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Prevalence of Medical Student Syndrome among Medical Students of Nepal

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ABSTRACT

Background: Medical student syndrome (MSS) entails the development of symptoms of the same disease as the one being studied in medical students. This study aimed to determine the prevalence of Medical student syndrome among medical students in Nepal and identify associated factors.

Methods: A Cross-sectional study was conducted at Lumbini Medical College Palpa, Nepal on medical students. Google form-based questionnaire was made, and the link was distributed to the students. A cut-off score was derived for Medical student syndrome. Students whose scores exceeded this threshold were categorized as having experienced Medical student syndrome. The responses received from the consenting students were downloaded in a Microsoft Excel spreadsheet and exported to SPSS v 26 and analysed.

Results: The overall prevalence of Medical student syndrome was 17.8%. There was no significant difference in Medical student syndrome scores between genders ($p = 0.801$). However, year of study significantly influenced Medical student syndrome scores ($p = 0.001$, $\eta^2 = 0.069$), with final year students reporting higher scores.

Conclusions: This cross-sectional study revealed a significant prevalence of Medical Student Syndrome among medical students in Nepal, with nearly 18% reporting symptoms of the condition.

Keywords: Hypochondriasis; medical students; mental health; Nepal.

INTRODUCTION

Medical student syndrome (MSS), also known as medical student disease is defined as health-related anxiety where the medical students believe that they have certain disease after reading about it and also associate their symptoms with the disease being studied.[1] One hypothesis suggests that due to constant exposure to life-threatening situations and illness experienced by medical students could lead them continuously fearing serious clinical feature or disease, a phenomenon known as nosophobia, an anxiety-disorder.[2]

This burden of MSS is under described and frequently dismissed by peers and seniors. It is important to generate evidence on MSS because this may increase risk of anxiety and depression among medical students.[1] The present study was designed to investigate the actual existence and prevalence of MSS among medical students in a Nepalese Medical College.

METHODS

A descriptive cross-sectional study was conducted among medical students of Lumbini Medical College and Teaching Hospital, Palpa, Nepal. The study was conducted over a one-month period from December 1 to December 31, 2023. Data collection was terminated once the required sample size was achieved. Lumbini Medical College and Teaching Hospital is a tertiary healthcare centre serving

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the mountainous districts of western Nepal. The present study included only those medical students of Lumbini Medical College, Palpa who consented to participate in the study.

There are 100 students enrolled for the undergraduate medical program (MBBS) each year at Lumbini Medical College. This MBBS course is of four and half years (nine semesters). So, there are around 500 medical students in Lumbini Medical College. We calculated the sample size using Rasoft® program.[3] The sample size was calculated keeping a margin of error of 5%, confidence level of 95%, population size of 500 and response distribution of 50%. Accordingly, the minimum required sample size was calculated to be 218.

To collect data, we created a comprehensive questionnaire with four sections: demographics, MSS assessment scale, coping mechanisms, and general questions. The questionnaire was digitized and shared through a Google Form. We used a cascade approach to distribute the link, starting with class representatives who shared it with their classmates via social media. The link was active from December 1, 2023, and responses were checked weekly. We disabled the link after reaching the target number of responses.

The demographic information included the age, sex, year of study of the participant. To assess the MSS among the students we assimilated five questions adopted from Moss-Morris & Petrie.[4]

The internal consistency in terms of Cronbach's alpha for all five items of the MSS scale was 0.740, indicating acceptable reliability. A 5-point Likert scale (1 = Strongly disagree to 5= Strongly agree) was utilized to record the responses.

The third part of the questionnaire focused on coping strategies used by the students. Responses were again recorded on a 5-point Likert scale (1=never, 2=rarely, 3=sometimes, 4=often, 5=always). The responses were categorized during data analysis as 'frequent' for 'often' and 'always' and 'infrequent' for the responses 'never', 'rarely' and 'sometimes'.

Questions about the student's study habits and sleeping habits were also included that asked hours slept on typical weeknights and study hours during typical weekdays. We also had an open-ended question at the end of our survey for any medical student who wanted to share their experience or suggestions on how we might mitigate the problem of MSS among other medical students.

The responses thus collected through the Google form were then downloaded into an Excel worksheet. This worksheet thus downloaded was then exported to SPSS version 26 and analysed.

Descriptive statistics were used to analyse demographic data and questionnaire responses, calculating frequencies, percentages, means, and standard deviations. A composite (MSS) score was calculated by summing responses to five questionnaire items. A cut-off point, determined by adding one standard deviation to the mean MSS score, was used to categorize participants as experiencing MSS. The prevalence rate was calculated with a 95% confidence interval. Independent t-tests were used to compare MSS scores between sexes, while ANOVA was employed to assess differences across years of study, with Tukey's HSD for post-hoc comparisons. Pearson's correlation coefficient was used to examine relationships between age, year of study, and MSS scores.

For all the statistical tests, a significance level 0.05 was taken into consideration. Effects size were reported where appropriate. We checked and reported whether our data met the assumptions for the statistical tests used (e.g., normality for parametric tests).

Ethical consideration

Informed consent was obtained from all the participants. We did not collect any identifying information from the students such as name, address or email. When students clicked on the link to the questionnaire, a Google Form would pop up. The first page included the objective and brief details of the principal investigator. This introductory section included a statement that participation in this study was voluntary and no gifts in any form will be provided to the participants. Only those students who consented for the study got access to the questionnaire. If a student did not want to take the survey anymore, it would then close and submit an empty form. The study protocol of this study was approved by the Institutional Review Committee (IRC-LMC-07/Q-023). This study's design, method and results are reported according to the STROBE guidelines.

RESULTS

On 31 December 2023, we had received 261 responses; therefore, we disabled the link to the questionnaire from receiving further response. There were eight incomplete forms submitted that were excluded; so, the number of included responses were 253.

Of the 253 responses 135 were female (53.4%) and remaining 118 were males (46.6%). The students were aged between 18 to 27 years with a mean age of 21.87 (SD = 1.722) years. The mean age of the students by year of study is depicted in Figure 1. The distribution of students based on gender and year of study is presented in Figure 2.

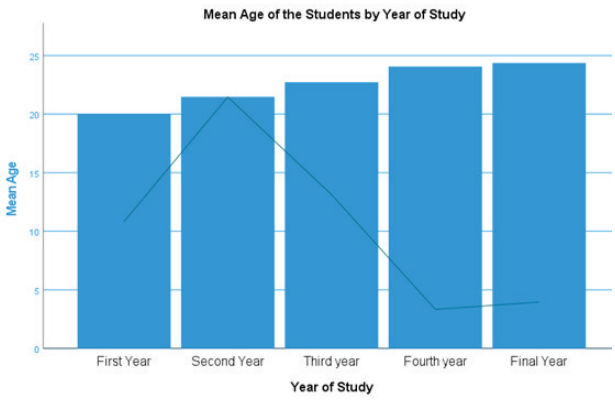

Figure 1. Mean age of students by year of study.

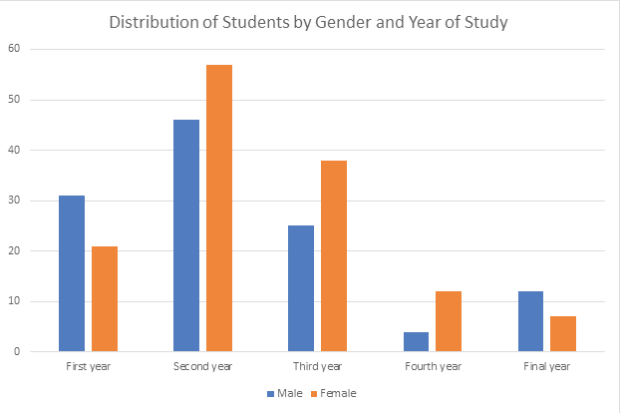

Figure 2. Distribution of students based on gender and year of study.

The mean MSS score in our sample was 9.4308 (SD = 2.91550). Using a cut-off score of 12.3463 (mean + 1 SD), we identified 45 out of 253 students as experiencing MSS. This corresponds to a prevalence of 17.8% (95% CI: 13.5% - 23.1%) in our sample.

There was no significant difference in MSS scores between males (M = 9.3814, SD = 3.03236) and females (M = 9.4741, SD = 2.82005), t(df) = -.252 (251) value, p = 0.801. There was a significant effect of year of study on MSS scores, F (df1, df2) = 4.580 (4, 248), p = 0.001, η2 = 0.069. Post-hoc comparisons using the Tukey HSD test indicated that the mean MSS score for final year students (M = 10.8947, SD = 3.16043) was significantly higher than for second year students (M = 8.5825, SD = 2.68812), p = 0.011. Other year groups did not significantly differ from each other.

Our findings showed that MSS scores were not significantly associated with age (r = 0.117, p = 0.64) or sex (r = 0.016, p = 0.801). On the other hand, we found a weak correlation of the year of study with their MSS scores (r = 0.162, p = 0.010).

The overall model was not significant, F (df1, df2) = 2.239 (3, 249), p = 0.084, R Square = 0.026. Age (β = -0.021, p = 0.899), gender (β = 0.028, p = 0.940), and year of study (β = 0.448, p = 0.079) were non-significant predictors of MSS scores.

Figure 3 shows that the proportions of the responses "agree," "disagree," and "neutral" to all the five questions are very similar. However, the first, second, and third questions elicited somewhat more positive "agree" response.

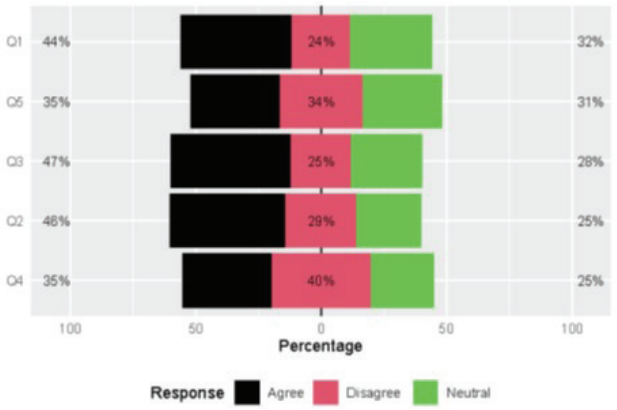

Figure 3. Responses to (MSS) assessment questions.

There were four coping mechanisms mentioned in the study. Figure 4 displays the response frequency on different coping mechanisms. It can be inferred that most students do not feel the need of seeking professional help or relaxation methods and social support based on their responses. It was also clear that 45% out the same student cohort exercised regularly.

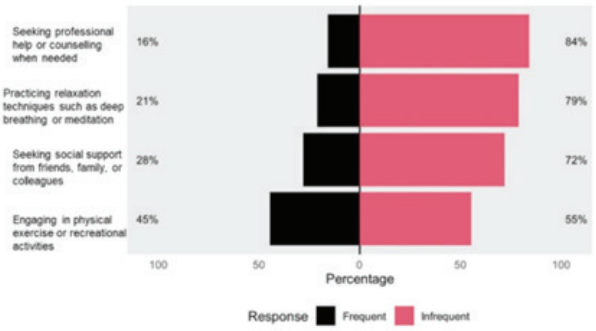

Figure 4. Frequency of coping mechanisms used by medical students.

In response to the final open-ended question "Is there anything else you would like to share about your experience with 'medical student syndrome' or any suggestions for addressing this issue among medical students?", 205 (81.03%) participants either did not respond or had no additional comments. Among those who responded, the most frequent suggestion was the need for counselling services, followed by recommendations to focus on patient cases rather than self-diagnosis. Some students emphasized the importance of maintaining physical and mental health, while others viewed MSS as a common experience among medical students. A small proportion suggested implementing stress management workshops. Common suggestions and experiences are presented in Table 1 with some examples of responses received.

Table 1.Common suggestions and experiences shared by respondents regarding medical student syndrome.

Response category	Example of response
Mental Health Support	"Counselling needed!"
Individual Mindset and Coping Strategies	"Actually, it depends on individual mindset."
Normalizing the Experience	"We all experience it so I guess it comes with being a student"
Health Prioritization	"I think health should be the 1st priority at any cost. Health is wealth, if you are healthy then only you can achieve things easily."
Suggestions for Management	"I'd say, while studying about a disease, imagining the symptoms on a patient rather than on myself, helped me to stop experiencing it."
No Additional Comments	"No." "Nothing."

DISCUSSION

This study aimed to evaluate MSS amongst students undergoing medical education at a Nepalese Medical College. Estimates of the prevalence in medical students will help to identify and implement interventions to optimize the health of our workforce.[5]

The concept of medical student disease first appeared in the 1960s, although its scientific basis is limited.[6,7] Medical student disease is classified into two components: the cognitive component involves the belief of the students that they have the disease being studied, while the distress component involves the anxiety arising from this belief.[4] A Nepali study conducted among medical students revealed that half of the medical students enrolled reported to having a mental health problem.[8] It was further reported that 65% of the students were exhausted (burnout) and 14% had problem drinking.[8] Studies have found a relationship between mental health and the MSS.[1] Suffering from MSS once in a while will likely make them feel more empathetic towards patients.[9] MSS might cause a cyberchondriac phenomenon, placing people into trying to diagnose themselves from the internet. The latter may well result in hypochondriasis on the part of students.[10]

Medical students often experience MSS in their pre-clinical years of basic science learning.[7] While traditionally referred to as 'first-year syndrome' or 'second-year syndrome', it is worth noting that in modern integrated curricula like that of Kathmandu University, students encounter clinical correlations and disease presentations from the beginning through problem-based learning and clinically correlated pre-clinical subjects. It would be much less common if this condition was better understood and recognized in the clinical setting.

The prevalence of MSS in the current study was 17.8%. A similar study conducted among health professions students at King Saud University Health College, Riyadh, Saudi Arabia identified the total prevalence as 8.5%. [1] Study conducted among Taif University medical students revealed an overall prevalence of 16.2%.[11]

There was no significant difference in MSS scores between males and females. There was a significant effect of year of study on MSS scores. Post-hoc comparisons using the Tukey's HSD test indicated that the mean MSS score for final year students was significantly higher than for second year students. It might be due to more clinical exposure and knowledge of various diseases in the final year of study as compared to the second year. Other year groups did not significantly differ from each other. There was a

no-significant correlation between age and MSS scores.

Of the four coping mechanisms 16 % of the participants were reported to frequently seek professional help or counselling when needed. There were 21% participants who frequently practiced relaxation techniques such as deep breathing, or meditation. Only 26 % of the participants sought social support from family or friends and 45 % of the participants routinely engaged in physical exercise or recreational activities as a means of coping with stress, respectively. It looks like the students are not making an effort in consultation with experts and counsellors to cope with MSS. And even after knowing the need and effect of counselling they are not allowing themselves to take help from professionals, which can reduce or minimise MSS. Yet, a vast majority of students think that taking part in physical exercises and doing some recreational activities can help them get over or ease off MSS.

Deepening medical knowledge and viewing diseases from broader perspectives can help minimise MSS burden. Another avenue might lie in admitting directly that one has MSS and working to cut the psychological burden it brings in this way. While it is not possible to completely eliminate it, it can be coped with minimal anxiety. Regular exposure to new and incomplete information about diseases makes them wonder whether they also have the disease.[12]

These comparisons can further cause stress, anxiety and ultimately lead to burnout syndrome in the medical student. Because the prevalence of academic burnout is high in medical students, it may lead to multiple undesirable sequelae including increased risk for poor mental health (depression), impaired cognitive functioning which could affect their ability to study and interpersonal-relationship among other effects.[13-15] We found no association between hours of sleep on an average weeknight by MBBS students and their study hours spent on a typical weekday. On the other hand, lacking a strong relationship might mean that there are also more factors which have an influence on student's studying habits. Given these unexpected findings, further investigation is required. Perhaps personality variables such as study efficiency of the student, time management skills, or differences in cognitive functioning could influence how many hours a person spends studying than sleeping alone.

Hence to minimize such effects of MSS and to support the medical students to cope with it, we need to know the status and perception of medical students towards the problems and coping mechanisms. We can advise and plan for increasing the professional help and counselling along with the relaxation technique and social support. Such studies seem to be less in the context of Nepal. So, conducting such studies help in assessment of the problem in the particular area so that adequate and effective intervention could be taken.

Faculties of medical colleges in Nepal should be aware of the MSS and be mindful that some students may actually be experiencing it. If the teacher, while discussing a particular disease said that MSS is a common phenomenon, a majority of the students would be relieved.

There are some limitations to this study. To begin with, we applied a convenient sampling method of selecting participants only from one institution so our results may not be extrapolated to all medical students throughout Nepal. Not all students responded or agreed to participate and as a result their experiences are missing from this data. Although this study reflected students' individual perceptions and experience of MSS, because the responses were self-reported, there could be social desirability bias in some of them. Thus, it is not possible to measure the severity with which each student has experienced MSS that may enable finding ways for more directed perspective-based prevention. Future work may explore the degree to which MSS affects academic achievement as our data were neither designed for nor could we address this point.

CONCLUSIONS

In a cohort of Nepalese medical students, we found a striking 17.8% prevalence of MSS, with higher prevalence in advanced clinical years, challenging the traditional view of MSS as primarily a pre-clinical issue. Specifically, while MSS was similar among both genders, indicating an urgent need for universal interventions, the concerning underutilization of professional help and evidence-based coping strategies points to a critical gap in support services. These results emphasize the importance of enhancing mental health support services, implementing early interventions, and promoting effective coping mechanisms, especially during clinical years when MSS impact seems highest. It would also be important for medical institutions to include MSS awareness as part of their curriculum and facilitate support systems. Not only does this identification of essential features of MSS aid appropriate guidance for improving mental health outcomes but also enhances medical education.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interests.

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