Research Article

Prevalence of Mental Distress and Associated Factors among Samara University Students, Northeast Ethiopia

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Background. Empirical findings have indicated that higher institution students experience a higher prevalence of mental distress compared to the general population. Understanding the magnitude and associated factors of mental distress in university students would be helpful to practitioners and policymakers in Ethiopia. The aim of the present study was to examine the prevalence and associated factors of mental distress among Samara university students, Northeast Ethiopia. *Methods.* Institution based cross-sectional study design was conducted in Samara university from December to June 2018. A simple random sampling technique was employed to select the study participants. Self-Reporting Questionnaire-20 (SRQ-20) was used to measure the mental distress of students. Multivariable logistic regression modeling was used to examine the association between sociodemographic and psychosocial factors with the mental distress of students. *Results.* The proportion of students with mental distress were found to be 53.2% (95% confidence interval [CI]: 48.0%, 58.0%). Female students were more likely to be mentally distressed compared to male students (adjusted odds ratio [AOR]: 4.66; 95% CI: 2.81, 7.71). Ever khat use (AOR: 3.09; 95% CI: 1.74, 5.50) and poor sleep quality (AOR: 2.23; 95% CI: 1.12, 3.66) were significantly associated with mental distress of students. *Conclusion.* Our study indicates that the proportion of mental distress was found to be higher among Samara university students as compared to previously published studies in Ethiopia. Female students, ever khat users and those with poor sleep quality were associated with mental distress. There is a need for evidence-based interventional strategies such as self-help measures, sleep hygiene and peer support, as well as professional mental health services as part of student health services that would be helpful to reduce the burden of mental distress of students.

1. Background

Mental distress is a syndrome characterized by a clinically significant disturbance in cognition, emotion regulation, or behaviour accompanied by psychological, biological, or developmental processes dysfunction [1, 2]. Empirical findings have indicated that students experience a higher prevalence of mental disorders than the general population [3]. This is, even more, higher among students of higher institutions. There are several possible explanations for the increased mental distress of university students. First, students have to make significant adjustments to college life. Second, because of the pressure of studies, there is strain placed on interpersonal relationships. Third, housing arrangements and changes in lifestyle also contribute to the stress experienced by college/university students.

Furthermore, students in college experience stress related to academic requirements, support systems, and ineffective coping mechanisms [4, 5].

Mental distress can lead to temporary effects as well as consequences that affect the individual in the long term. Common consequence of college students mental distress are a feeling of being overwhelmed [4, 5]; inability to concentrate and to focus the attention on a certain task which can result in being unable to answer questions in an exam [4, 6, 7], and finally may result in withdrawal from their college or university. In the long term, if mental distress is perceived as negative and excessive, it can result in physical and psychological impairment [8]. Studies showed that excessive stress is associated with both sleep problems and substance use, and mental health symptoms in young adolescents [6, 7].

In Ethiopia, however, despite more than one-third of the university students affected by mental distress at least once during their campus life, mental health has been one of the most disadvantaged health programs in higher institutions, both in terms of facilities and trained manpower [9–12]. To institutionalize policies and strategies for intervention and control of the mental distress of students, understanding the magnitude and predictors of mental distress in university students would be helpful to practitioners and policymakers in Ethiopia. Moreover, Samara university is located in one of the hottest areas in the country which might exacerbate the living condition of students. Therefore, the aim of this study was to examine the prevalence and associated factors of mental distress among Samara university students in Ethiopia.

2. Methods

2.1. Study Design and Study Setting. Institution based cross-sectional study design was used to assess the prevalence and associated factors of mental distress among Samara University students from February to March 2018. The study was conducted in Samara university, which is found at Semera-Logia town of Afar National and Regional State (ANRS). Semera-Logia town of Afar National and Regional State (ANRS) is located 583 km away from the capital of Ethiopia, Addis Ababa. In the 2017/2018 academic year, a total of 8,777 students were enrolled in regular, extension, the summer and post-graduate programs [13].

2.2. Source and Study Population. All regular Samara university students who were registered during the 2017/2018 academic year were the source population. Students selected by simple random sampling technique were the study population. Students who are unable to see and were out of the campus during the data collection period were excluded from the study.

2.3. Sample Size Determination and Sampling Procedure. A single population proportion formula assuming 95% confidence interval (CI), 5% margin of error, and 49.1% proportion of mental distress [14] was used to calculate the sample size. Considering a non-response rate of 10%, the final sample size of the study was found to be 422. After we select one department from each college, we used simple random sampling technique (table of random number) to select students from each department.

2.4. Data Collection. The data were collected using a self-administered questionnaire with four parts. First, a socio-demographic characteristic of students was asked. Second, the Self-Reporting Questionnaire (SRQ_{20}) was used to measure the prevalence of mental distress. SRQ_{20} is originally developed by the World Health Organization (WHO) [15] designed to indicate common mental disorders or mental distress. The tool was validated in low and middle-income countries (including Ethiopia) [15]. In this study, students who are found to have eight or more symptoms of SRQ_{20} questions in the last four weeks were considered as having mental distress. This cutoff point was used based on a validation

study of the questionnaire which gave the highest sensitivity and specificity [9]. Third, ever and current substance use (i.e. Alcohol, khat, and cigarette) were asked. The last part of the questionnaire measured sleep quality and patterns of students using the Pittsburgh Sleep Quality Index. The PSQI is an effective instrument used to measure the quality and patterns of sleep in adults. It differentiates "poor" from "good" sleep by measuring seven areas (components) : subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction over the last month [10].

One Psychologist as a supervisor and three diploma nurses as data collector participated in the data collection process. The distribution of the questionnaire was conducted to students while they were in the classroom.

2.5. Data Quality Control. Training was provided for the data collection team on the objective and overall data collection procedures on a day before the pretest. The pretest was also conducted on 10% of students of Samara university from non-selected departments. The daily meeting was conducted among the principal investigator, supervisor and data collectors to check completeness and clarity of the questionnaire and to resolve unanticipated problems.

2.6. Operational Definitions. *Mental distress:* Having eight or more symptoms of the 20 SRQ_{20} questions in the last four weeks. *Current substance use:* a history of substance use (for non-medical purposes) in the last four weeks. *Ever substance use:* using the specified substance (for non-medical purposes) even once in their lifetime. Students who scored >5 for PSQI were categorized under *poor sleep quality* otherwise they were catagorized under *good sleep quality* [10].

2.7. Data Processing and Analysis. After checking the consistency and completeness of the questionnaires, the data were entered into Epi info version 7.1.1.14, and then exported to SPSS version 20 for further analysis. Frequency, mean, and standard deviation were employed for descriptive analysis. Multivariable logistic regression modeling was used to examine the relationship between sociodemographic and psychosocial factors with the mental distress of students. Adjusted Odds Ratio with a 95% confidence interval was used as a measure of association. A *P*-value of <0.05 was used to declare statistical significance.

2.8. Ethical Consideration. Ethical clearance was obtained from the Samara university College of Medical and Health Sciences Ethical Review Committee. Voluntary informed consent was also obtained from each study participant after the purpose and importance of the study was communicated. The name of the participant and any personal identifier were omitted from the questionnaire to ensure confidentiality.

3. Results

3.1. Socio-Demographic and Academic Characteristics. Out of 404 respondents, 230 (56.9%) of them were male, and 255 (63.1%) of them were less than or equal to 21 years of age.

The majority of the students were single in their marital status [380 (94.1%)], and 219 (54.2%) of them were originated from urban areas. A family history of mental illness was reported in 99 (24.5%) of students. About 97 (24.0%) of them were from the College of Engineering and Technology and 152 (37.6%) of them were second-year students (Table 1).

3.2. Psycho-Social Characteristics. The current use of khat, alcohol, and tobacco was reported in 64 (15.4%), 86 (21.3%) and 16 (4%) of students (Table 2). The majority (77.2%) of them reported the sleeping duration of fewer than six hours. One hundred sixty-nine (41.8%) of students reported sleep latency and day time dysfunction of less than once in a week. Sleep medication was reported by 45 (11.1%) of students. Overall, 319 (79%) of students were classified as having poor sleep quality (total PSQI score >5) (Table 2).

3.3. Prevalence of Mental Distress. Prevalence of mental distress among students was found to be 53.2% [95% confidence interval [CI]: 0.48, 0.58]. About 58.1% and 41.7% of female and male students had mental distress respectively.

3.4. Factors Associated with Mental Distress. In multivariable logistic regression, female sex, ever use of khat, and sleep quality were associated with a higher odds of mental distress among students. The *P*-value of the Hosmer and Lemshow model fitness test was 0.93. The odds of mental distress of female students was significantly higher (adjusted odds ratio [AOR]: 4.67; 95% CI: 2.81, 7.71) as compared to male students. Students who reported ever use of khat had higher odds (AOR: 3.09; 95% CI: 1.74, 5.50) of mental distress compared to their counterparts. The prevalence of mental distress was significantly higher (AOR: 2.02; 95% CI: 1.12, 3.66) among students with poor sleep quality than those who had poor sleep quality (Table 3).

4. Discussion

The present study investigated the prevalence and associated factors of mental distress among Samara University students. Our findings showed that the prevalence of mental distress among Samara University students was found to be 53.2%, indicating the higher magnitude of mental distress among higher education students in Ethiopia. The proportion of mental distress found to be higher than previously published studies conducted among university students from Adama, Gondar, and Hawassa [12, 16, 17]. The possible explanation for the difference with the above studies can be that Samara University is located in one of the hottest areas of the country which increases student's risk of heat exhaustion and heat stress [18]. Additionally, poor infrastructure and lack of recreational facilities either inside or outside of the campus could also probably explain the observed difference in the magnitude of mental distress. The proportion of mental distress was also higher than studies conducted in higher-income countries such as France (25.7%) [19], Norway (22.9%) [20], Iceland (22.5%) [21] and Australia (19.2%) [22]. The findings of this study suggested the need for interventions targeted to reduce the mental distress of Samara University students in Ethiopia.

TABLE 1: Socio-demographic and academic characteristics of Samara university students, Northeast Ethiopia, 2018 (*n* = 404).

Variables	Frequency	Percentage (%)
Sex		
Male	230	56.9
Female	174	43.1
Age		
≤21 years	255	63.1
>21 years	149	36.9
Marital status		
Single	380	94.1
Married	18	4.5
Divorced	6	1.5
Religion		
Orthodox	242	59.9
Muslim	102	25.2
Protestant	51	12.6
Other	9	2.2
Origin of residence		
Rural	219	54.2
Urban	185	45.8
College		
Engineering and technology	97	24.0
Veterinary medicine	55	13.6
Business and economics	51	12.6
Law school	50	12.4
Medical and health sciences	49	12.1
Natural and computational science	41	10.1
Social science and humanity	35	8.7
Dryland agriculture	26	6.4
Year of study		
1st year	98	24.3
2nd year	152	37.6
3rd year	83	20.5
4th year	15	3.7
5th year	46	11.4
6th year	10	2.5
CGPA		
>3.5	76	18.8
3.00–3.49	129	31.9
2.50–2.99	121	30.0
2.00–2.49	77	19.1
<1.99	1	0.2
Family history of mental distress		
Yes	99	24.5
No	305	75.5

CGPA: Cumulative grade point average.

International evidence indicates that the magnitude of mental distress is higher in female students than male students [19, 20]. Consistent with this evidence, our study showed that the odds of mental distress was found to be higher among female students compared to male students.

TABLE 2: Distribution of psychosocial factors in Samara university students, Northeast Ethiopia, 2018 ($n = 404$).

Variables	Frequency ($n = 404$)	Percentage (%)
Sleep duration [mean (+SD) = 5.3(±0.96)]		
Greater than 7 hours	50	12.4
6-7 hours	42	10.4
5-6 hours	181	44.8
<5 hours	131	32.4
Sleep latency		
Not during the past month	51	12.6
Less than once a week	169	41.8
Once or twice a week	143	35.4
Three or more times a week	41	10.1
Day time dysfunction		
Not during the past month	118	29.2
Less than once a week	169	41.8
Once or twice a week	91	22.5
Three or more times a week	26	6.4
Sleep efficiency		
>85%	151	37.4
75–84%	87	21.5
65–74%	92	22.8
<65%	74	18.3
Subjective sleep quality		
Very good	89	22
Fairly good	122	30.2
Fairly bad	144	35.6
Very bad	48	11.9
Sleep disturbance		
Not during the past month	119	29.5
Less than once a week	107	26.5
Once or twice a week	100	24.8
Three or more times a week	78	19.3
Use of sleep medication		
Not during the past month	359	88.9
Less than once a week	25	6.2
Once or twice a week	17	4.2
Three or more times a week	3	0.7
Sleep quality [mean (SD) = 7.91(±3.57)]		
Good sleep quality	85	21
Poor sleep quality	319	79
Ever use of khat [n = 404]		
Yes	112	27.7
No	292	72.3
Current use of khat [n = 112]		
Yes	64	57.1
No	48	42.8
Frequency of khat chewing [n = 64]		
Once in a week	18	28.1
Two-three times in a week	31	48.4
More than three times a week	15	23.4

TABLE 2: Continued.

Variables	Frequency ($n = 404$)	Percentage (%)
Ever drink alcohol		
Yes	154	38.1
No	250	61.9
Currently drinking alcohol		
Yes	86	55.8
No	68	44.2
Frequency of alcohol drinking		
Once in a week	46	53.5
Two-three times in a week	32	37.2
More than three times a week	8	9.3
Ever smoke tobacco products		
Yes	37	9.2
No	367	90.8
Current smoker		
Yes	16	43.2
No	21	56.7

This finding was also supported by previously published studies in Australia [22, 23], France [24], Norway [20] and Turkey [25]. The susceptibility to stressors due to domestic violence and hormonal changes during menstruation could probably explain the higher prevalence of mental distress among female students [26]. Additionally, the structural determinants of mental health such as income and social roles and rank of women may explain the observed relationship between female students and mental distress. There is a need for a public health primary prevention approach and gender-specific interventions that address gender-specific risk factors in Ethiopia.

Researchers have indicated the bi-directional relationships between substance use and common mental disorders of students [27, 28]. Our study also supported this relationship which showed the positive association between ever use of khat and mental distress of students. Similarly, previously published studies in Ethiopia also reported that substance use was associated with increased risk to mental distress of students [12, 29]. This result may be explained by the fact that people may use psychoactive substances as a self-regulation strategy to alleviate the distressful experience [28]. Another possible explanation for the observed association between substance use and mental distress could be that people with substance use and mental disorder may have an overlapping genetic susceptibility to both disorders [30]. The evidence from this study suggests that it is imperative that practitioners and policymakers work collaboratively to establish multi-pronged strategies to reduce the co-occurring substance use and mental distress of students.

The present study demonstrated that students who had poor sleep quality were more likely to experience mental distress as compared to those who had good sleep quality. This finding was supported by similar studies conducted among university students [31–33]. The relationship between poor sleep quality and mental distress can be explained by that students with sleep disturbances are more likely to complain a

TABLE 3: Factors associated with mental distress of Samara university Students, Northeast Ethiopia, 2018 ($n = 404$).

Variable	Mental distress		ORs with 95% CI	
	Yes	No	Crude	Adjusted
Sex				
Male	90	140	1.00	1.00
Female	125	49	3.97 (2.6, 6.06)	**4.66 (2.81, 7.71)**
Year of study				
1st year	80	18	7.16 (3.91, 13.12)	4.28 (0.85, 21.466)
2nd year	76	76	1.61 (1.02, 2.54)	0.78 (0.17, 3.65)
≥3rd year	59	95	1.00	1.00
Family history of mental illness				
Yes	65	34	1.98 (1.23, 3.17)	1.69 (0.97, 2.96)
No	150	155	1.00	1.00
Ever used khat				
Yes	70	41	1.74 (1.11, 2.73)	**3.09 (1.74, 5.5)**
No	145	148	1.00	1.00
Ever used alcohol				
Yes	73	81	0.69 (0.58, 1.03)	0.9 (0.55, 1.47)
No	142	108	1.00	1.00
Sleep quality and quantity				
Good sleep quality	32	53	1.00	1.00
Poor sleep quality	183	136	2.23 (1.36, 3.66)	**2.02 (1.12, 3.66)**

ORs = Odds ratio. The bold values indicate statistical significance.

high level of stress, which might, in turn, be changed to mental distress [34]. There are, however, other possible explanations. The sleeping disturbance can be either a cause or a symptom of mental distress or simply co-morbidity [32]. We recommend high-quality longitudinal studies that might be helpful to investigate the relationship between mental distress and sleep quality of university students.

This study has some important limitations that should be kept in mind when interpreting the results. First, the cross-sectional nature of the study design may not allow confirming a definitive cause and effect relationship. Second, it is important to bear in mind that SRQ_{20} is a screening instrument in measuring the mental distress of students. Nevertheless, the findings of this study can be used as a first step to understand the current situation of mental distress among university students. Third, the scope of this study was limited in terms of measuring the distressful experience of students. We recommend for qualitative investigations that explore the experience and perception of students towards the distressful experience. Last, the study may be prone to recall bias since the data were collected based on self-reported information. Despite the above limitation, the use of a validated standardized instrument can be considered as a potential strength of this study.

5. Conclusion

The result of the present study shows that more than half of Samara university students were mentally distressed. This proportion was higher as compared to similar studies conducted in Adama, Gondar and Hawassa university students. Being female in sex, ever use of khat and poor sleep quality were independent predictors of student's mental distress. We recommended that students mental distress needs due attention and remedial action from both government and non-governmental organizations and any program aimed at preventing mental distress of students. For example, evidence-based interventional strategies such as self-help measures, sleep hygiene, and peer support, as well as professional mental health services as part of student health services, would be helpful to reduce the burden of mental distress of students.

Abbreviations

ANRS: Afar national and regional state
AOR: Adjusted odds ratio
CI: Confidence interval
CGPA: Cumulative grade point average
PSQI: Pittsburgh sleep quality index
SRQ: Self-reporting questionnaire
WHO: World Health Organization.

Data Availability

The data set will not be shared in order to protect the participants' identities.

Ethical Approval

The study was reviewed and approved by the Ethical review committee of Samara university, College of Medical and Health Science. All participants were pre-informed of the aim of the study and their full right to withdraw or refuse to participate before their verbal consent was obtained.

Conflicts of Interest

The authors declared no conflicts of interest.

Authors' Contributions

Robel Tesfaye Kelemu conceived and designed the study, performed analysis and interpretation of data and drafted the manuscript. Alemayehu Bayray Kahsay and Kedir Y. Ahmed supervised the design, conception, analysis, interpretation of data and made critical comments at each step of research. All authors read and approved the final Manuscript.

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References

[1] Y. G. Haile, S. M. Alemu, and T. D. Habtewold, "Common mental disorder and its association with academic performance among Debre Berhan university students Ethiopia," *International Journal of Mental Health Systems*, vol. 11, no. 1, p. 34, 2017.

[2] V. N. Vahia, "Diagnostic and statistical manual of mental disorders 5: a quick glance," *Indian Journal of Psychiatry*, vol. 55, no. 3, pp. 220–223, 2013.

[3] S. Svanum and Z. B. Zody, "Psychopathology and college grades," *Journal of Counseling Psychology*, vol. 48, no. 1, pp. 72–76, 2001.

[4] B. K. M. Mane Abhay, C. Niranjan Paul, and G. Hiremath Shashidhar, "Differences in perceived stress and its correlates among students in professional courses," *Journal of Clinical and Diagnostic Research*, vol. 5, no. 6, pp. 1228–1233, 2011.

[5] M. P. Tavolacci, J. Ladner, S. Grigioni, L. Richard, H. Villet, and P. Dechelotte, "Prevalence and association of perceived stress, substance use and behavioral addictions: a cross-sectional study among university students in France, 2009–2011," *BMC Public Health*, vol. 13, no. 1, pp. 724–2011, 2013.

[6] A. Sadeh, G. Keinan, and K. Daon, "Effects of stress on sleep: the moderating role of coping style," *Health Psychology*, vol. 23, no. 5, pp. 542–545, 2004.

[7] W. M. Sweileh, I. A. Ali, A. F. Sawalha, A. S. Abu-Taha, S. H. Zyoud, and S. W. Al-Jabi, "Sleep habits and sleep problems among palestinian students," *Child and Adolescent Psychiatry and Mental Health*, vol. 5, no. 1, p. 25, 2011.

[8] S. Cohen, G.W. Evans, D. Stokols, and D. S. Krantz, *Behaviour, Health and Envirnmental Stress*, Plenum Press, New York, NY, USA., 1986.

[9] T. W. Harding, M. V. de Arango, J. Baltazar et al., "Mental disorders in primary health care: a study of their frequency and diagnosis in four developing countries," *Psychological Medicine*, vol. 10, no. 2, pp. 231–241, 1980.

[10] D. J. Buysse, C. F. Reynolds 3rd, T. H. Monk, S. R. Berman, and D. J. Kupfer, "The Pittsburgh sleep quality index: a new instrument for psychiatric practice and research," *Psychiatry Research*, vol. 28, no. 2, pp. 193–213, 1989.

[11] M. Ng, T. Fleming, M. Robinson et al., "Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the global burden of disease study 2013," *The Lancet*, vol. 384, no. 9945, pp. 766–781, 2014.

[12] Y. Dessie, J. Ebrahim, and T. Awoke, "Mental distress among university students in Ethiopia: a cross sectional survey," *Pan African Medical Journal*, vol. 15, p. 95, 2013.

[13] Samara University, 2018. Students. Retrieved from https://www.su.edu.et/node/23.

[14] M. Tesfaye, C. Hanlon, F. Tessema, M. Prince, and A. Alem, "Common mental disorder symptoms among patients with malaria attending primary care in Ethiopia: a cross-sectional survey," *PLoS One*, vol. 9, no. 9, p. e108923, 2014.

[15] WHO, *WHO: A Users Guide to Self Reporting Questionnaire*, WHO, Geneva, 1994.

[16] B. A. Dachew, T. Azale Bisetegn, and R. Berhe Gebremariam, "Prevalence of mental distress and associated factors among undergraduate students of university of Gondar, Northwest Ethiopia: a cross-sectional institutional based study," *PLoS One*, vol. 10, no. 3, p. e0119464, 2015.

[17] A. Tesfaye, "Prevalence and correlates of mental distress among regular undergraduate students of hawassa university: a cross sectional survey," *East African Journal of Public Health*, vol. 6, no. 1, pp. 85–94, 2009.

[18] M. Lõhmus, "Possible biological mechanisms linking mental health and heat – a contemplative review," *International Journal of Environmental Research and Public Health*, vol. 15, no. 7, p. 1515, 2018.

[19] P. Verger, J. B. Combes, V. Kovess-Masfety et al., "Psychological distress in first year university students: socioeconomic and academic stressors, mastery and social support in young men and women," *Social Psychiatry and Psychiatric Epidemiology*, vol. 44, no. 8, pp. 643–650, 2009.

[20] P. Nerdrum, T. Rustøen, and M. H. Rønnestad, "Student psychological distress: a psychometric study of 1750 Norwegian 1st-year undergraduate students," *Scandinavian Journal of Educational Research*, vol. 50, no. 1, pp. 95–109, 2006.

[21] J. Bernhardsdottir and R. Vilhjalmsson, "Psychological distress among university female students and their need for mental health services," *Journal of Psychiatric and Mental Health Nursing*, vol. 20, no. 8, pp. 672–678, 2013.

[22] H. M. Stallman, "Psychological distress in university students: a comparison with general population data," *Australian Psychologist*, vol. 45, no. 4, pp. 249–257, 2010.

[23] C. M. Leahy, R. F. Peterson, I. G. Wilson, J. W. Newbury, A. L. Tonkin, and D. Turnbull, "Distress levels and self-reported treatment rates for medicine, law, psychology and mechanical engineering tertiary students: cross-sectional study," *Australian & New Zealand Journal of Psychiatry*, vol. 44, no. 7, pp. 608–615, 2010.

[24] P. Verger, V. Guagliardo, F. Gilbert, F. Rouillon, and V. Kovess-Masfety, "Psychiatric disorders in students in six french universities: 12-month prevalence, comorbidity, impairment and help-seeking," *Social Psychiatry and Psychiatric Epidemiology*, vol. 45, no. 2, pp. 189–199, 2010.

[25] N. Bayram and N. Bilgel, "The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students," *Social Psychiatry and Psychiatric Epidemiology*, vol. 43, no. 8, pp. 667–672, 2008.

[26] M. D. Pagel, W. W. Erdly, and J. Becker, "Social networks: we get by with (and in spite of) a little help from our friends," *Journal of Personality and Social Psychology*, vol. 53, no. 4, pp. 793–804, 1987.

[27] P. F. Buckley, "Dual diagnosis of substance abuse and severe mental illness: the scope of the problem," *Journal of Dual Diagnosis*, vol. 3, no. 2, pp. 59–62, 2007.

[28] L. L. Smith, F. Yan, M. Charles et al., "Exploring the link between substance use and mental health status: what can we learn from the self-medication theory?," *Journal of Health Care for the Poor and Underserved*, vol. 28, no. 2S, pp. 113–131, 2017.

[29] T. Damena, A. Mossie, and M. Tesfaye, "Khat chewing and mental distress: a community based study, in Jimma city, Southwestern Ethiopia," *Ethiopian Journal of Health Sciences*, vol. 21, no. 1, pp. 37–45, 2011.

[30] N. D. Volkow, "Substance use disorders in Schizophrenia–clinical implications of comorbidity," *Schizophrenia Bulletin*, vol. 35, no. 3, pp. 469–472, 2009.

[31] K. Aboalshamat, X. Y. Hou, and E. Strodl, "Psychological well-being status among medical and dental students in Makkah, Saudi Arabia: a cross-sectional study," *Medical Teacher*, vol. 37, no. 1, pp. S75–S81, 2015.

[32] M. Rezaei, M. Khormali, S. Akbarpour, K. Sadeghniiat-Hagighi, and M. Shamsipour, "Sleep quality and its association with psychological distress and sleep hygiene: a cross-sectional study among pre-clinical medical students," *Sleep Science*, vol. 11, no. 4, pp. 274–280, 2018.

[33] K. Shamsuddin, F. Fadzil, W. S. W. Ismail et al., "Correlates of depression, anxiety and stress among Malaysian university students," *Asian Journal of Psychiatry*, vol. 6, no. 4, pp. 318–323, 2013.

[34] A. Theadom and M. Cropley, "Dysfunctional beliefs, stress and sleep disturbance in Fibromyalgia," *Sleep Medicine*, vol. 9, no. 4, pp. 376–381, 2008.