

Nomophobia, Anxiety, and Burnout of Medical Students in Syria

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Abstract: Purpose: Nomophobia is a term that refers to an extreme fear of leaving the smartphone. Individuals with nomophobia have great anxiety about being separated from the smartphone. Intensive lectures in medical faculty can cause students to feel anxious. Compelling medical education curriculum and medical students living in harsh conditions in Syria since 2011 may experience nomophobia, anxiety and burnout. In this study, we aimed to determine the nomophobia, anxiety, and burnout levels of Syrian medical students. Methods: Preparation and first year medical students studying at the University of Health Sciences Cobanbey School of Medicine participated in three online surveys to measure nomophobia ($n = 111$), anxiety ($n = 102$), and burnout ($n = 111$). Results: Majority of medical students (82.9% ($n = 92$)) felt uncomfortable when they were constantly unable to access information from their smartphones. The majority of the students (79.4% ($n = 81$)) stated that they were anxious. Most of the medical students thought that their paying attention in lessons has decreased while they started school; 88.3% of the medical students ($n = 98$) felt emotionally exhausted from their lessons. Conclusions: Nomophobia, anxiety, and burnout situations are expected in Syrian medical students due to the living-conditions. Developments in the education curriculum for the protection of the mental health of future physicians is crucial.

Key words: Survey, smartphone, worry, exhaustion, health field.

1. Introduction

Smartphones are devices that have a great impact on daily lives of people by influencing their abilities and behavior. Despite the increasing benefits of this technology tool, there are also disadvantages. Problematic use of smartphones increased and may require health intervention [1]. Most students confirm that smartphones have many benefits including learning. However, users are not aware of the harms of smartphones [2]. According to these negative impacts, individuals with nomophobia may be anxious when they leave their smartphones.

Anxiety is a prevalent but neglected psychological disorder. Medical students with conditions including

intensive courses exposed to anxiety and stress. Social and economic factors also affect anxiety in medical students [3] and Syria has a devastating condition after 2011. The war situation in Syria adversely affected the mental health of the Syrians [4]. In this direction, medical students studying in Syria may experience situations including distraction in their lessons.

Burnout is an effective condition on the mental health of individuals who are faced with a decline in individual achievement and emotional exhaustion [5]. Depression, fatigue, and physical symptoms may occur in people with burnout [6].

One third of medical students have anxiety-like conditions. These situations can also increase dropout

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rates of students while anxiety-like conditions can negatively affect academic performance and professional development of students [7]. The fact that medical students experience a period full of both personal and professional stress during their education can affect the health of the students [8]. Considering that Syrian medical students live in a psychologically tense area, the stress level on these students may be higher.

The problems caused by nomophobia in medical institutions are indicative of nomophobia symptoms of first-year students [9]. This information gives hint that nomophobia might be frequent among medical students even in Syria. The factors of nomophobia in medical students showed that nomophobia was associated with anxiety and depression especially present in young people [10]. Implementation of early intervention strategies can contribute to supporting mental health of students. The mediation of worry and anxiety has an impact on personal well-being in postgraduate medical students [11]. This study may provide the basis for supporting the personal well-being of postgraduate medical students. A study was conducted on the burnout of medical students studying in the United States of America while continuing their education at school. Medical students, who have a negative learning environment, experienced higher levels of burnout compared to medical students living under better conditions [12]. In order to improve the lifestyle of medical students, studies aiming to improve the learning environment can be carried out. In our study, the relationship between lifestyle and burnout of medical students was investigated.

We conducted three different surveys to examine nomophobia, anxiety, and burnout in medical students and to expand the existing literature. Considering the results of this study, the introduction of new approaches to reduce nomophobia, anxiety and burnout in students is crucial for the mental health of future physicians.

2. Materials and Methods

2.1. Participants

Preparation class and first-year medical students

studying at the University of Health Sciences Cobanbey School of Medicine in Syria participated in three different questionnaires: (1) investigating the fear of being away from the phone in the University of Health Sciences Cobanbey School of Medicine students ($n = 111$), (2) investigation of anxiety in the University of Health Sciences Cobanbey School of Medicine students ($n = 102$), and (3) investigation of burnout in the University of Health Sciences Cobanbey School of Medicine students with Maslach Burnout Questionnaire and Epworth Sleepiness Questionnaire ($n = 111$). Most of the participants in all questionnaires were male (60.4%, 69.6%, and 65.8%, respectively) and were first-year medical student (56.8%, 52%, and 53.2%, respectively).

The online survey study was conducted from March to May 2022 with the approval of the University of Health Sciences Hamidiye Scientific Research Ethics Committee with registration number 22/169.

The surveys obtained the consent of the participants and was conducted completely anonymously.

2.2 Surveys

There were three surveys in the study: (1) investigation of the fear of being away from the phone in the University of Health Sciences Cobanbey School of Medicine students, (2) investigation of anxiety in the University of Health Sciences Cobanbey School of Medicine students, and (3) investigation of burnout in the University of Health Sciences Cobanbey School of Medicine students with Maslach Burnout Questionnaire and Epworth Sleepiness Questionnaire. Surveys were organized using Google Forms and sent to the participating students via text message.

2.2.1 Nomophobia Survey

This survey was presented to the preparation and first-year medical students from University of Health Sciences Cobanbey School of Medicine ($n = 111$) under the name of "Investigating the fear of being away from the phone in the University of Health Sciences Cobanbey School of Medicine students". Demographic

questions in this survey were gender and year of medical school (Table 1). The survey included 23 questions along with demographic questions. Students were asked how often they experienced the situations stated in the questions when they could not access their smartphones with questions including “I feel uncomfortable when I am constantly unable to access information on my smartphone.” and “I worry that I am not able to contact with my family and friends when I do not have my smartphone with me.” in the survey. Responses to these questions were “sometimes”, “most of time”, “generally”, “always”, and “never”.

2.2.2 Anxiety Survey

This survey was presented to the preparation and first-year medical students from University of Health Sciences Cobanbey School of Medicine (*n* = 102) under the name of “Investigation of anxiety in the University of Health Sciences Cobanbey School of Medicine students”. Demographic questions in this survey were age, gender, and year of medical school (Table 2). The survey included 43 questions along with

demographic questions. The students were asked questions including “I am anxious right now.” and “I am worried right now.” that evaluated the anxiety status of the students, with the answers “never”, “quite”, “too much”, and “completely” in the survey. As well as these questions, questions including “I am currently calm.”, “I am generally happy.”, and “I have self-confidence.”, that determine the mood of the participants, were also included in the survey.

2.2.3 Burnout Survey

This survey was presented to the preparation and first-year medical students from University of Health Sciences Cobanbey School of Medicine (*n* = 111) under the name of “Investigation of burnout in the University of Health Sciences Cobanbey School of Medicine students with Maslach Burnout Questionnaire and Epworth Sleepiness Questionnaire”. Demographic questions in this survey were gender and year of medical school (Table 3). The survey included 25 questions along with demographic questions. The burnout of the participating students with questions including

Table 1 Characteristics of the nomophobia survey respondents.

	Percentage (%)	Number
Sex		
Male	60.4	67
Female	39.6	44
Year of medical school		
1st year	56.8	63
Prep	43.2	48

Table 2 Characteristics of the anxiety survey respondents.

	Percentage (%)	Number
Age		
17-19	42.1	43
20-22	41.1	42
23-26	12.7	13
27-30	3.9	4
Sex		
Male	69.6	71
Female	30.4	31
Year of medical school		
1st year	52	53
Prep	48	49

Table 3 Characteristics of the burnout survey respondents.

	Percentage (%)	Number
Sex		
Male	65.8	73
Female	34.2	38
Year of medical school		
1st year	53.2	59
Prep	46.2	52

“I feel exhausted at the end of a day at school.” and “I feel emotionally exhausted from my lessons.” was investigated. The responses “sometimes”, “most of time”, “generally”, “always”, and “never” were used to evaluate burnout among the students. Along with these questions, questions including “I take a nap while sitting in a public place.” and “I take a nap while sitting and reading something.” were asked to the students with the answers “never”, “rarely”, “sometimes”, and “probably”.

2.3 Statistical Analysis

Analysis of the data was carried out using the SPSS (Statistical Package for Social Sciences) 25 package program. Frequency and percentage values are presented for qualitative variables. Chi-square test was used for comparisons between independent qualitative variables. Type I error rate was accepted as 0.05 in the study.

3. Results

3.1 Nomophobia

Of the students who participated in the “Investigating the fear of being away from the phone in the University of Health Sciences Cobanbey School of Medicine students” questionnaire ($n = 111$), 60.4% were male ($n = 67$) and 39.6% were female ($n = 44$). All students were studying at the University of Health Sciences Cobanbey School of Medicine. Of these students, 56.8% were first year ($n = 63$), and 43.2% were preparation class students ($n = 48$) (Table 1).

In our study, 39.6% of the students who participated in the nomophobia survey ($n = 44$) stated that they sometimes felt uncomfortable when they were

constantly unable to access information on their smartphones (Fig. 1). The students were asked if they felt uncomfortable because they could not receive incoming calls and messages when they could not reach their smartphones; 40.5% of the students stated that they were sometimes uncomfortable ($n = 45$), 18.9% were generally uncomfortable ($n = 21$), and 21.6% were never felt uncomfortable ($n = 24$).

The students were asked if they felt uncomfortable when they could not stay up to date on social media and various online networks without their smartphones. In response to this question, 41.4% of the students stated that they sometimes felt uncomfortable ($n = 46$), and 27% stated that they never feel uncomfortable ($n = 30$) (Fig. 1).

3.2 Anxiety

Of the students ($n = 102$) who participated in the “Investigation of anxiety in the University of Health Sciences Cobanbey School of Medicine students” questionnaire, 69.6% were male ($n = 71$), 30.4% were female ($n = 31$). All students were studying at the University of Health Sciences Cobanbey School of Medicine. Of these students, 52% were first year ($n = 53$) and 48% were preparation class students ($n = 49$) (Table 2).

Students participating in the anxiety survey were asked if they were currently worried: 45.1% of the students stated that they were quite worried ($n = 46$). Among the students participating in the study, the number of those who were not worried at all (24.5%, $n = 25$) and those who were too much worried (24.5%, $n = 25$) was equal.

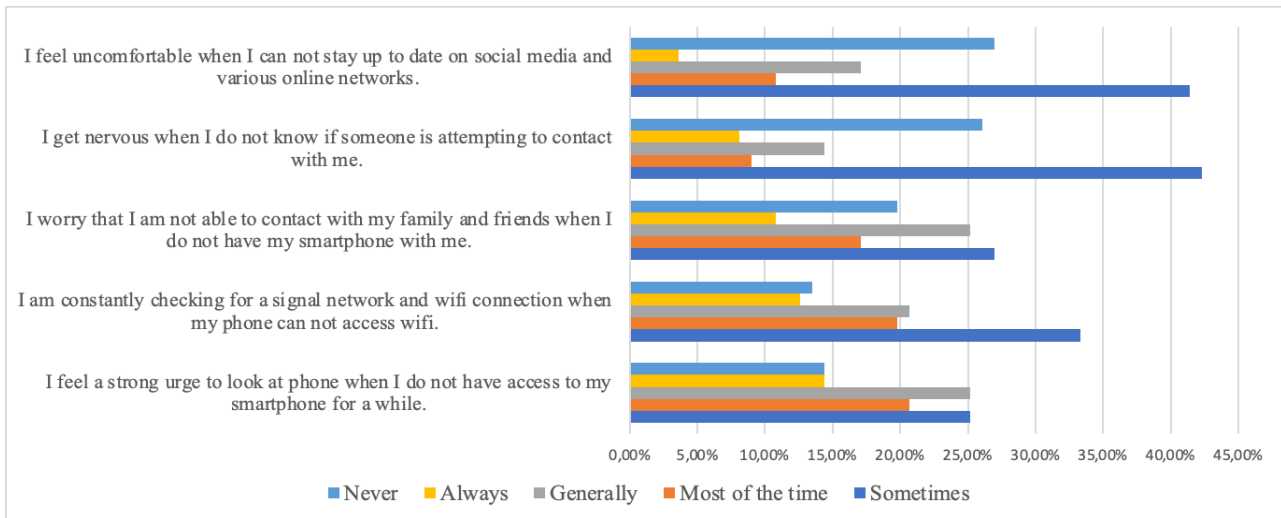


Fig. 1 Questions and answers about nomophobia in medical students.

Most of the students sometimes get nervous because they do not know if someone is trying to reach them when their phone is not with them. Percentages are included in the chart.

The students were asked if they worried about insignificant things. Among the participating students, 42.2% said they worried sometimes ($n = 43$), 25.5% ($n = 26$) stated that they worried most of the time, 25.5% of the students ($n = 26$) said that they never worried about insignificant things (Fig. 2). The participating students were asked whether they were satisfied with the situation at the time of the survey: 37.3% of the students said they were quite satisfied ($n = 38$), 29.4% of the students stated that they were too much satisfied with their situation ($n = 30$) (Fig. 3).

3.3 Burnout

Of the students ($n = 111$) who participated in the

“Investigation of burnout in the University of Health Sciences Cobanbey School of Medicine students with Maslach Burnout Questionnaire and Epworth Sleepiness Questionnaire” questionnaire, 65.8% were male ($n = 73$), 34.2% were female ($n = 38$). All students were studying at the University of Health Sciences Cobanbey School of Medicine. Of these students, 53.2% were first year ($n = 59$) and 46.8% were preparation class students ($n = 52$) (Table 3).

Students were asked if they felt exhausted at the end of a day at school: 35.1% of the students stated that they sometimes felt exhausted ($n = 39$), 21.6% most of the time ($n = 24$), 19.8% of them always ($n = 22$) (Fig. 4); 45.1% of the students who participated in the survey

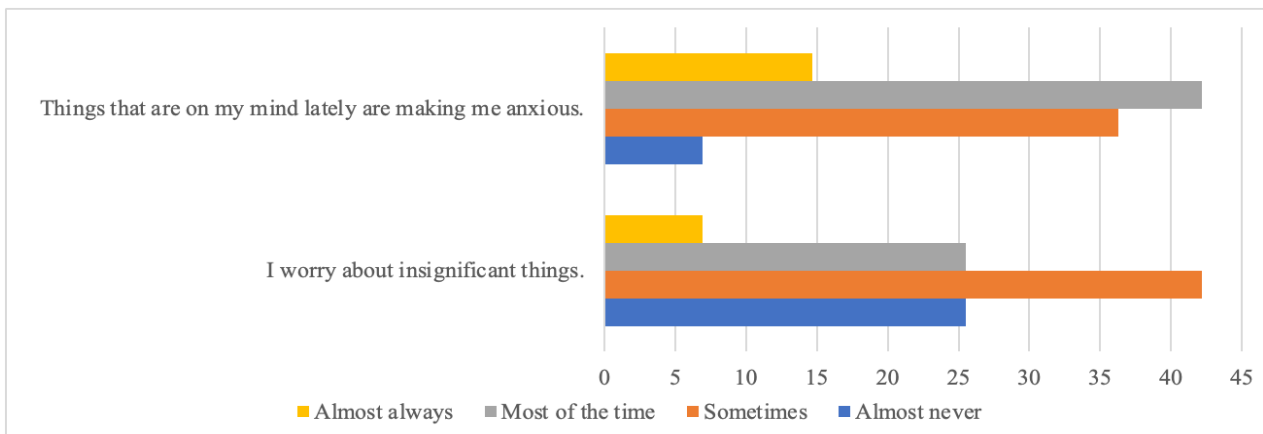


Fig. 2 Questions and answers about anxiety in medical students.

Most of the medical students sometimes worry about insignificant things. Percentages are included in the chart.

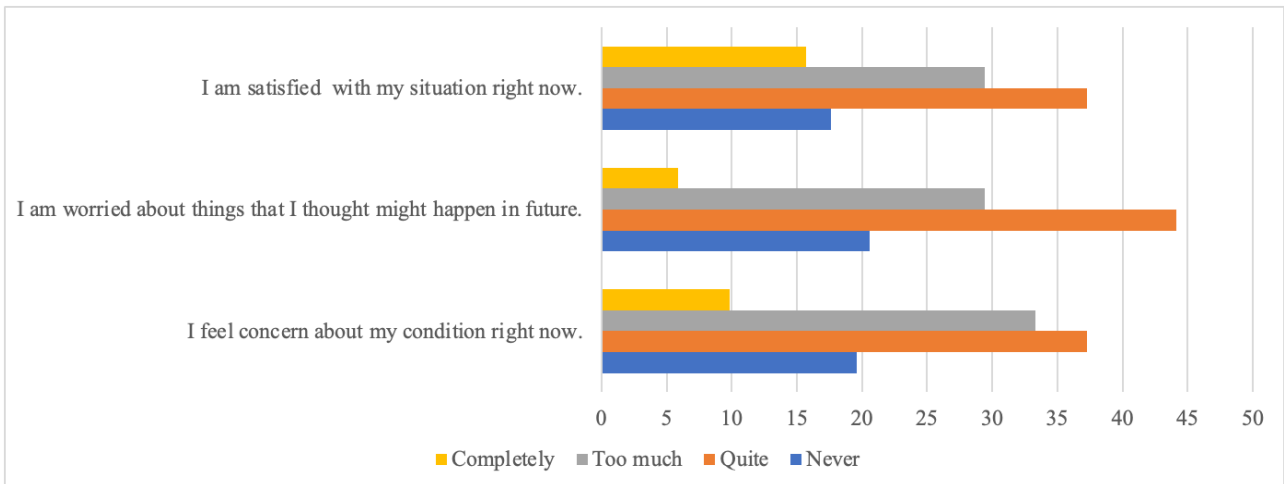


Fig. 3 Questions and answers about anxiety in medical students.

Most of the students are quite worried about things that they thought might happen in future. Percentages are included in the chart.

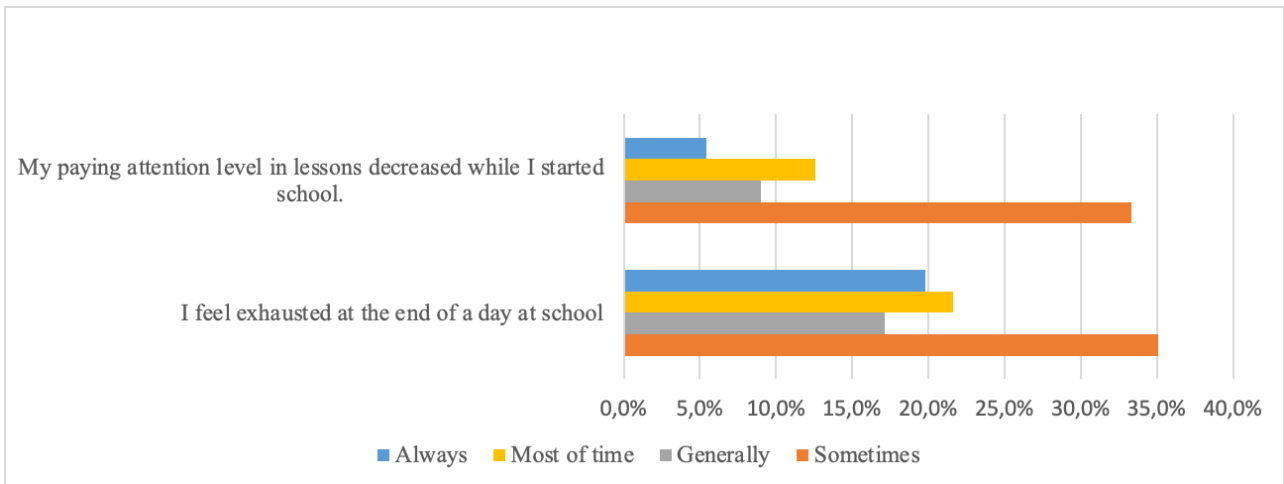


Fig. 4 Questions and answers about burnout in medical students.

Most medical students sometimes feel exhausted at the end of a day at school.

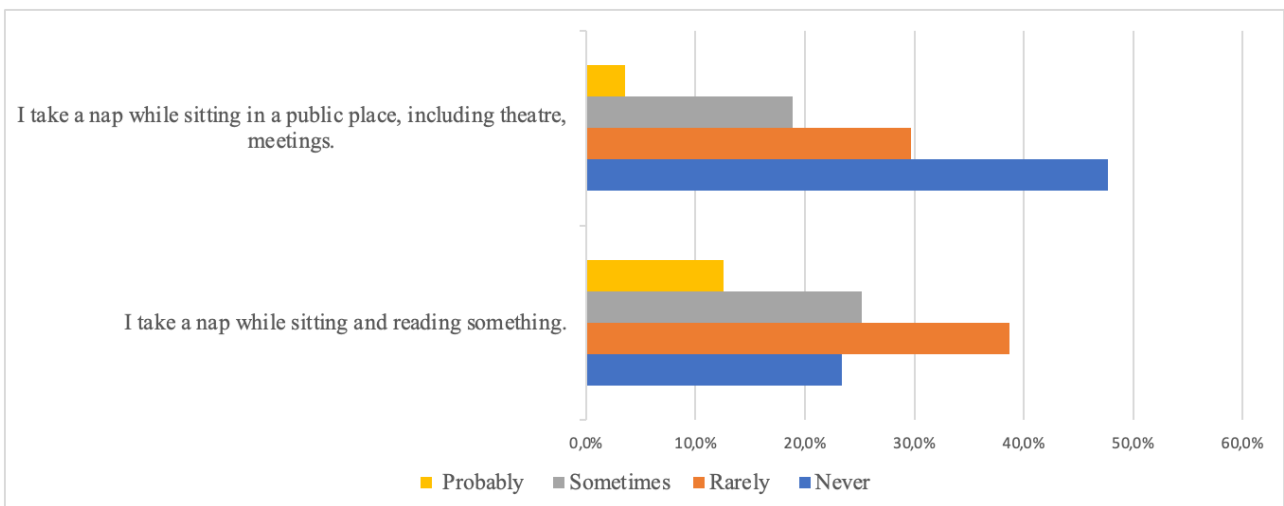


Fig. 5 Questions and answers about burnout in medical students.

Most medical students never take a nap while sitting in a public place.

sometimes ($n = 50$), 20.7% generally ($n = 23$) felt that they were exhausted in the lessons.

4. Discussion

4.1 Nomophobia

In this survey study, we obtained the prevalence of nomophobia among medical students. According to the results, only 8.1% of the students who participated in the survey stated that they never felt uncomfortable when they were constantly unable to access information on their smartphone; 39.6% of the students said that they sometimes felt uncomfortable (Fig. 6). A similar study conducted in Nepal evaluated the prevalence of nomophobia in newly admitted medical school students. In this study, approximately 36.8% of medical students were found to have phone addiction [13]. In order to increase the academic success of medical students, information can be given to students to regulate their smartphone use. Examination of nomophobia and related factors in medical students in Peru stated that

25.7% of the students showed moderate nomophobia while 7.4% was severe [10]. Early interventions aimed at keeping the nomophobia levels under control can contribute to protecting the mental health of medical students. In our study, 25.2% of the students reported that they were uncomfortable when they did not get the information they wanted on the phone. This may be a sign of nomophobia in medical students. Accordingly, studies can be conducted to reduce the prevalence of nomophobia in medical students. The effect of nomophobia on nursing students showed that nomophobia was prevalent among the students due to cell phone usage [14]. The increase in the prevalence of nomophobia among students may affect the lecture performance of students. In our study, about 40.5% of medical school students as “sometimes”, about 19% as “generally” and about 15% as “most of the time” felt uncomfortable because they cannot receive incoming calls and messages which can indicate nomophobia in students. The widespread use of smartphones by the students in our study may

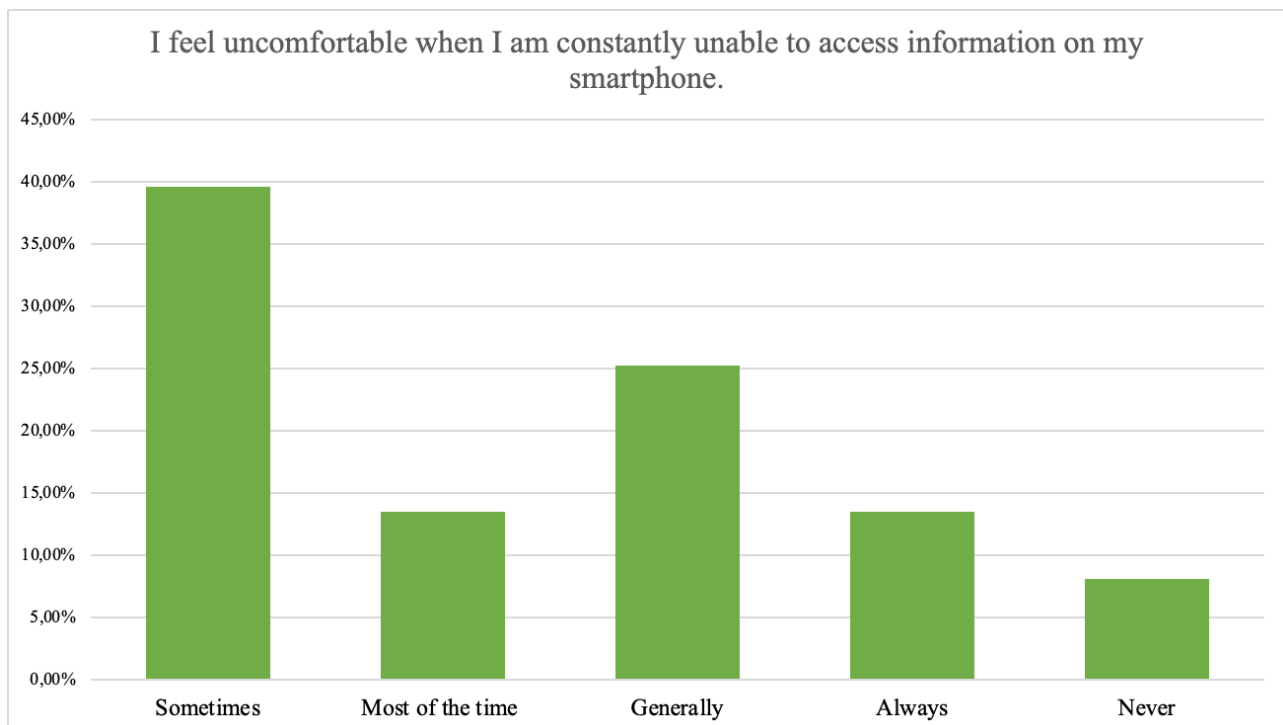


Fig. 6 How often do medical students feel uncomfortable when they are constantly unable to access information on their smartphone?

Most of the students sometimes feel uncomfortable when they are constantly unable to access information on their smartphone.

pose a risk to the mental health of the students. The effect of mobile phone addiction on medical students in China examined that phone addiction was prevalent among medical students and this addiction had negative consequences on achievements of students [15]. Guidance can be offered to reduce mobile phone addiction among medical students. In our study, 25.2% of students felt a strong urge to look at smartphones sometimes and equally often when they did not have access to their smartphone for a while; 20.7% of the students stated that they often felt a strong urge to look at their smartphones when they did not have access to their smartphone for a while (Fig. 1). Based on these results, professional support of medical students against nomophobia may increase.

4.2 Anxiety

Our study aimed to evaluate anxiety levels of medical students. Most of the students (44.1%) who participated in the study stated that they were sometimes anxious while 29.4% said they experienced severe anxiety (Fig. 7). In addition, the proportions of students who stated that they were very worried (27.5%) and that they were not worried at all (24.5%) were evenly distributed. Anxiety level rates of students are an indicator of inadequate medical education curriculum. Considering that medical students are the doctors of the future, these regulations are crucial for patients to receive high quality treatment. A similar survey study conducted among medical students in Egypt showed that rate of anxiety determined as 73% seems quite high [16]. Students studying medicine may experience anxiety symptoms frequently. The variation of anxiety levels among medical students from different semesters was investigated and the emotional exhaustion scores of the senior medical students were higher compared to the emotional exhaustion scores of the lower grade students [17]. There may be a direct correlation between the high academic achievement rates of medical school students and their low level of personal distress. Similar to the proportion in our

investigation, 28.7% of medical students showed anxiety in a cross-sectional study conducted in Dubai [18]. Planning of new studies to investigate the cause of anxiety in medical students may be useful for eliminating the anxiety in medical students. In a multicenter study, the causes of anxiety in medical students investigated that anxiety level was 81.7%, while the trait anxiety rate was 85.6% [19]. The reasons that increase anxiety in medical students could be the locations of the schools or the educational curriculum of the schools.

Similar to our survey study, a study among first-year medical students in Nigeria showed that incidence of anxiety was quite high [20]. Interventions to improve the mental health of medical students can be planned to lower this rate. According to our research data at Cobanbey Medical Faculty in Syria, half of medical students (42.2%) felt they were worried about unimportant matters sometimes, some of participants (25.5%) most of the time, and a small number (6.9%) almost always felt they thought about insignificant things. Reversely, 26% of students never thought they were worried about unimportant things (Fig. 2). We observe that the rate of students who stated that they were anxious was higher in our study when evaluating the results collectively.

In a survey study, the life satisfaction of graduate medical students was investigated and it was found that depression and anxiety of graduate medical students significantly challenged life satisfaction [21]. This high level of depression and anxiety in medical students negatively affects life satisfaction of medical students. In our study, approximately 37% of the students stated that they were partially satisfied, while 17% said that they never were satisfied. This high level of anxiety and low satisfaction in medical students may be due to the low support levels of students in psychology subjects. Reducing the anxiety levels of medical students can help increase their life satisfaction standards and affect their lives positively.

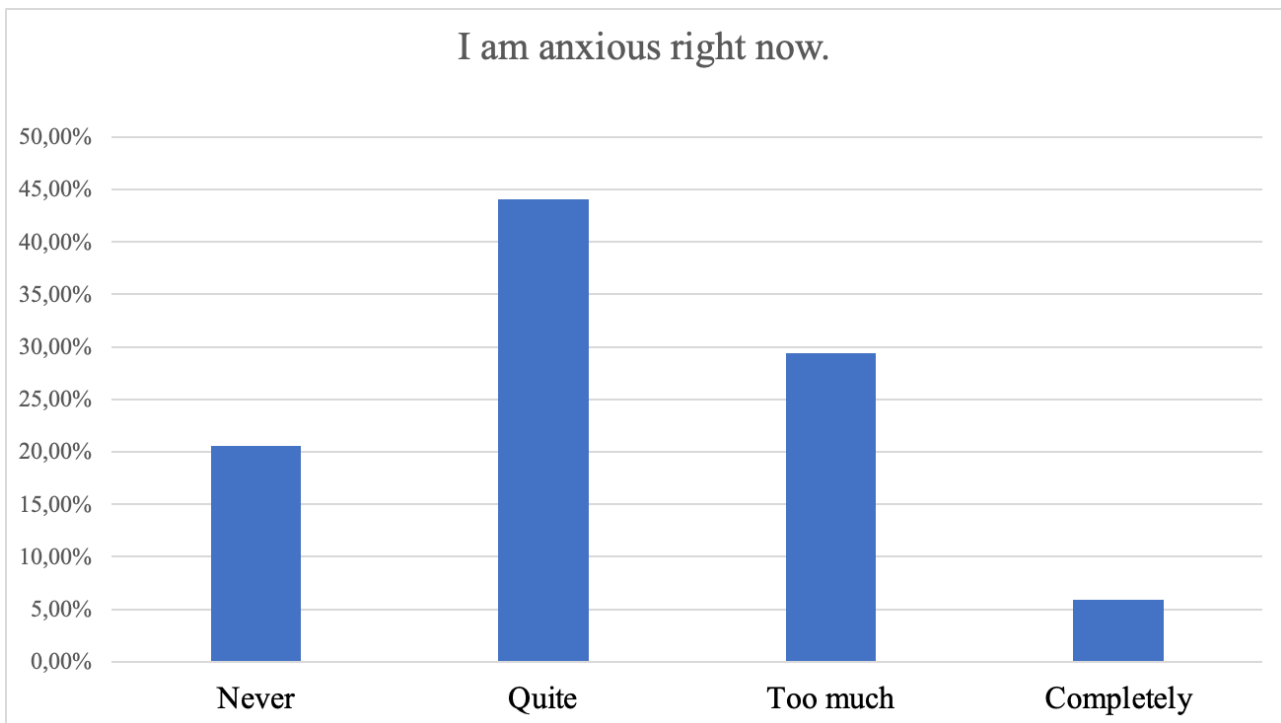


Fig. 7 Anxiety in medical students. Most students were quite anxious.

4.3 Burnout

In this survey study, we determined burnout in medical students. In our study, about 45% of medical school students feel emotionally exhausted from their lessons sometimes, about 21% generally, about 12% most of the time, and about 11% always (Fig. 8). The students rate of exhaustion from medical lessons was quite high. One study investigated learning burnout in medical students to observe the role of social support. The learning burnout of the students participating in this study was approximately 46% [22]. Focusing on social support can reduce student burnout. A study showed the temporal variation of burnout in medical students. The emotional exhaustion rate of the medical students participating in this study was 45% at the end of the first year [23]. Burnout may develop in medical faculty students during the education process. Burnout among medical students in Kathmandu was investigated in a cross-sectional study. According to the results of the study, the prevalence of burnout in medical students was found to be 65.9% [24].

Considering that medical students will be future physicians, protecting the mental health of these students is crucial. The prevalence of burnout in students during the first years of medical school was investigated in a study. In this study, 48.7% of the students stated that they experienced a decrease in academic efficiency and 70.6% experienced emotional exhaustion [25]. First-year medical students may need support to improve their performance. According to the results of our study, about 37% of the medical students paying attention level in lessons decrease while they started school sometimes, about 12% most of the time, about 8% generally, and about 7% always (Fig. 5). The prevalence of burnout and depression among medical students was investigated in a study that was conducted in Ireland. The burnout rate of the medical students after working in the clinic was approximately 35%, while this rate was approximately 26% before working in the clinic. In this study, the prevalence of high-level depressive symptoms was approximately 66% [26]. The high rate of negative moods observed in medical students necessitates a review of the current education.

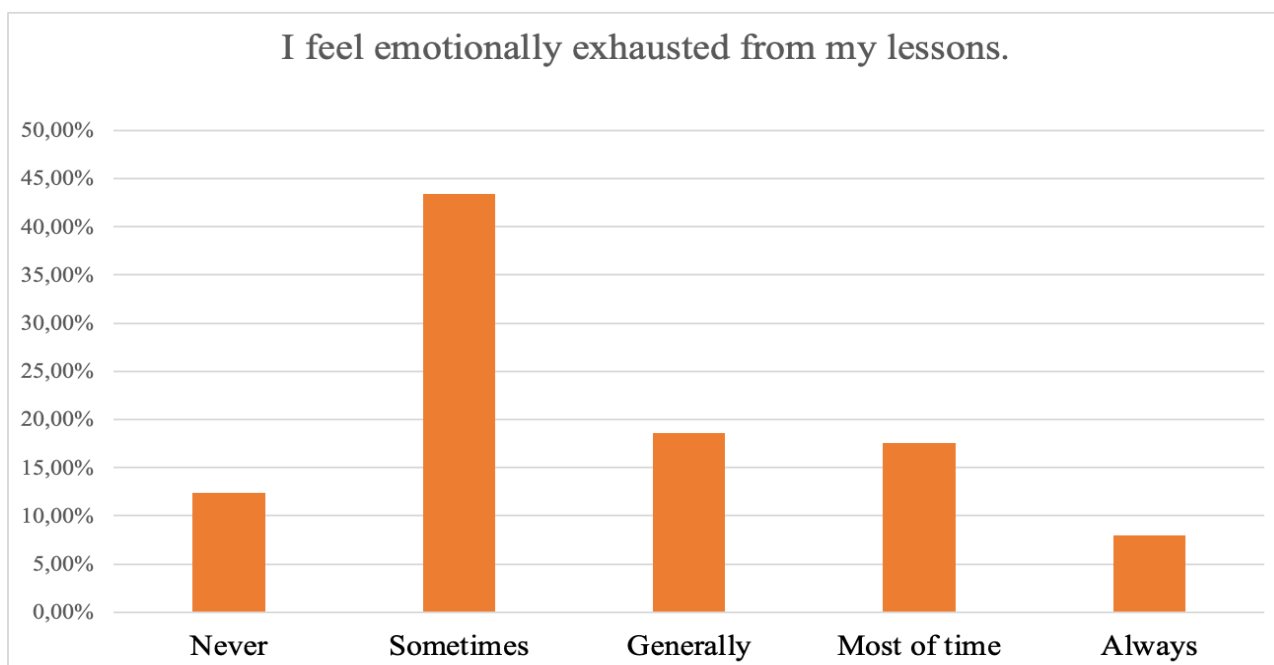


Fig. 8 Medical students who feel emotionally exhausted from their lessons.

Most of the students sometimes feel emotionally exhausted from their lessons.

In our study, as a result of a question about negative moods, at the end of a day at school, approximately 35% of the students stated that they feel exhausted sometimes, and approximately 21% most of the time (Fig. 5). The rate of feeling burnt out at the beginning of the education process of medical students indicates that the feeling of burnout can progress throughout the education process among medical students.

5. Limitations

There were limitations of our study. Since our study was conducted only in the University of Health Sciences Syria Cobanbey School of Medicine, a generalization cannot be made for all medical students in the world. In addition, the fact that nearly half of the students participating in our study were preparation class students and these students were not directly confronted with the medical curriculum may have been insufficient to determine parameters including burnout in medical students.

6. Conclusion

In conclusion, we determined the predispositions of

medical students to nomophobia, anxiety, and burnout. Our study showed that negative moods including anxiety and burnout are quite high among medical students in Syria who have been living in difficult conditions in recent years as well as difficulty of medical education. Elimination of these negative moods is crucial for the mental health of medical students. Social support can be provided to protect the mental health of medical students. Considering that medical students are the future physicians, improvements can be made in the educational curriculum.

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Conflicts of Interest

Authors have no conflicts of interest.

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