Journal of Depression and Anxiety
ISSN: 2167-1044
OPEN ACCESS Freely available online
Research article

Depressive Symptoms and Associated Factors Among Youth Attending Public High School in Bahir Dar City, Northwest Ethiopia: A Cross-Sectional Study

Debela Tarecha[1*], Hunde Tarafa[1], Gizachew Asnake[2], Tesfa Mekonen[2,3,4], Gebiso Roba[5]

[1]Department of Psychiatry, College of Health Sciences, Mettu University, Mettu, Ethiopia;[2]Department of Psychiatry, College of Medicine and Health Sciences, Bahir Dar University, Bahir Dar, Ethiopia;[3]School of Psychology, The University of Queensland, Australia;[4]National Centre for Youth Substance Use Research, The University of Queensland, Australia;[5]Department of Public Health, College of Health Sciences, Mettu University, Mettu, Ethiopia

ABSTRACT

Background: Depression is the most prevalent mental disorder in youth that leads to educational impairment, substance use problems, and suicidal attempts. The aim of this study was to assess depressive symptoms and associated factors among youth attending public high school in Bahir Dar, Northwest Ethiopia.

Methods: An institution-based cross-sectional study was conducted from March to April 2021 at Bahir Dar City public high schools. Data were collected from 752 participants using a self-administered questionnaire. Participants were selected using the multistage sampling method. A Patient Health Questionnaire 9 Modified for Adolescents (PHQ-9A) was used to measure depressive symptoms. Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 25. Factor associated with depressive symptoms were identified using logistic regression analysis. Variables with a P-value of 0.05 were considered statistically significant.

Results: The prevalence of depressive symptoms was found to be 19.8% (CI=17.2, 22.4). Depressive symptoms were significantly associated with female sex (AOR=2.38, 95% CI=1.55-3.65), poor social support (AOR=1.83, 95% CI=1.02-2.74), childhood abuse (AOR=2.08, 95% CI=1.31-3.30) and neglect (AOR=2.71, 95% CI=1.65-4.44), and mother's occupation being merchant (AOR=0.37 CI=0.15-0.94).

Conclusion: One in five youth attending public high school reported having depressive symptoms. Schools need to institute routine mental health screening services and implement appropriate interventions to initiate and improve access to school-based mental health services, particularly for female students.

Keywords: Depression; Youth; High school; Students; Mental health

Abbreviations: ACE: Adverse Childhood Experiences, BDI II: Beck's Depression Inventory-II, CDI: Children Depression Inventory, CES-D: Children Epidemiologic Studies-Depression Scale, DASS: Depression, Anxiety and Stress Scale, DSM-5: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, LMICs: Low-income and Middle-Income Countries, PHQ-9A: Patient Health Questionnarie-9 modified for adolescent, SPSS: Statistical Package for Social Sciences, USA: United State America, WHO: World Health Organization

INTRODUCTION

Youth is the peak age of onset for depression disorders [1]. The transition from childhood to adulthood is characterized by emotional instability, making adolescents or youth vulnerable to depression [2]. Half of all mental health conditions start at 14 years of age and mood disorders peak at the age of 20.5 years, but most cases are undetected and untreated [3,4]. Early depression, especially persistent childhood/adolescent depressive symptoms, has robust and lasting associations with adult functioning [5]. Early intervention may reduce the long-term burden of disease [6]. Youth with untreated mental illness are likely to miss opportunities for education and employment, as reflected that mental disorders represent 60% to 70% of Disability-Adjusted Life Years (DALYs) among young people [7].

The World Health Organization (WHO) identified depression as a

Correspondence to: Debela Tarcha, Department of Psychiatry, College of Health Sciences, Mettu University, Mettu, Ethiopia, E-mail: debelatarecha2016@gmail.com

Received: 09-Aug-2022, Manuscript No. JDA-22-18801; **Editor assigned:** 12-Aug-2022, PreQC No. JDA-22-18801(PQ); **Reviewed:** 26-Aug-2022, QC No. JDA-22-18801; **Revised:** 02-Sep-2022, Manuscript No. JDA-22-18801 (R); **Published:** 09-Sep-2022, DOI:10.35248/2167-1044.22.11.478

Citation: Tarecha D, Tarafa H, Asnake G, Mekonen H, Roba G (2022) Depressive Symptoms and Associated Factors Among Youth Attending Public High School in Bahir Dar City, Northwest Ethiopia: A Cross-Sectional Study. J Dep Anxiety.11:478

priority mental health disorder of adolescence/youth because of its high prevalence and associated disabilities, including increased risk of suicide [6,8,9]. The global point prevalence rate of self-reported depressive symptoms among youth from 2001 to 2020 was 34% (95% CI: 0.30–0.38) [10]. The overall prevalence of depressive symptoms among Low and Middle Income Countries (LMICs) was 24.4% (95% CI, 19.2%-30.5%) [11], the prevalence of depression among school going adolescents in Jimma town was 28% [12].

The strongest risk factors contributing to depression in youth are a family history of depression and exposure to psychosocial stress. Inherited risks, developmental factors, sex hormones, and psychosocial adversity interact to increase risk through hormonal factors and associated perturbed neural pathways [8]. Understanding the risk factors of depressive symptoms is a vital first step in contributing to planning preventive and control strategies [13]. However, evidence on the magnitude and associated factors of depressive symptoms among youth attending high school students is scarce in Ethiopia. Therefore, the purpose of this study was to determine the magnitude of depressive symptoms and associated factors among youth attending public high school.

METHODOLOGY

Study design and setting

An institutional-based cross-sectional study was conducted from March to April 2021 at Bahir Dar City, Northwest Ethiopia. Bahir Dar city is the capital city of Amhara Regional State, located in Northwestern Ethiopia and is the 3rd largest city in Ethiopia. The city has an estimated population of 170,000 [14]. The city administration is divided into six administrative sub-cities. Regarding Education services, the city comprises eleven public high schools with a total of 23,316 students in the academic year of 2020/2021.

Sample size and sampling procedure

The sample size was calculated using a single population proportion formula considering 36.2% depressive symptoms [15], 95% confidence interval, 5% margin of error, 2 design effects, and 10% non-response rate. The final sample size was 781. A multistage sampling technique was used to select participants. In the first stage, three schools were selected from eleven public high schools by lottery method. In the second stage, students of the selected public high schools were categorized into grade levels from 9th to 12th separately. The sampling frame of students in each of the grade levels and sections was obtained from the academic director offices of schools.

Then the students were stratified according to their grade level and sections. The sample sizes were distributed to each grade and section proportionally according to the class size of the grade level. Finally, students were chosen from each grade level 9^{th}-12^{th} and section using a simple random sampling technique (Figure 1).

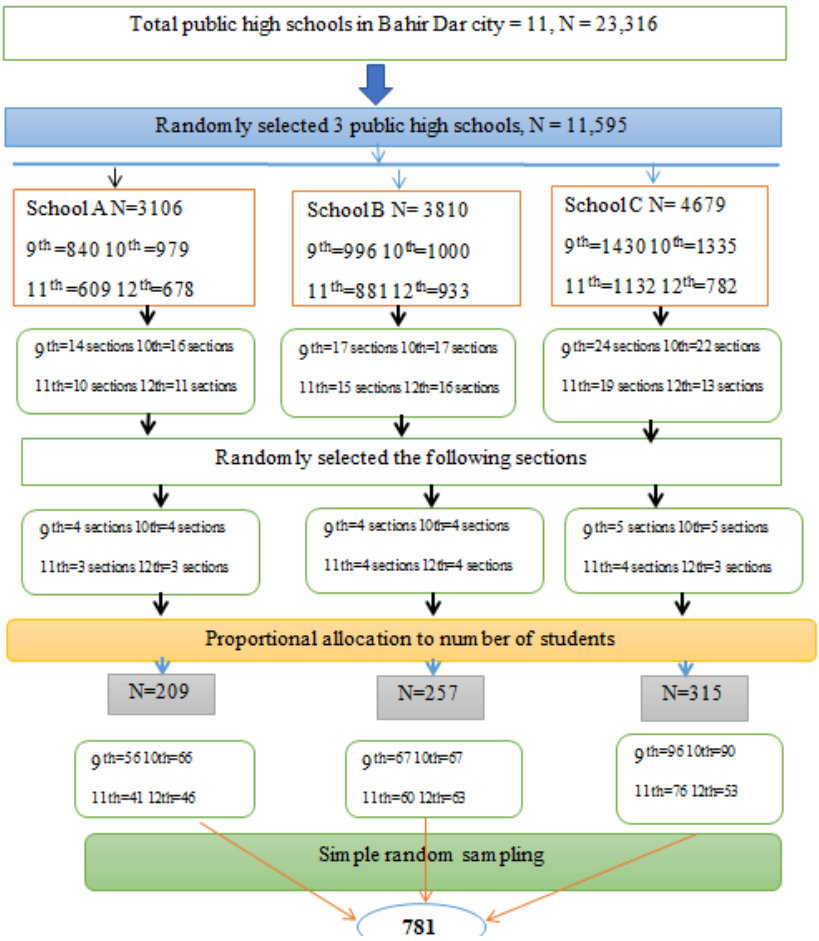

Figure 1: Schematic representation of the sampling procedure among public high school students in Bahir Dar city, Northwest Ethiopia, 2021.

Study variables

The dependent variable was depressive symptoms among youth attending public high school (yes/no). Independent variables included were socio-demographic factors (age, sex, level of grade, living status, residence, educational status of the father, educational status of the mother, occupation of the father, occupation of the mother, parental marital status); psycho-social factors (adverse childhood experience, social support); health-related factors (family history of mental illness, having known medical illness); substance-related factors (alcohol use, khat use, tobacco use, and marijuana use).

Data collection and measurement tools

Data were collected by self-administered questionnaire consisting socio-demographic factors, Patient Health Questioner Modified for Adolescent (PHQ-9A), Adverse Childhood Experience (ACEs), clinical features, social support, substance use assessment, and academic stressors. Depressive symptoms were assessed by Patient Health Questionnaire 9 Modified for Adolescents (PHQ-9A), a self-report instrument comprised of 9-items. Items are rated on a four-point ordinal scale. The total PHQ-9A score for each respondent was calculated by adding all 9 items and scores range from 0 to 27. The total scores were then categorized into 0-4 Minimal depression, 5-9 mild depression, 10-14 moderate depression, 15-19 moderately severe depression, and 20-27 severe depression [16]. In this study, PHQ-9A was checked for reliability test, and it has been found to have Cronbach's alpha of 0.79 to assess depressive symptoms. The cut point of equal or greater than 10 was used to categorize having depressive symptoms in this study.

Adverse childhood experience was assessed by Adverse Childhood Experience (ACEs). It addresses 10-item ACEs under three categories: (1) abuse (2) neglect, and (3) household dysfunction. The higher the ACE Score indicates the greater the likelihood of exposure to adverse childhood experiences. The ACE questionnaire is reliable and valid in measuring childhood adverse experience that has been used in large-scale ACE studies [17]. In the current study, Cronbach's alpha was 0.71.

Substance use was assessed by adopting questions from the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST). ASSIST was developed by the World Health Organization with fair reliability (α=0.73) [18].

Oslo 3 Social Support Scale was used to know the level of social support towards students. The scale divides the level of social support into three as poor social support (3-8), moderate social support (9-11), and strong social support (12-14). The internal consistency of this tool (Cronbach's α=0.91) among university students in Nigeria [19].

The questionnaire was prepared in English and translated into the Amharic language and then back-translated into English by two experts to ensure consistency and understandability. The Amharic version was used to collect the data. The instruments were pre-tested in 5% (n=39) of sample size. The training was given to supervisors by the principal investigator regarding the questioners' detail, methods of data collection, quality control, and ethical consideration. After data collection, the filled questionnaires were checked for completeness and consistency.

Data analyses

The data were cleaned, coded, and entered into the computer using Epi-Data version 3.1 and analyzed using Statistical Package for Social Sciences (SPSS) version 25. The presence of an association between dependent and independent variables was assessed using logistic regression. Variables with a p-value less than 0.25 at univariable logistic regression were entered into multivariable logistic regression. Statistical significance was considered at a p-value less than 0.05, and the strength of association was estimated by odds ratio with a 95% confidence interval. Descriptive statistics including frequencies, percentages, and median was used to describe findings.

RESULTS

Socio demographic characteristics of participants

A total of 781 selected, 752 students were participated, yielding a response rate of 96.3%. The mean age of participants was 17.81 years (SD ± 1.47). Among all, 522 (69.4%) were living with both parents (Table 1).

Table 1: Distribution of socio-demographic factors in public high school students at Bahir Dar city, 2021 (n=752).

Variables	Category	Frequency(752)	Percent (%)
Sex	Male	343	45.6
	Female	409	54.4
Age	15-17	294	39.1
	18-19	265	48.5
	20-22	93	12.4
Religion	Orthodox	694	92.3
	Muslim	36	4.8
	Protestant	17	2.2
	Catholic	5	0.7
Educational level of respondents	9th	213	28.3
	10th	214	28.5
	11th	164	21.8
	12th	161	21.4
Residence of respondents	Urban	671	89.2
	Rural	81	10.8
Occupation of father	Government employee	232	30.9
	Merchant	179	23.8
	Farmer	195	25.9
	Daily labor	39	5.2
	Other	107	14.2
Occupation of mother	Housewife	461	61.3
	Merchant	70	9.3
	Government employee	97	12.9
	Farmer	75	10
	Daily labor	17	2.3
	Other	32	4.2

Educational level of father	Unable to read and write	104	13.8
	Read and write	268	35.6
	Elementary school	102	13.6
	High school and above	288	37
Educational level of mother	Unable to read and write	232	30.9
	Read and write	232	30.9
	Elementary school	111	14.8
	High school and above	177	23.4
Parental marital status	Married	622	82.7
	Divorced	107	14.2
	Separated/widowed	23	3.1
Living status of respondents	With both parents	522	69.4
	With one parent	104	13.8
	With relatives	89	11.8
	Alone	31	4.1
	Other	6	0.8

The Magnitude of depressive symptoms among public high school students

The prevalence of depressive symptoms were found to be 149 (19.8%) (95% CI=17.2-22.4). Based on the severity scale, 101(13.4%) had moderate depression, 38 (5.1%) had moderately severe depression, and 10(1.3%) of participants had severe depression.

Adverse childhood experience among public school students

Among the 752 students who participated in this study, 386 (51.3%) of the participants answered yes to at least one or more questions among the total 10 questions of ACEs. According to the 3 categories of adverse childhood experience (ACE) from 409 female students, 101 (24.7%) had been abused emotionally, physically, or sexually (Figure 2).

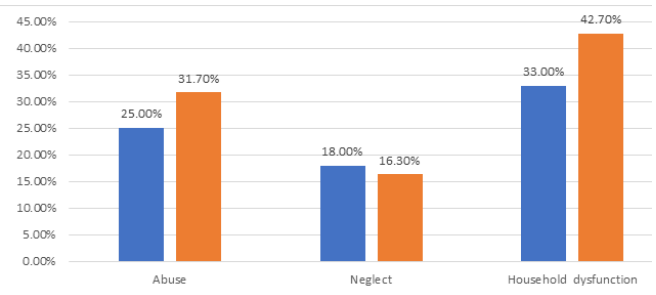

Figure 2: The cross-tabulation of ACE category by sex of public high school students at Bahir Dar city, 2021 (n=752). **Note:** (▬) Girls, (▬) Boys.

Health related factors of participants

Of the total respondents of 756, 76 (10.1%) have known medical illness. Likewise, 44 (5.8%) have a family history of mental illness. Measurement by the Oslo 3-Item Social Support Scale showed that 297 (39.3%) had poor social support, 288 (38.1%) where had moderate social support and 171 (22.6%) had strong social support.

Substance use among high school students

The life time use of substance was 18.1%. One hundred one (13.4%) of students used substances within 3 months (Table 2).

Table 2: Description of substance use among high schools students at Bahir Dar city, 2021 (n=752).

Variables	Response	Frequency	Percent (%)
Life time substance use	No	616	81.9
	Yes	136	18.1
Substances used in lifetime	Khat	24	3.2
	Cigarette	16	2.1
	Alcohol	89	11.8
	Marijuana	3	0.4
	More than one substance	4	0.5
Substance use within 3 months	No	651	86.6
	Yes	101	13.4
Substances used within 3 months 111	Khat	17	2.2
	Cigarette	15	2
	Alcohol	61	8.1
	Marijuana	5	0.7
	More than one substance	3	0.4

Factors associated with depression

The current study indicated that factors associated with depression are the sex of participants, have known medical conditions, social support, and childhood abuse, and neglect experience. The odds of developing depression was 2.38 times (AOR=2.38, 95% CI=1.55-3.65) higher in females compared to males. The odd of developing depression among participants of merchant mothers decrease by 63% as compared to participants of a housewife mothers (AOR=0.37, 95% CI=0.15-0.94). In this finding, the odds of having depression among respondents who have poor social support was 1.83 times (AOR=1.83, 95% CI=1.02-2.74) higher as compared to those who have strong social support. The odds of having depression among respondents who have a history of abuse were two times higher as compared to those who have no history of abuse (AOR=2.08, 95% CI=1.31-3.30). The odds of having depression among respondents who have a history of neglect 2.71 times (AOR=2.71, 95% CI=1.65-4.44) is higher as compared to those who have no history of neglect (Table 3).

Table 3: Bi variable and Multivariable binary logistic regression analysis showing association between depression and associated factors among public high school students, 2021 (n=756).

Explanatory variables	Variables category	Depression		COR (95%CI)	AOR, (95%CI)	p-value
		No	Yes			
Sex	Male	294	49	1	1	
	Female	309	100	1.94(1.33-2.83)	2.38(1.55-3.65)	<0.0001
Living status	With both parents	436	86	1	1	
	With one parent	88	26	1.66(1.01-2.73)	1.29(0.61-2.70)	0.503
	With non-parent	89	37	2.11(1.35-3.30)	1.73(0.98-3.06)	0.058
Occupation of father	Government employee	176	56	1	1	
	Merchant	153	26	0.53(0.32-0.89)	0.64(0.34-1.20)	0.162
	Private employee	274	67	0.77(0.51-1.15)	0.73(0.40-1.34)	0.314
Occupation of mother	Housewife	376	85	1	1	
	Merchant	64	6	0.42(0.17-0.99)	0.37(0.15-0.94)	0.036
	Government employee	68	29	1.89(1.15-3.10)	1.72(0.93-3.18)	0.082
	Private employee	95	29	1.35(0.84-2.18)	1.12(0.64-1.97)	0.694
Educational level of father	High school and above	217	61	1	1	
	Unable to read and write	78	26	1.19(0.70-2.01)	0.94(0.47-1.91)	0.867
	Read and write	222	46	0.74(0.48-1.13)	0.66(0.38-1.16)	0.152
	Elementary school	86	16	0.66(0.36,1.21)	0.80(0.39-1.64)	0.538
Parental marital status	Married	510	112	1	1	
	Unmarried	93	37	1.81(1.18-2.79)	1.39(0.72-2.67)	0.33
Abuse	No	465	77	1	1	
	Yes	138	72	3.15(2.17-4.58)	2.08(1.31-3.30)	0.002
Neglect	No	530	92	1	1	
	Yes	73	57	4.50(2.98-6.79)	2.71(1.65-4.44)	<0.0001
Household dysfunction	No	403	69	1	1	
	Yes	200	80	2.34(1.62-3.36)	1.25(0.77-2.03)	0.363
Medical conditions	No	556	120	1	1	
	Yes	47	29	2.86(1.73-4.73)	1.80(0.99-3.27)	0.052
Family history of mental illness	No	575	133	1	1	
	Yes	28	16	2.47(1.30-4.70)	1.03(0.47-2.26)	0.932
Current substance use	No	532	119	1	1	
	Yes	71	30	1.89(1.18-3.03)	1.14(0.63-2.07)	0.656
Social support	Strong	150	20	1	1	
	Moderate	238	48	1.51(0.86-2.65)	1.50(0.83-2.74)	0.183
	Poor	215	81	2.83(1.66-4.81)	1.83(1.02-2.74)	0.043

DISCUSSION

This study showed that the magnitude of depressive symptoms were 19.8% with (95% CI=17.2%-22.4%). This implies that depression among high school students is a public health concern because it leads to problems in everyday activities, educational impairment, comorbid psychoactive substance abuse, poor psychosocial outcomes, including lower social support, and risky reproductive and sexual practices [20]. Adolescent depression increases the risk for subsequent depression later in life [6]. The current study is consistent with the study reported 21.0% in Uganda [21], 21.2% in Nigeria [22], 19.9% in China [23], and 20.3% in India [24]. The

current study is lower than in studies reported 28% in Southwest Ethiopia [12], 45.9% in Kenya [25], 62.6% in India [26], 25% in Bangladesh [27], and 42.5% in Malaysia [28]. It is higher than in studies which reported 14.9% in Northern Ethiopia [15], 14.19% in Thailand [29], 13.6% in Korea [30], and 14.2% in Jamaica [31], and. Such a degree of difference in the prevalence of depression across the different parts of the world could originate from variations in the depression screening tools used, different study periods, and different populations. A study done in Malaysia used Depression, Anxiety and Stress Scale (DASS) and a cross-sectional study in Korea used health-related behaviors 7 items. A study done in India and Jamaica used Beck's Depression Inventory-II and a cross-sectional study in Bangladesh and Thailand were used the Center of Epidemiologic Studies Depression Scale (CES-D).

Moderate depressive symptoms was 13.4% which was consistent with the study reported 11.4% in North Ethiopia [15], 16.1% in Nigeria [22], and 15.5% in India [24], and. The prevalence of moderately severe depression was found to be 5.1%. It is consistent with the study reported 5.1% in Nigeria [22], and 3.7% in India [24]. The prevalence of severe depression was 1.3%. This is consistent with findings reported 1.3% in Southwest Ethiopia [12], 1.1% in India [24].

Sex is one of the important factors contributing to depression [15,32,33]. The current study indicated that female participants had more than twofold (AOR=2.38) odds of having depressive symtoms as compared to male participants. This was supported by the study conducted in Ethiopia [15,34], in India [35], in Malaysia [32], and Bangladesh [27]. This may be due to different psychosocial stressors for females and male [36], involve hormonal differences, and females being more sensitive to interpersonal relationships problem [37].

During adolescence, social support is a strong protector against a wide range of adversities and is necessary for ensuring health development [38]. In the current study odds of having depressive symptoms among respondents who have poor social support was 1.83 times (AOR=1.83, 95% CI=1.02-2.74) higher as compared to those who have strong social support. This finding is consistent with studies done in Aksum [15], Jimma [34], and Kenya [25]. This might be due to poor social support directly affecting social relationships and indirectly increasing the risk to face stressful circumstances [38].

Adverse Childhood Experiences (ACE) is another factor that contributes to depression [39]. In the current study, the odds of having depression among respondents who have a history of abuse were twofold times higher as compared to those who have no history of abuse (AOR=2.08, 95% CI=1.31-3.30). This finding is consistent with the study done in Jimma [34], India [24], and meta-analysis studies done in China [40]. Similarly, the odds of having depression among respondents who have a history of neglect 2.57 times (AOR=2.57, 95% CI=1.64-4.51) is higher as compared to those who have no history of neglect. This finding is in concordance with studies done in Aksum [15], and Jimma [34]. This may be due to the increased ACE leads to health risk behaviors such as substance abuse, alcoholism, drug abuse, and chronic disease even suicide [41]. As research shows that chronic stress plays a critical role in the development of hippocampal and medial prefrontal cortex deficits, which are the well-documented neural abnormalities in depression [42].

The odds of developing depression among participants whose merchant mothers decrease by 61% as compared to participants of housewife mothers. This may be due to better income than housewives.

CONCLUSION

The prevalence of depressive symptoms among public high schools students in Bahir Dar city is high. One in five students was found to have depressive symptoms in Bahir Dar city. The sex of participant, occupation of mother, having known medical conditions, lifetime substance use, social support, abuse, and neglect were significantly associated with depression. Schools need to institute routine mental health screening services and implement appropriate interventions to initiate and improve access to school-based mental health services, particularly for female students.

LIMITATION OF THE STUDY

The study has some limitations. First, it is cross-sectional in design, so the direction of causality between depression and associated variables could not be inferred from the findings. Second, the recall bias may occur for questions about adverse childhood experience. Thirdly, the parenting style, family dynamics, self-esteem, and negative life events of the students were not assessed. Those variables may be important factors for depression among adolescent population

AVAILABILITY OF DATA AND MATERIALS

The datasets used and/or analysed during the current study are available from the corresponding authors on reasonable request.

ACKNOWLEDGMENTS

We would like to thank Bahir Dar University for funding the study and the Bahir Dar city administration education office, and the school for all forms of non-financial support provided for the study. Furthermore, we extend our gratitude to data collectors, supervisors, and study participants for their time and effort.

FUNDING

Bahir Dar University.

AUTHORS CONTRIBUTIONS

DT developed the proposal, analyzed, and interpreted the data, and wrote the draft manuscript. TM, GA, GR, and HT have revised the proposal, checked the data analysis, and revised the manuscript. DT TM, GR, GA, and HT have read and approved the final manuscript.

DECLARATIONS

Ethics approval and consent to participate

The ethics approval was obtained from the Institutional ethical review Board of Bahir Dar University College of medicine and health sciences and a permission letter were obtained from selected public high schools in Bahir City. Informed consent was obtained from participants. For students who are under 18 years old, parent assent forms were obtained from parents by written letter sent through their students before one week of data collection. The letter informs them of the purpose of the study, as well as provides them with the contact information of the principal investigator

for any questions related to the study. The information from the individual participant was kept confidential.

CONSENT FOR PUBLICATION

Not applicable.

COMPETING INTERESTS

The authors declare that they have no competing interests.

REFERENCES

1. Malla A, Shah J, Iyer S, Boksa P, Joober R, Andersson N, et al. Youth mental health should be a top priority for health care in Canada. Can J Psychiatry. 2018 Apr; 63(4):216-22.
2. Child NAMHCWo, Development AMHI, Deployment. Blueprint for change: Research on child and adolescent mental health. A report by the national advisory mental health council's workgroup on child and adolescent mental health intervention development and deployment. 2001.
3. World Health Organization. Fact sheets on Adolescent mental health 2020.
4. Solmi M, Radua J, Olivola M, Croce E, Soardo L, Salazar de Pablo G, et al. Age at onset of mental disorders worldwide: large-scale meta-analysis of 192 epidemiological studies. Mol. Psychiatry. 2022 Jan; 27(1):281-95.
5. Copeland WE, Alaie I, Jonsson U, Shanahan L. Associations of childhood and adolescent depression with adult psychiatric and functional outcomes. J Am Acad Child Adolesc Psychiatry. 2021 May; 60(5):604-11.
6. Johnson D, Dupuis G, Piche J, Clayborne Z, Colman I. Adult mental health outcomes of adolescent depression: A systematic review. Depress Anxiety. 2018 Aug; 35(8):700-16.
7. Levin C, Chisholm D. Cost-effectiveness and affordability of interventions, policies, and platforms for the prevention and treatment of mental, neurological, and substance use disorders. Mental, neurological, and substance use disorders: disease control priorities. 2016 May 27; 4(3):219-36.
8. Thapar A, Collishaw S, Pine DS, Thapar AK. Depression in adolescence. The lancet. 2012 Mar; 379(9820):1056-67. .
9. World Health Organization. Infant and young child feeding: a tool for assessing national practices, policies and programmes].
10. Shorey S, Ng ED, Wong CH. Global prevalence of depression and elevated depressive symptoms among adolescents: A systematic review and meta-analysis. Br J Clin Psychol. 2022 Jun; 61(2):287-305.
11. Akhtar P, Ma L, Waqas A, Naveed S, Li Y, Rahman A, et al. Prevalence of depression among university students in low and middle income countries (LMICs): a systematic review and meta-analysis. J Affect Disord. 2020 Sep; 274:911-9.
12. Girma S, Tsehay M, Mamaru A, Abera M. Depression and its determinants among adolescents in Jimma town, Southwest Ethiopia. Plos one. 2021 May;16(5):e0250927.
13. Brent DA, Birmaher B. Adolescent depression. N Engl J Med. 2002 Aug; 347(9):667-71.
14. Birilliant Ethioipa. [Available from: https://www.brilliant-ethiopia.com/regions/bahir-dar.
15. Tirfeneh E, Srahbzu M. Depression and its association with parental neglect among adolescents at governmental high schools of Aksum town, Tigray, Ethiopia, 2019: a cross sectional study. Depress Res Treat. 2020 Apr; 2020.
16. Johnson JG, Harris ES, Spitzer RL, Williams JB. The patient health questionnaire for adolescents: validation of an instrument for the assessment of mental disorders among adolescent primary care patients. J Adolesc Health. 2002 Mar; 30(3):196-204.
17. Karatekin C, Hill M. Expanding the original definition of adverse childhood experiences (ACEs). J Child Adolesc Trauma. 2019 Sep;12(3):289-306.
18. Onifade PO, Bello AO, Abiodun O, Sotunsa JO, Ladipo OA. Psychometric properties of alcohol smoking and substance involvement screening test (Assist V3. 0) among university students. J Addict Behav Ther Rehab. 2014; 3(3):2-7.
19. Abiola T, Udofia O, Zakari M. Psychometric properties of the 3-item oslo social support scale among clinical students of Bayero University Kano, Nigeria. Malaysian Journal of Psychiatry. 2013 Nov; 22(2):32-41.
20. Kumar KS, Srivastava S, Paswan S, Dutta AS. Depression-symptoms, causes, medications and therapies. The Pharma Innovation. 2012 May; 1(3, Part A):37.
21. Nalugya-Sserunjogi J, Rukundo GZ, Ovuga E, Kiwuwa SM, Musisi S, Nakimuli-Mpungu E. Prevalence and factors associated with depression symptoms among school-going adolescents in Central Uganda. Child Adolesc Psychiatry Ment Health. 2016 Dec; 10(1):1-8.
22. Fatiregun AA, Kumapayi TE. Prevalence and correlates of depressive symptoms among in-school adolescents in a rural district in southwest Nigeria. J Adolesc. 2014 Feb; 37(2):197-203.
23. Radovic A, Moreno MA. Treatment Options for Adolescent Depression. JAMA pediatrics. 2019 Mar; 173(3):300.
24. Singh MM, Gupta M, Grover S. Prevalence & factors associated with depression among schoolgoing adolescents in Chandigarh, north India. Indian J Med Res. 2017 Aug; 146(2):205.
25. Osborn TL, Venturo-Conerly KE, Wasil AR, Schleider JL, Weisz JR. Depression and anxiety symptoms, social support, and demographic factors among Kenyan high school students. J Child Fam Stud. 2020 May;29(5):1432-43. .
26. Jha KK, Singh SK, Nirala SK, Kumar C, Kumar P, Aggrawal N. Prevalence of depression among school-going adolescents in an urban area of Bihar, India. Indian J Psychol Med. 2017 May; 39(3):287-92.
27. Khan A, Ahmed R, Burton NW. Prevalence and correlates of depressive symptoms in secondary school children in Dhaka city, Bangladesh. Ethn Health. 2020 Jan; 25(1):34-46.
28. Latiff LA, Tajik E, Ibrahim N, Abubakar AS, Ali SS. Depression and its associated factors among secondary school students in Malaysia. Southeast Asian J Trop Med Public Health. 2016; 47(1):131.
29. Chaveepojnkamjorn W, Pichainarong N, Adthasangsri V, Sativipawee P, Prasertsong C. Depression and its associated factors among Senior High School students in Nonthaburi Province, Thailand: a cross-sectional study. Journal of Public Health in Developing Countries. 2016 Sep; 2(3):224-34. .
30. Yun JY, Chung H, Sim JA, Yun YH. Prevalence and associated factors of depression among Korean adolescents. PloS one. 2019 Oct 16;14(10):e0223176.
31. Ekundayo OJ, Dodson-Stallworth J, Roofe M, Aban IB, Kempf MC, Ehiri JE, et al. Prevalence and correlates of depressive symptoms among high school students in Hanover, Jamaica. Sci World J. 2007 May; 7:567-76.
32. Sahril N, Yaacob NM, Ahmad NA, Abdullah S, Naidu BM, Aris T. Depression Severity and Its Associated Factors Among School-Going Adolescents in Malaysia. J Dep Anxiety. 2019 Nov; 8(350):2167-1044.
33. Tarecha D, Mekonen T, Asnake G, Tarafa H. Depressive symptoms and associated factors among public high school students in Bahir Dar City, Northwest Ethiopia: A cross-sectional study.
34. Tsehay M, Necho M, Mekonnen W. The role of adverse childhood experience on depression symptom, prevalence, and severity among school going adolescents. Depress Res Treat. 2020 Oct; 2020.
35. Bosak S. Prevalence of depression and associated factors in adolescents of Masjed-Soleyman. J Pediatr Nurs. 2016 Jul; 2(4):22-7.
36. Bartels M, Cacioppo JT, van Beijsterveldt TC, Boomsma DI. Exploring the association between well-being and psychopathology in adolescents. Behav Genet. 2013 May; 43(3):177-90.

37. Kendler KS, Thornton LM, Gardner CO. Genetic risk, number of previous depressive episodes, and stressful life events in predicting onset of major depression. Am J Psychiatry. 2001 Apr; 158(4):582-6.

38. Demaray MK, Malecki CK. Critical levels of perceived social support associated with student adjustment. Sch Psychol Q. 2002; 17(3):213.

39. Thomson P, Jaque SV. Adverse childhood experiences (ACE) and adult attachment interview (AAI) in a non-clinical population. Child Abuse Negl. 2017 Aug; 70:255-63.

40. Tang X, Tang S, Ren Z, Wong DF. Psychosocial risk factors associated with depressive symptoms among adolescents in secondary schools in mainland China: A systematic review and meta-analysis. J Affect Disord. 2020 Feb; 263:155-65.

41. Wiehn J, Hornberg C, Fischer F. How adverse childhood experiences relate to single and multiple health risk behaviours in German public university students: a cross-sectional analysis. BMC public health. 2018 Dec;18(1):1-3.

42. Belleau EL, Treadway MT, Pizzagalli DA. The impact of stress and major depressive disorder on hippocampal and medial prefrontal cortex morphology. Biol Psychiatry. 2019Mar; 85(6):443-53.