group of students, emotional problems would mainly be discussed with their peers, and sometimes, they might not receive the proper attention, help or medical assistance required, especially for those who choose to keep their emotional problems to themselves.

As this study used a non-diagnostic screening tool, students that were found to have high GHQ scores need further assessments to determine and diagnose if they truly suffer from emotional disorders and require treatment. However, medical students were also found to have high scores on the Beck Depression Inventory (BDI) and State and Trait Anxiety Inventory (STAI), based on studies done in Turkey and Spain, which used these questionnaires apart from the GHQ.<sup>(4,13)</sup> The GHQ was found to be as equally effective as the other screening methods according to studies done among patients in the hospital and primary care settings.<sup>(24,25)</sup>

In dealing with stress and emotional disturbances, common coping strategies, such as obtaining support from family and friends, exercising and participating in spiritual and social activities, were all reported to have positive effects.<sup>(3,17,26)</sup> Besides that, compulsory one-to-one meetings and assessment sessions with advisers for all first-year medical students in a Canadian university have shown to be effective in detecting students with emotional disturbances and who were unlikely to seek help voluntarily.<sup>(26)</sup> The medical school involved in the present study has a mentor-mentee

system and individual students can also be referred to the medical school's undergraduate tutor for assessment and counselling. However, considering the high prevalence of students with positive GHQ scores, a more systematic programme for screening, diagnosing and counselling may need to be implemented. Seminars on stress and personal management techniques have also been organised as part of the curriculum by the medical school involved in the present study. Nevertheless, their effectiveness in helping students to deal with stress and prevent emotional disturbances need to be re-evaluated and improved.

In conclusion, this study found a substantial number of medical students (46.2%) in the study sample with high GHQ scores, indicating emotional disorders. The prevalence of emotional disorders were found to be significantly higher among Phase 1 students, students who faced severe pressure due to examinations and those who were not involved in a romantic relationship. Further studies and diagnostic measures are recommended to determine the extent of emotional disorders among these medical students. It is important to detect and diagnose emotional disorders at an early stage, in order to provide timely treatment or interventional measures, prevent further complications, as well as to promote the well-being of medical students and future doctors.

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