Are medical undergraduates more vulnerable than their non-medical peers to develop depressive symptoms?

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ABSTRACT

Introduction: Psychological problems pose a significant threat to health and well-being of medical undergraduates in many countries. Less is known about psychological health issues of medical undergraduates in Sri Lanka. This study assesses and compares the prevalence of depressive symptoms between first year medical and non-medical undergraduates in a southern university in Sri Lanka. In addition, the predictors of depressive symptoms in this target population were explored.

Methods: A self-report, anonymous questionnaire that contained the Center for Epidemiological Studies-Depression Scale (CES-D) was administered to a sample of 392 first year undergraduates from the faculties of Agriculture, Medicine, Business Administration and Science.

Results: The mean score of the CES-D scale was 21.2 (*SD* = 11.0), higher when compared to similar studies conducted in other countries. About 76% of medical and 60% of non-medical undergraduates reported elevated depressive symptoms ($p < .01$). Sedentary and sexually inactive life styles and poverty were positively associated with elevated depressive symptoms in this target population.

Conclusions: Depressive symptoms appear to be more prevalent among first year medical students when compared to their non-medical peers. Physically and socially active lifestyles may reduce the chances of developing depressive symptoms in undergraduates. More research is needed to understand the behavioral and social factors associated with these elevated levels of distress and the behaviors and other strategies employed by these undergraduates to manage it.

Key words: Depressive symptoms, Behavior, Undergraduates, Sri Lanka

Introduction

Becoming a medical student is an important step toward becoming a member of a profession that is highly valued, and even revered, by almost all societies. But it has been well documented that the undergraduate period of this particular career path can be quite stressful (1-3) with medical students reported as having higher rates of depression compared to other students (4,5) and that suicide ranks second among the leading causes of death among medical students [6]. Previous research has noted some of the many stresses inherent in medical education, including long hours of study, fewer vacations, being humiliated and mistreated by consultants, lack of support from medical school authorities and dealing with terminally ill patients and death (2,3). It has also been suggested that medical students who show signs of stress and depression during their training may be at risk for developing psychological disorders once they become physicians (4,7), and previous research has shown that suicide rates are higher among physicians in some communities than in the general public (8).

The psychological health of undergraduates in Sri Lanka is largely unknown. A study conducted in a university in Sri Lanka found that about 63% of the new entrants to the university were having emotional disorders (9). Another study conducted among first year medical students in the country reported psychological distress in 61% of female and 54% of male participants (10). Besides these studies, there are no other studies of psychological health among

medical undergraduates in Sri Lanka, particularly in terms of predictive variables that might identify undergraduates who are vulnerable to distress or other psychological ill-health conditions.

The purpose of the present study was to assess and compare the prevalence of depressive symptoms among first year medical and non-medical undergraduates in a Southern university in Sri Lanka. In addition, correlates of depressive symptoms in this study population were explored.

Methods

Data presented in this paper were collected from 392 first year undergraduate students enrolled in the faculties of Agriculture (n = 96), Business Administration and Finance (n = 85), Science (n = 93), and Medicine (n = 118) at a southern university in Sri Lanka. The study was conducted when there were no major examinations scheduled for two weeks prior to or following data collection in order to reduce the likelihood that depressive symptoms were elevated as a result of the upcoming or recent examinations.

A self-report questionnaire was used to assess participant characteristics and symptoms of depression. All data were collected anonymously. The questionnaire included basic demographic questions. Depressive symptomatology was assessed using the 20-question Center for Epidemiological Studies-Depression Scale (CES-D) (11). The scale has been translated into Sinhala language and validated in Sri Lanka (12). Internal consistency and reliability of the measure were determined using alpha coefficients, which was 0.82 indicating that the scale had an acceptable level of internal consistency. The total score of the CES-D ranged from 0 to 60, with higher scores reflecting higher levels of depressive symptoms. The standard cut-off point that was used to identify those with elevated depressive symptoms was 16 or above on the CES-D score (11,12). Those who had used cigarettes at least once during the 12 months period prior to the survey were categorized as *yearly smokers* and those who had used alcohol at least once during the 12 months period prior to the survey were categorized as *yearly alcohol users*.

With the standard cut-off point of 16 or above on the CES-D score, 64.6% of female undergraduates and 64.8% male undergraduates reported elevated depressive symptoms. Overall, 76.3% of medical undergraduates, compared to 59.5% of non-medical undergraduates, reported elevated depressive symptoms ($p < .01$). Among medical undergraduates, females were more likely than males to report elevated depressive symptoms ($p < .05$).

Correlates of depressive symptoms were investigated using the total sample of undergraduates. In male undergraduates, smoking, engaged in rigorous physical exercises and being a sexually active were seen less among undergraduates with elevated depressive symptoms compared to others (Table 2).

In female undergraduates, engaged in rigorous physical exercises and coming from an affluent family seem to be less prevalent among those with elevated depressive symptoms.

Table 1: Prevalence of elevated depressive symptoms (CES-D score ⩾ 16) by gender and by the Faculty of study

Faculty							
Medical		Agriculture		Business		Science	
M	F	M	F	M	F	M	F
(n = 52)	(n = 66)	(n = 24)	(n = 72)	(n = 58)	(n = 29)	(n = 33)	(n = 60)
69.2%	81.8%	62.5%	54.2%	66.1%	69.0%	57.6%	55.0%

M - Male F - Female

Table 2: Portion of undergraduates with elevated depressive symptoms (CES-D ⩾16) by demographic and behavioral factors and by gender

Variables	Male (n=165)		Female (n=227)	
	CES-D ≥ 16	*p*	CES-D ≥ 16	*p*
Smoking (Yearly)				
Yes	53.4% (n=58)	0.02	62.5% (n=24)	0.84
No	71.0% (n= 107)		64.5% (n=203)	
Alcohol use (Yearly)				
Yes	61.5% (n=96)	0.28	69.2% (n= 13)	0.73
No	69.6% (n=69)		64.0% (n=214)	
Rigorous exercise				
Yes	50.8% (n=76)	0.03	50.0% (n=167)	0.01
No	68.4% (n=63)		69.5% (n=60)	
Sexually active				
Yes	50.0% (n=32)	0.05	53.8% (n=13)	0.41
No	68.4% (n=133)		65.0% (n=214)	
Family income				
Low	69.9% (n=73)	0.23	74.6% (n=59)	0.05
Mod/High	60.9% (n=92)		60.7% (n=168)	
Living arrangements				
With parents	58.3% (n=12)	0.47	60.0% (n=30)	0.86
University hostel	68.8% (n=60)		64.9% (n=43)	
Other	60.0% (n=93)		65.1% (n=154)	

Discussion

The results indicated that depressive symptoms are prevalent to a considerable extent in this undergraduate population. The mean value of the CES-D scores of this undergraduate population (Mean= 21.2, *SD* = 11.01)) is higher than that of similar studies conducted in other countries. In USA, Rosel *et al*. reported a mean score of 14.5 (*SD* = 8.8) in a sample of year 2 medical students at University of Massachusetts (13). Kelly found a higher mean score (Mean= 20.34) in a sample of 143 college students at a mid-sized university in the US (14). Pillay and his collogues reported a mean score of 19.1 (*SD*=14.8) in a sample of 129 first year students in a university in South Africa (15). It therefore appears that the prevalence rates of depressive symptomatology in this study population in Sri Lanka are among the highest when compared to the rates documented for similar populations elsewhere in the world. However, it should be noted here that depressive symptoms do not always translate well into major depression or any other mental illness. Social and environmental factors play a significant role in changing these mental conditions in

undergraduates over the years of study (5, 13). Also the stage they are in the undergraduate career may explain the variation. By the second year they may be less stressed as they tend to settle down by then. Hence the first year students tend to have more stress than the second year students.

The results further indicated that medical undergraduates in this sample were more likely than their non-medical peers to have elevated depressive symptoms. Further, the level of depressive symptoms was found to be higher among female medical undergraduates compared to male medical undergraduates. Demands of the medical curriculum such as continuous assessments/exams, long hours of laboratory work and language problems may create more stress among medical undergraduates (2,9,10).

Smoking behavior seems to reduce the vulnerability of male undergraduates for the development of depressive symptoms. This could be due to the fact that unlike people in other countries where cigarettes and alcohol are used by a considerable portion of people to reduce tension (16,17), in Sri Lanka, smoking is used to enhance social and personal enjoyment (18). Thus, the undergraduates who smoke could, most probably, be socially active with less psychological worries. Future research is warranted in this area. Sedentary life style seems to be associated with the development of depressive symptoms. There is ample evidence to say that physically active individuals are less vulnerable to psychological ill-health (19). Provision of exercise facilities does not necessarily encourage undergraduates to do regular exercises. So factors that promote exercise behavior of the undergraduates need to be explored. Sexually active lifestyle seems to be associated positively with psychological well-being of this undergraduate population. Further research, however, is needed to confirm those hypotheses.

Undergraduates from low income brackets seem to be more susceptible to develop depressive symptoms compared to others, although we observed significant difference only for female undergraduates. Further, even if we did not observe a significant difference, undergraduates living with parents seem to be less vulnerable to report elevated depressive symptoms compared to those living in university hostels and other places. A similar observation was made by a study conducted in Sri Lanka (20). Income and the place of living may be related to each other and future research should address these social determinants of psychological ill-health in undergraduates. The faculties from which students were recruited had no proper student counseling services with qualified counselors. This indicates a need for attention to perhaps the need for such services in this country. Also, this indicates a need for further research among undergraduates in Sri Lanka to understand the behaviors and other mechanisms in which they engage in order to manage their psychological problems, particularly in the absence of any formal systems located within the faculties.

The generalizability of these results is limited by the fact that the students were recruited from a single university. On the other hand the gender distribution of our sample was fairly representative of the target population. Higher response rate and inclusion of 3 non-medical faculties for comparison make this finding important for possible health interventions and for future research on the subject.

In conclusion, depressive symptomatology is prevalent in this undergraduate population and medical undergraduates seem to be the most vulnerable group. Depressive symptoms may pose a threat to health and training of medical undergraduates. The results of the study also demonstrate the need of establishing professional counseling services for university undergraduates. In addition to socio-political adverse factors on medical profession in the country, institutional and work related causes of depressive symptoms may play a great role in initiation and maintaining depressive symptomatology in medical students. Scientifically sound quality research is warranted to understand possible causes of depressive symptoms and the path of mental health that Sri Lanka's medical undergraduates are experiencing throughout the course of their medical education.

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