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Mental distress and associated factors among Aksum University students, Ethiopia: a cross-sectional study

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Abstract

Background: Mental distress is becoming a common health problem in Ethiopia. The prevalence of mental distress is higher among university students than the general population. However, there is inadequate information in this regard in Ethiopia situations. The aim of this study was to determine the prevalence and associated factors of mental distress among regular undergraduate students in Aksum University, North Ethiopia.

Methods: An institution based cross-sectional study was carried out among 919 students from May 10 to 20, 2016. Students were selected by stratified multi-stage sampling technique. Data were collected using pre-tested and structured self-administered questionnaire. The collected data were entered into EPI-INFO version 7 and then exported to SPSS version 21 for analysis. Bivariate and multivariate binary logistic regression models were used to determine the factors associated with mental distress among university students.

Results: The prevalence of mental distress was nearly four in ten (39.6%) students. Being female sex (AOR = 1.7, 95% CI: 1.20, 2.34), low social support (AOR = 3.05, 95% CI: 1.97, 4.72), freshman students (AOR = 1.73, 95% CI: 1.10, 2.71), having had conflict with friends (AOR = 1.5, 95% CI: 1.03, 1.90), financial problem (AOR = 2.20, 95% CI: 1.59, 2.92), family history of mental disorder (AOR = 2.10, 95% CI: 1.37, 3.21), scoring lower grade (AOR = 1.51, 95% CI: 1.03, 1.61), argument with instructors (AOR = 1.52, 95% CI: 1.12, 2.07) and field of study (AOR = 1.56, 95% CI: 1.03, 2.37) were significantly associated with mental distress.

Conclusion: This study has shown that the magnitude of mental distress among Aksum University students was high. Several social and economic factors were significantly associated with mental distress of the students. Therefore, mental distress needs special focus and timely corrective action by policy makers, university officials, and other concerned stakeholders.

Keywords: Mental distress, students, prevalence, Ethiopia

Background

Mental distress is an emotional state which manifests with different levels of depression, anxiety, panic or somatic symptoms such as sleep problems, headache and backache [1–3]. These may have health effects on the level of an individual's functioning, and affects many aspects of life, including significant interference with their relationships with other people, and their pleasure of life [2, 4, 5].

Current trends show that the burden of mental health problem is significantly growing worldwide. According to the World Health Organization (WHO) report, mental health problems account to about one-third of disability in the world. The life time prevalence of mental distress all over the world has been estimated as 25% [4]. In Africa, mental distress is a major health problem which accounts for 5% of the total burden of disease and 19% of all disability [6]. However, it is under-recognized as a public burden. Studies show that the prevalence of mental distress is higher among university students than the general population. For instance, among the university students greater than 50% in United States of

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America (USA) [7], 50% in Singapore [8], 19.2% in Australia [9], 44.7% in Brazil [10], 41.9% in Malaysia [11], 26.9% in Nigeria [12], 19.8% in Somaliland [13] and 10.8% in Kenya [14]. In Ethiopia, the prevalence of mental distress among students was found to be 22 to 49% [15–18].

In Ethiopia there are only two studies on mental distress conducted among undergraduate medical students [17, 18]. Few studies carried out in Ethiopia in order to estimate the prevalence of mental distress in the community settings using Self-Reporting Questionnaire (SRQ-20) reported that the prevalence of mental disorders was 17.7 and 25.8% [19, 20].

Various academic, economic, social and psychological factors could be associated with mental distress among university students. These factors could include unfavorable student and teacher relationships, intolerable course load, academic performance of the students, fear of failure, economic problems, problems of adjustment with the environment and conflict with friends [15, 16, 19]. A variety of other factors such as sex, level of education (year of enrollment), and family history of mental disorder could also be related with mental illness [16, 20]. However, little is known about the magnitude and the factors associated with mental distress among university students in Ethiopia [16, 21]. Therefore, the aim of this study was to determine the prevalence and associated factors of mental distress among students in Axum University, Ethiopia.

Methods

An institution based cross-sectional study was carried out among students to determine the prevalence of mental distress and associated factors from May 10–20, 2016 in Aksum University, North Ethiopia. Aksum University is found at the northern ancient town of Aksum. Aksum town is located at about 1010 km North of Addis Ababa, the Capital city of Ethiopia. In the 2015/2016 academic year, the university had enrolled a total of 10,495 regular undergraduate students under 51 departments. The source population of the study was all regular undergraduate students registered for 2016 academic year in Aksum University. Thus, the study population was all undergraduate regular students registered for 2016 academic year drawn from the selected 22 departments. All regular students who attend the class were included in the study, but students who absent during study period were excluded.

The sample size was determined by using single population proportion formula with the assumptions: 40.9% prevalence of mental distress [16], 95% confidence level, 4.5% margin of error, design effect of two and 10% non-response rate. Accordingly, the final sample size of 966 students was used. The study subjects were selected

using multi-stage sampling technique. During the first stage, 22 departments were selected from the 51 departments by using simple random sampling. In the second stage, departments in each field of study were further stratified by their years of study. The total sample size was distributed proportionally to each of the departments. Finally, by taking students' registration number as sampling frame, students were randomly selected. Data were collected using structured self-administered questionnaire. The first part was socio-demographic characteristics. The second part was a Self-Reporting Questionnaire (SRQ-20). SRQ-20 was questionnaire originally developed by the World Health Organization for the screening of mental distress [22]. It consists of 20 item questions (headaches, lack of appetite, sleep problem, being frightened, shaking hands, feel nervous, poor digestion, not thinking clearly, feel unhappy, cry more than usual, difficult to enjoy daily activities, difficulty with decision making, daily work suffering, not feeling life is useful, feeling worthless person, thinking of ending life, loss of interest in life, always feeling tired, uncomfortable feelings in the stomach, and easily tiring) [22]. Therefore, in this section study subjects were asked whether they experience each of the above-mentioned symptoms or not in the last *30-day recall period*. Finally, a total score was computed and the cut-off point for the tool was taken students who had as the presence 8 or more symptoms were considered as having mental distress [16, 17, 23–25]. The questionnaire was validated in developing countries including Ethiopia. The sensitivity of the tool ranges (79–85.7%) and specificity from (66–96%) was found to be acceptable [23–25].

The third part of the questionnaire was about academic and behavioral related factors which included a history of substance use, overloaded with class room lessons, scoring low grade than anticipated, missed too many class or lectures, anticipation of graduation, serious arguments with instructors, and cumulative grade [3, 16, 19]. The last part of the questionnaire was regarding the social support questions assessed by 12 items each having 5 dimensional scale [26]. The reliability of the tool was checked by using Cronbach's alpha reliability test, and the score was found to be 0.884 (95% CI 0.873–0.895).

Data were collected by six nurse professionals who were trained thoroughly on the data collection procedures. Two masters' psychiatric nursing instructors together with the principal investigator closely supervised the overall data collection process. The questionnaire was pre-tested, prior to the actual data collection time on 50 undergraduate students that were not included in the main survey. Based on the feedback obtained from the pre-test, appropriate modification was made on the questionnaire.

Data exploration and cleaning was done before analysis. The collected data were checked, coded and entered into EPI INFO version 7, and then exported to SPSS version 21 for analysis. Descriptive statistics like percentage, mean and standard deviation were computed to summarize the data. Multivariate binary logistic regression model was fitted to control the possible effect of confounders for those variables with *P*-value less than or equal to 0.2 during binary logistic regression analysis. Variables with a *P* value less than 0.05 were declared to have a statistically significant association. The model fitness was checked using Hosmer and Lemeshow goodness of fit test statistic (*P* = 0.77).

Results

Socio-demographic and related characteristics of respondents

Out of the 966 students (47 participants were excluded due to incomplete response), 919 completed the

questionnaires properly which resulted in a total response rate of 95.1%. Of all the respondents 597 (65%) were males. The mean age (\pm SD) of the students was 21.5(\pm 1.91) years. The majority of the students (60.2%) were from urban. More than eight in ten of the students, (85.7%) were Orthodox Christians by religion. Four hundred seventy-three (51.5%) of the students were from the college of Engineering Technology, and two-hundred and seventy six (30%) were freshman students. Majority of the students 774 (84.2%) joined to the different department by, their choices. One hundred and twenty-eight (13.9%) of the students had a family history of mental illness and 421 (62.3%) of the students received some monthly pocket money from their family (Table 1).

Prevalence of mental distress and students’ academic performance

The prevalence of mental distress among the university students was 364 (39.6% with (95% CI: 36.6–42.9). Two

Table 1 Socio-demographic characteristics of students, Aksum University, North Ethiopia, May 2016 (*n* = 919)

Variables	Categories	Frequency	Percentage
Age in year	≥20	116	12.6
	21–24	738	80.3
	≥25	65	7.1
Sex	Male	597	65.0
	Female	322	35.0
Residence	Urban	559	60.2
	Rural	360	39.8
Religion	Orthodox Christian	785	85.4
	Muslim	58	6.3
	Protestant	66	7.2
	Other	10	1.0
College/faculty/school	Medicine and health sciences	94	10.2
	Business and economics	134	14.6
	Natural & computational sciences	77	8.4
	Social sciences and humanities	85	9.2
	Agriculture	56	6.1
	Engineering	473	51.5
Department choice	Preferred	774	84.2
	Not preferred	145	15.2
Year of enrollment	1st	274	29.8
	2nd	228	24.8
	3rd	177	19.3
	4th	240	26.1
Interest of the department	Yes	780	84.9
	No	139	15.1
Religion practice	Yes	484	52.7
	No	435	47.3
Conflict in the dormitory	Yes	443	48.2
	No	476	51.8
Have pocket money	Yes	383	41.7
	No	536	58.3
Financial distress	Yes	443	48.2
	No	476	51.8
Family history of mental illness	Yes	128	13.9
	No	791	86.1

hundred-sixty three (28.6%), 234 (25.5%) and 422 (45.9%) students reported low, moderate and high social support respectively (Table 2).

Academic related factors

Above one third 314 (34.2%) of the respondents reported that they were overloaded with classroom lessons during the study period. Four hundred thirty-four (47.2%) of the respondents reported they had lower grades than they expected. Likewise, 505 (55%) of the respondents were reported that they had conflicts with their instructors (Table 3).

Factors associated with mental distress

The multivariate logistic regression analysis showed that being female students (AOR = 1.70, 95% CI: 1.2, 2.34), being a student in college of agriculture (AOR = 0.37, 95% CI: 0.17, 0.83), being freshman (first year) students (AOR = 1.73, 95% CI: 1.10, 2.71), interest towards the department (AOR = 1.56, 95% CI: 1.03, 2.37), conflict with friends (AOR = 1.50, 95% CI: 1.03, 1.90), having financial problems (AOR = 2.20, 95% CI: 1.59, 2.92), having family history of mental disorder (AOR = 2.10, 95% CI: 1.37, 3.21), scoring lower grade than anticipated (AOR = 1.51, 95% CI: 1.03, 1.61), no social support (AOR = 3.05, 95% CI: 1.97, 4.72) and argument with instructors (AOR = 1.52, 95% CI: 1.12, 2.07) were found significantly linked with mental distress (Table 4).

Discussion

In this study, the prevalence of mental distress at Aksum University was nearly four in ten (39.6%) students. This is relatively lower than that of previous other studies in India 53% [27], and Brazil 44.7% [10]. This variation might be due to the difference of mental health policy, socio-cultural, environmental and economic background or the differences in the use of the cutoff point of SRQ – 20 tools. The level of mental distress reported by this study was lower than the finding from previous study done among local university students in Hawassa,

Table 2 Prevalence of mental distress, social support, and student's performance among Aksum University students, Northern Ethiopia May 2016 (n = 919)

Variable	Categories	Frequency	Percentage
Mental distress	Yes	364	39.6
	No	555	60.4
Social support	High level	234	25.5
	Moderate level	422	45.9
	Low level	263	28.6
Student's performance	< 2.95	435	47.3
	≥ 2.95	484	52.7

Table 3 Academic related factors of respondents, Aksum University, Northern Ethiopia May 2016(n = 919)

Variable	Categories	Frequency	Percentage
Overloaded with class room lessons	Yes	314	34.2
	No	605	65.8
Low grade than anticipated	Yes	434	47.2
	No	485	52.8
Miss too many class	Yes	203	22.1
	No	716	77.9
Anticipation of graduation	Yes	680	74.0
	No	239	26.0
Have strained relationship with instructors	Yes	505	55.0
	No	411	45.0
Had vacation	Yes	505	55.0
	No	414	45.0

Ethiopia, which reported the prevalence of mental distress was 49% [15]. This difference in magnitude might be due to the time difference between the studies. The study in Hawassa, Ethiopia was conducted ten years before this study. On the contrary, this finding was higher than the prevalence of mental distress which was reported among undergraduate students in French university 25.7% [20], Norwegian University 22.9% [28], Australian University 19.2% [9], Somaliland University 19.8% [13], Nigerian University 26.9% [12] and Ethiopia University 21.6% [3]. The discrepancy observed could be due to cut-off point of SRQ – 20 or tool difference used in the different studies.

However, this finding is comparable with similar study conducted among university students in Ethiopia, 40.9% [16] which used a similar tool and cut-off point. Also, a study from Malaysia had reported a similar prevalence of emotional disorders of 41.9% [11].

In this study, sex of the students found to be significantly associated with mental distress.

Being female student is 1.7 times more likely to develop mental distress than being male student. The finding of this study in concurrence with similar studies done on university students in Australia [9], France [20], Norway [28] and Egypt [29] which showed that female students had higher levels of mental distress than male students. The possible reasons for these sex differences might be the biological nature of their responses to stressors and environmental risk factors such as violence [30].

In this study, year of study was one of the factors that influenced mental health condition. Being a freshman (first year) student was 1.7 times more likely to develop

Table 4 Bivariate and multivariate logistic regression analysis of factors associated with mental distress among students, Aksum University, Northern Ethiopia, May 2016 (n = 919)

Variable	Categories	Mental distress		COR (CI: 95%) Crude	AOR (CI: 95%) Adjusted
		Yes	No		
Sex					
	Male	227	370	1	1
	Female	137	185	1.21(0.92, 1.59)	1.7(1.20, 2.34)*
College/faculty/					
	Health	34	60	0.89 (0.56, 1.41)	0.97 (0.56, 1.69)
	Business	56	78	1.13(0.76, 1.67)	1.27 (0.75, 2.18)
	Natural	36	41	1.38 (0.85, 2.24)	1.22 (0.66, 2.28)
	Social sciences	43	42	1.61(1.01, 2.57)	1.39 (0.76, 2.57)
	Agriculture	11	45	0.34 (0.19, 0.76)*	0.37(0.17, 0.83) *
	Engineering	184	289	1	1
Year of enrolment					
	1st	121	153	1.44 (1.01, 2.06)*	1.73 (1.10, 2.71)*
	2nd	94	134	1.28 (0.88, 1.86)	1.36 (0.85, 2.17)
	3rd	64	113	1.03 (0.69, 1.55)	1.21 (0.73, 1.20)
	4th	85	155	1	1
Interested with the department					
	Yes	291	489	1	1
	No	73	66	1.86 (1.29, 2.67)*	1.56 (1.03, 2.37)*
Financial distress/problem/					
	Yes	224	219	2.46 (1.87, 3.22)*	2.20 (1.59, 2.92)*
	No	140	336	1	1
Religious practice					
	Yes	175	309	1	1
	No	246	189	1.36 (1.04, 1.77)*	1.10 (0.81, 1.51)
Ever had conflict with friends					
	Yes	198	245	1.51 (1.16, 1.97)*	1.5 (1.03, 1.90) *
	No			1	1
Family history of mental illness					
	Yes	77	51	2.65 (1.81, 3.89)*	2.10 (1.37, 3.21)*
	No	287	504	1	1
Social support					
	High level	55	179	1	1
	Moderate level	156	266	1.91(1.33, 2.74)*	1.65 (1.17, 2.43)*
	Low level	153	110	4.53(3.07, 6.68)*	3.05 (1.97, 4.72)*
Life time khat use					
	Yes	57	60	1.53(1.04, 2.61)*	1.30 (0.77, 2.12)
	No	307	495	1	1
Life time alcohol use					
	Yes	283	242	1.31 (1.03, 1.71)*	1.01 (0.64, 1.50)
	No	181	313	1	1
Overloaded with class room lessons					
	Yes	145	169	1.51(1.15, 1.99)*	1.30 (0.91, 1.86)
	No	219	386	1	1
Lower grade than anticipated					
	Yes	188	246	1.34 (1.10, 1.75)*	1.51 (1.03, 1.61)*
	No	176	309	1	1
Miss too many class					
	Yes	105	98	1.89(1.38–2.59)*	1.29(0.89–1.88))
	No	259	457	1	1

Table 4 Bivariate and multivariate logistic regression analysis of factors associated with mental distress among students, Aksum University, Northern Ethiopia, May 2016 (n = 919) (Continued)

Variable	Categories	Mental distress		COR (CI: 95%)	AOR (CI: 95%)
		Yes	No	Crude	Adjusted
Argument with instructors					
	Yes	168	176	1.85(1.41–2.43)*	1.52(1.12–2.07)*
	No	196	379	1.00	

*Remained significance when adjusted for other variables in the table

mental distress as compared to final year university students. Study findings in this areas showed that being freshman student was associated with higher levels of psychological distress than being senior student [17, 31]. This could be explained by the fact that first-year students face new academic challenge, new social relations and separation from earlier family connection when adapting to a new environment in the university [16].

In addition, this study showed that students' interest towards the field of study was statistically associated with mental distress. University students who were not interested in their field of study were 1.56 times higher to have mental distress than their counterparts. Similar findings were also reported in other parts of Ethiopia [3, 16]. Furthermore, students who reported history of mental illness among family members in the past were two times more likely to develop mental distress than students who report no family history of mental illness. Similar study findings in Ethiopia showed that family history of mental illness was significantly associated with mental distress of students [3, 16]. This might be explained by the genetic causes [32].

In this study, students who had financial problems were two times more likely to develop mental distress as compared with students with good financial status. Other studies reported a similar finding on the association between economic problems and mental distress [15, 16]. This might be due to the fact that raising financial costs of stationary materials and other expenditures as these might have generated a psychological stress on students [15, 33, 34]. On the other hand, earlier conflict with their roommates was associated with mental distress. Those students who had conflict with their roommates' showed higher levels of mental distress than students who had not any conflict. Previous studies from Ethiopian Universities also reported the same experience on the association of roommates' conflict and mental distress [3, 16]. This might be due to the fact that, increased peer pressure in campus life where students live together in a groups may in turn lead to emotional stress [16]. Similarly, one important finding in this study revealed that argument with instructors was associated with mental distress. This finding was supported by previous study which showed that conflict between students and instructors negatively affected the students' psychology, social behavior and their academic achievement [35].

This study finding reported that academic factors are significantly associated with mental distress of university students. Students who score grades lower than their anticipation were 1.5 times more likely to have mental distress than those students who score better grades. This was in line with reports from other studies conducted in Ethiopia [3, 16].

This study finding also indicated that social support was significantly associated with mental distress. Students who obtain low social support were three times more likely to have mental distress as compared to those students with high social support [16, 28, 36]. This could be due to social factors that can promote health through stress inhibiting the adverse physiological effects by providing a sense of belonging through communications [37].

Limitations

Reports on some of the questions were from a past history, which may be prone to recall bias. The other point is that there might be social desirability bias due to sensitive questions related to substance use. The study design used descriptive cross-sectional type, thus, it is difficult to confirm about the causal relationship.

Conclusion

This study has shown that the prevalence of mental distress among Aksum University students was high. Being female sex, freshman student, field of study, having had conflict with friends, having financial problem, family history of mental disorder, scoring lower grade, argument with instructors and low to moderate social support was associated with mental distress of university students. Therefore, mental distress needs special focus and timely corrective action from policy makers, university officials, and other concerned stakeholders. Interventions targeting to strengthening social and financial support that reduces the prevalence of mental distress of university students are recommended.

Abbreviations

CI: confidence interval; AOR: adjusted odds ratio; COR: crude odds ratio; CGPA: Cumulative grade point average; SRQ: self-reporting questionnaire; WHO: World health organization; USA: United States of America

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Availability of data and materials

The datasets used and/or analyzed during the current study can be available from the corresponding author on reasonable request.

Authors' contributions

TB participated in proposal writing designed for study and implementation in all stages of the project. EH was responsible in reviewing the proposal and finalized the write up the manuscript. Both authors approved the final draft content of the manuscript.

Ethics approval and consent to participate

Ethical clearance was obtained from the Institutional Research Ethics Review Committee (IRERC) of the College of Health Sciences of Aksum University. The objectives and important of the study were informed to students. Full right was given to the study participants to refuse and withdraw from participation at any time. Informed written consent was obtained from the students. Confidentiality of respondents was preserved by using anonymous data collection tool. All participants were randomly selected without any discrimination on any ground.

Consent for publication

Not applicable.

Competing interests

The authors declare no financial or other conflict of interest.

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