

Psychological Distress in Adolescents: Prevalence and its Relation to High Risk Behaviors Among Secondary School Students in Uganda.

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Research Article

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Abstract

Background

Psychological distress is a mental health condition that is common in adolescents. It negatively affects the academic performance of adolescents, relationships with family and friends, and the ability of adolescents to participate fully in the community. Stressful life events in low income countries and risk taking behavior of adolescents have raised concerns on the magnitude and impact of psychological distress among adolescents in Uganda. This study aims to estimate the prevalence of psychological distress and assess the high risk behaviors associated with psychological distress among secondary school students in Uganda.

Methods

A community based cross-sectional study was conducted among secondary school students in Mbarara Municipality, Uganda. Multistage cluster sampling technique was used to recruit study participants and a total of 921 students participated in the study using a self-reported questionnaire. Psychological distress was assessed by Kessler's psychological distress scale (K10). To identify high risk behaviors associated with psychological distress, multinomial logistic regression was used with $p < 0.05$ and 95% confidence interval.

Results

The prevalence of psychological distress was 57%. Risky sexual behavior, alcohol consumption, smoking and substance use were associated with psychological distress. Also, boarding school students, those in mixed schools, students that own mobile phones and adolescents with chronic illness were more likely to report psychological distress.

Conclusion

The prevalence of psychological distress is high among school going adolescents and risky behaviors were associated with psychological distress. The findings suggest the need to address mental health issues in adolescents.

Introduction

Mental health disorders are among the leading cause of ill-health and disability worldwide. According to World Health Organization (WHO), one in four persons in the world are affected by mental disorder at some point in their lives and around 450 million people suffer from mental disorders (1). Currently, it is responsible for 1 in 5 years lived with disability globally (2). About 20% of the world's adolescent have mental health problems (2) and mental health disorders account for 16% of the global burden of disease and injury in adolescents (3). Psychological distress is a non-specific mental health condition that is characterized by anxiety, depression and somatic symptoms (4, 5). It involves feelings of vulnerability,

sadness, fear, extensive worries, restlessness, negative thoughts and social isolation (6). Psychological distress is a public health challenge that affects daily activities of adolescents including school and work performance, relationships with family and friends and involvement in the community (2).

Previous surveys have indicated that psychological distress is common in adolescents and a study conducted in Canada reported a prevalence of 35% (7). Furthermore, about 54% and 40% of students in China and Saudi Arabia respectively showed symptoms of psychological distress (8, 9). In low and middle income countries, high prevalence of psychological distress has been reported among adolescents. A cross sectional study of students in India estimated 10.5% mild psychological distress, 5.4% moderate psychological distress and 4.9% severe psychological distress (10). Also, a study conducted in Zambia showed 15.7% of psychological distress in adolescents (11), while another study reported 20.6% single psychological distress and 10.3% multiple psychological distress among students in Tanzania (12). In Uganda, a study conducted among adolescents living with HIV/AIDS reported 51% depression (13) while another study indicated 21% depression in school-going students (14).

Adolescence is a period characterized with high risk behaviors (15, 16). High risk behaviors such as alcohol use, smoking, substance use and risky sexual activities have been linked to psychological distress and other mental problems in adolescents (7, 17, 18). Prior research findings showed that alcohol use among adolescents was associated with psychological distress and suicidal behavior (19, 20). Smoking and substance use were also associated with psychological distress among school-going adolescents in studies conducted in Norway, Zambia, Tanzania and Uganda (11, 12, 14, 21). Moreover, studies have associated risky sexual behavior with psychological distress. Risky sexual behaviors such as early sexual debut, multiple sex partners and inconsistent condom use have been linked to psychological distress in adolescents (12, 18, 22, 23).

Uganda is a low income country where other health issues are prioritized over mental health due to limited resources (24, 25). Besides, stressful and undesirable life events continue to raise concerns on the magnitude of mental health problems in the country (26). Meanwhile, previous studies in Uganda have focused on other mental health problems with no study conducted on psychological distress in adolescents. In addition, prior studies on adolescent mental health were centered on adolescent living with HIV/AIDS, vulnerable and marginalized population (13, 14, 17, 27–29). Hence, this study aimed at estimating the prevalence of psychological distress and its relationship with high risk behaviors among secondary school students in Uganda.

Methods

Sample and Procedure

The participants in this study were part of a research project evaluating gambling disorder among secondary school students in Uganda. The study was a cross-sectional survey conducted in 2019 at Mbarara Municipality, a town located in the South-western part of Uganda and the main administrative and commercial center of Mbarara District. To achieve a representative sample of secondary school

students in the Municipality, multistage cluster sampling was used in the study. The first stage involved random selection of two schools from each of the Municipality's six divisions with each division represented by one public and one private school. At the second stage, students were randomly selected from each class in the secondary school using the class register. A total of 921 secondary school students participated in the study. Secondary schools with both ordinary and advance classes were included in the study and students that have not been in school for at least two months or spent an academic session in the school were excluded in the study. Under the supervision of survey administrators, students completed the self-administered questionnaire in English language in a selected hall during the school period. The study was approved by the Research Ethics Committee of Mbarara University of Science and Technology. Written informed consent was obtained from the participating schools and students before the questionnaire was administered, and students that were not willing to participate in the study were allowed to leave the hall where the survey was conducted.

Variable Measurements

The survey collected the following students' characteristics: age, gender, religion, family background, class of student, school type, and caretaker/guardian. Participants also answered questions on owning a mobile phone (yes/no), and ever failed a subject in an exam (yes/no).

Psychological Distress

Psychological distress was assessed with Kessler's psychological distress scale (K10), a ten item with a 5 point likert scale that evaluates frequency of depressive and anxiety symptoms over past four weeks. Psychological distress was categorized into normal, mild, moderate, and severe psychological distress. Scores range from 10–50, with score of 0–19 categorized as normal, 20–24 as mild distress, 25–29 as moderate distress and scores from 30 and above categorized as severe psychological distress (30, 31). The K10 has been shown to be a reliable and valid tool for screening of adolescents in epidemiological surveys and has been used extensively in Sub-Saharan Africa (32–36).

Alcohol Consumption, Smoking and Substance Use

Substance use among the students was assessed by alcohol, smoking and substance involvement screening test (ASSIST), a tool validated by World Health Organization for assessing the use of alcohol, tobacco products and other drugs. Substance use was assessed using the second question from ASSIST (37, 38). It consists of 10 questions assessing alcohol, smoking and substance use in the past three months, with Never = 0, Once/twice = 2, Monthly = 3, Weekly = 4, and Daily = 5. A score of "0" was classified as "no use" and 2 and above classified as "substance use".

Risky Sexual Behavior

The sexual behavior of the participants was assessed with questions on being sexually active, use of condoms and ever being pregnant. It was categorized into two: "No risky behavior" and "Risky Sexual behavior". Respondent that answered "No" to being sexually active or "Yes" to being sexually active but

“No” to her or their sexual partner ever being pregnant and “Yes” to consistent use of condoms was categorized as “No risky behavior”.

Chronic Illness

The chronic illness or condition of the participants was determined by the question “Do you have a chronic (long lasting) illness or health condition” with yes or no response.

Social Support

Two questions assessed social support, “Is there advice and support provided by your family and friends for you?” and “Are there elders or community leaders that you can easily go to for support and advice? Social support was classified into “No social support” and “Have Social Support”. Any “Yes” answer to one of the question was categorized as have social support.

Analysis

Data analysis was done with STATA Version 12.0. All participants that did not complete the questionnaire on psychological distress were excluded. Descriptive statistics was used to show the characteristics of the participants. The prevalence of psychological distress was determined by the scores of the students on Kessler’s psychological distress scale (K10). To identify the high risk behaviors associated with psychological distress, multinomial logistic regression was used with normal psychological distress as the reference. The variables which were significant in univariate analysis were included in the multivariable multinomial regression model. All statistical tests were two sided and all variables with $p < 0.05$ were considered significant at 95% confidence interval.

Results

Socio-demographic characteristics of study participants

A total of 921 students participated in the study with a response rate of 98.4% ($n = 906$). However, 15 (1.6%) students were excluded due to missing information on psychological distress. The minimum and maximum age of the participants was 11 years and 25 years respectively and the mean age was 16.9 (standard deviation 2.1). Most of the respondents were male 483 (53.6%), boarding students 673 (75.9%), Catholics 330 (36.7%) and attend mixed (both sex) schools 786 (86.7%). Socio-demographic characteristics of participants are shown in Table 1.

Table 1
Socio-demographic characteristics of participants

Variable	Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Total N = 906 (%)
Age					
Below 18 years	228 (64.4)	115 (56.7)	79 (53.4)	60 (54.0)	482 (59.1)
18 years and above	126 (35.6)	88 (43.3)	69 (46.6)	51 (46.0)	334 (40.9)
Gender					
Female	184 (47.3)	4 (42.5)	78 (48.2)	62 (48.1)	418 (46.4)
Male	205 (52.7)	127 (57.5)	84 (51.8)	67 (51.9)	483 (53.6)
Type of Student					
Boarding	280 (73.5)	169 (77.2)	132 (83.5)	92 (71.3)	673 (75.9)
Day	101 (26.5)	50 (22.8)	26 (16.5)	37 (28.7)	214 (24.1)
Type of School					
Private	211 (54.1)	123 (55.2)	93 (57.1)	71 (54.6)	498 (55.0)
Public	179 (45.9)	100 (44.8)	70 (42.9)	59 (45.4)	408 (45.0)
Mixed (Both sex)	320 (82.0)	195 (87.4)	150 (92.0)	121 (93.0)	786 (86.7)
Single-sex	70 (18.0)	28 (12.6)	13 (8.0)	9 (7.0)	120 (13.3)
Residence					
Urban/Town	220 (60.6)	111 (54.4)	88 (59.1)	59 (48.8)	478 (57.1)
Sub-urban	143 (39.4)	93 (45.6)	61 (40.9)	62 (51.2)	359 (42.9)
Religion					
Catholic	123 (31.9)	79 (35.4)	72 (44.4)	56 (43.4)	330 (36.7)
Moslem	38 (9.9)	25 (11.2)	15 (9.3)	6 (4.7)	84 (9.3)
Protestant	80 (20.8)	44 (19.7)	25 (15.4)	23 (17.8)	172 (19.1)
Pentecostal	89 (23.1)	45 (20.2)	34 (21.0)	32 (24.8)	200 (22.3)
Other	55 (14.3)	30 (13.5)	16 (9.9)	12 (9.3)	113 (12.6)

Variable	Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Total N = 906 (%)
Family Type					
Both Parent Alive	326 (84.9)	179 (81.4)	125 (77.2)	98 (77.2)	728 (81.5)
One Parent Alive	47 (12.2)	34 (15.5)	29 (17.9)	24 (18.9)	134 (15.0)
Orphan	11 (2.9)	7 (3.2)	8 (4.9)	5 (3.9)	31 (3.5)
Parents Marital Status					
Married/cohabiting	315 (86.5)	179 (87.3)	128 (85.9)	112 (88.9)	734 (87.0)
Separated/widowed	49 (13.5)	26 (12.7)	21 (14.1)	14 (11.1)	110 (13.0)
Guardian/Caretaker					
Parents	339 (92.1)	195 (91.6)	139 (90.8)	113 (90.4)	786 (91.5)
Others	29 (7.9)	18 (8.4)	14 (9.2)	12 (9.6)	73 (8.5)

Prevalence of psychological distress

Out of the 906 students, 390 (43%) students with scores less than 20 on the K10 psychological distress scale were normal. The prevalence of mild psychological distress was 223 (24.6%), moderate psychological distress 163 (18%) and severe psychological distress 130 (14.4%). The overall prevalence of psychological distress among the study participants was 57%.

Associations with mild, moderate and severe Psychological Distress

Unadjusted multinomial logistic regression showed that type of student, type of school (single/mixed), phone ownership, chronic illness, risky sexual behavior, alcohol consumption, smoking and substance use were significant (Table 2).

In adjusted multinomial logistic regression, students in mixed schools, those that owns mobile phones, have chronic illness, engages in risky sexual behavior, takes alcohol, smokes and use substances were more likely to have mild psychological distress. However, type of student, type of school, chronic illness, risky sexual behavior, alcohol consumption, smoking and substance use were associated with moderate psychological distress. For severe psychological distress, students in mixed schools, those that have mobiles phone, presence of chronic illness, students that engages in risky sexual behavior, consumes alcohol, smokes or use substances were at a higher risk (Table 3).

Table 2
Univariate analysis of factors related to psychological distress

Variable	Crude Relative Risk Ratio (95% CI)			P value
	Mild	Moderate	Severe	
	n (%)	n (%)	n (%)	
Age				
Below 18 years	1	1	1	0.050
18 years and above	1.38 (0.97–1.97)	1.58 (1.07–2.33)	1.54 (0.99–2.37)	
Gender				
Female	1	1	1	0.614
Male	1.21 (0.87–1.69)	0.97 (0.67–1.39)	0.97 (0.65–1.45)	
Type of Student				
Boarding	1.22 (0.83–1.79)	1.83 (1.14–2.95)	0.89 (0.57–1.39)	0.040
Day	1	1		
Type of School				
Private	1.04 (0.75–1.45)	1.13 (0.78–1.63)	1.02 (0.69–1.52)	0.937
Public	1	1	1	
Mixed (both sex)	1.52 (0.95–2.44)	2.52 (1.35–4.71)	2.94 (1.42–6.07)	< 0.001
Single-sex	1	1	1	
Residence				
Urban/Town	1	1	1	0.108
Sub-urban	1.29 (0.91–1.82)	1.07 (0.72–1.57)	1.62 (1.07–2.45)	
Religion				
Catholic	1.18 (0.69–1.99)	2.01 (1.07–3.77)	2.09 (1.04–4.20)	0.135
Moslem	1.21 (0.62–2.36)	1.36 (0.59–3.07)	0.72 (0.25–2.09)	
Protestant	1.01 (0.57–1.79)	1.07 (0.53–2.19)	1.32 (0.61–2.87)	
Pentecostal	0.93 (0.52–1.64)	1.31 (0.66–2.59)	1.65 (0.78–3.47)	
Other	1	1	1	

Variable	Crude Relative Risk Ratio (95% CI)			P value
	Mild n (%)	Moderate n (%)	Severe n (%)	
Family Type				
Both Parent Alive	1	1	1	0.337
One Parent Alive	1.32 (0.82–2.12)	1.61 (0.97–2.67)	1.69 (0.98–2.92)	
Orphan	1.16 (0.44–3.04)	1.89 (0.75–4.83)	1.51 (0.51–4.46)	
Guardian/Caretaker				
Parents	1	1	1	0.928
Others	1.08 (0.58–1.99)	1.17 (0.60–2.29)	1.24 (0.61–2.51)	
Parents Marital Status				
Married/cohabiting	1.07 (0.64–1.78)	0.95 (0.55–1.64)	1.24 (0.66–2.34)	0.883
Separated/widowed	1	1	1	
Phone Ownership				
No	1	1	1	< 0.001
Yes	1.55 (1.11–2.17)	1.74 (1.20–2.53)	2.06 (1.37–3.11)	
Social Support				
No	1	1	1	0.201
Yes	1.29 (0.82–2.06)	1.22 (0.74–2.03)	0.73 (0.45–1.19)	
Exam Failure				
No	1	1	1	0.273
Yes	1.28 (0.85–1.92)	1.52 (0.95–2.44)	1.04 (0.65–1.67)	
Chronic Illness				
No	1	1	1	< 0.001
Yes	1.59 (1.07–2.35)	1.83 (1.19–2.80)	2.59 (1.67–4.04)	
Risky Sex Behavior				
No	1	1	1	0.001
Yes	1.81 (1.17–2.79)	2.12 (1.33–3.37)	2.08 (1.26–3.43)	

Variable	Crude Relative Risk Ratio (95% CI)			P value
	Mild n (%)	Moderate n (%)	Severe n (%)	
Substance Use				
No	1	1	1	< 0.001
Yes	2.12 (1.49–3.02)	2.63 (1.79–3.87)	2.76 (1.82–4.18)	

Table 3
Multivariable analysis of factors related to psychological distress

Variable	Adjusted Relative Risk Ratio (95% CI)			P value
	Mild	Moderate	Severe	
	n (%)	n (%)	n (%)	
Type of Student				
Boarding	1.24 (0.81–1.89)	2.01 (1.20–3.37)	0.93 (0.57–1.51)	^a 0.316
Day	1	1	1	^b 0.008**
				^c 0.768
Type of School				
Mixed (both sex)	1.73 (1.04–2.88)	3.02 (1.57–5.81)	2.93 (1.37–6.31)	^a 0.036*
Single-sex	1	1		^b 0.001***
				^c 0.006**
Phone Ownership				
No	1	1	1	^a 0.049*
Yes	1.42 (1.00-2.03)	1.47 (0.99–2.20)	1.93 (1.24–3.01)	^b 0.058
				^c 0.003**
Chronic Illness				
No	1	1	1	^a 0.022*
Yes	1.62 (1.07–2.43)	1.88 (1.20–2.94)	2.60 (1.64–4.14)	^b 0.006**
				^c <0.001***
Risky Sex Behavior				
No	1	1	1	^a 0.028*
Yes	1.68 (1.06–2.68)	1.85 (1.12–3.05)	1.79 (1.04–3.09)	^b 0.017*
				^c 0.034*

^a Mild; ^b Moderate; ^c Severe

*p < 0.05; **p < 0.01; ***p < 0.001

Variable	Adjusted Relative Risk Ratio (95% CI)			P value
	Mild n (%)	Moderate n (%)	Severe n (%)	
Substance Use				^a <0.001***
No	1	1	1	^b <0.001***
Yes	2.01 (1.39–2.92)	2.35 (1.55–3.55)	2.57 (1.66–4.01)	^c <0.001***
^a Mild; ^b Moderate; ^c Severe				
<p>*p < 0.05; **p < 0.01; ***p < 0.001</p>				

Discussion

The aim of the study was to determine the prevalence of psychological distress and to identify the high risk behaviors associated with psychological distress among secondary school adolescents in Uganda. The overall prevalence of psychological distress was 57% with 24.6% mild psychological distress, 18% moderate psychological distress and 14.4% severe psychological distress. The study identified risky sexual behavior, alcohol consumption, smoking and substance use as high risk behaviors associated with mild, moderate and severe psychological distress. Other covariates identified in this study were chronic illness and type of school which were significantly associated with mild, moderate and severe psychological distress. However, mobile phone ownership was associated with mild and severe psychological distress while type of student residence was significantly associated with moderate psychological distress.

The prevalence of psychological distress in this study is consistent with the prevalence rates reported by other studies in Uganda. Generally, previous studies have shown a high prevalence of mental health issues such as anxiety and depression among adolescents in Ugandan. A recent study conducted among high school adolescent girls in Southern Uganda revealed that the prevalence of depressive symptoms ranged from 16–29% among the study participants (27). Another study conducted among secondary school students in Central Uganda indicated that 21% had significant depression symptoms (14). Other studies have reported prevalence rates of 26.6% anxiety disorders in children and adolescents (29), 36% anxiety/depressive symptoms in marginalized adolescent population (28) and 51% psychological distress in adolescents living with HIV/AIDS (13). In comparison to studies from other countries, this study finding is similar to the rates reported in Tanzania (12), Ethiopia (33), Egypt (39), Canada (7) and China (8), but distinct from rates in Zambia (11), India (10) and USA (40). The differences in the prevalence rates of psychological distress could be due to the diverse environment, culture and economic factors as well as varying study sample, assessment tool and methodology.

In this survey, students who drank alcohol, smoked or used substances were more likely to report psychological distress compared to students who do not. This finding is consistent with a study conducted in Uganda where alcohol and drug use was associated with depression in school going adolescents (14). This association may be due to the use of alcohol as a coping mechanism to stressors or life challenges. Previous studies conducted in Tanzania (12), Ethiopia (33), Zambia (11), India (10), Norway (21) and Finland (41) have shown similar results although a study in Canada reported that alcohol and cannabis use were not associated with psychological distress (7). This study revealed that adolescents that engage in risky sexual activities were more likely to report psychological distress. The possible explanation for this relationship could be that adolescents become distressed because of engaging in risky sexual behavior or psychological distress may make it difficult for the students to practice safe sex. This is supported by studies conducted among high school students in the US (18, 23), school-going adolescents in Tanzania (12) and adolescents in Sub-Saharan Africa (22). However, contradictory findings was reported in African American adolescent girls (42).

When examining the covariates of psychological distress, students who report having chronic health conditions were more likely to have psychological distress. This is in line with a research conducted among adolescents in Kampala, Uganda (17). Other existing studies have also shown similar results (43, 44). Phone ownership was significantly associated with psychological distress in our sample. Studies suggest that adolescents that own mobile phones were more likely to have psychological distress compared to their colleagues that do not have mobile devices (35, 45). In addition, students in boarding schools and schools with both genders tend to report more cases of psychological distress, nonetheless, this is contrary to another study where students in single-sex schools had higher odds of psychological distress (14). Contrary to existing studies; gender, social support and academic performance were not associated with psychological distress in this study (7, 10, 14, 27, 33, 46, 47).

This study has limitations that should be considered when interpreting the results. The cross-sectional design of this study does not indicate the cause - effect relationship. Self-reported instrument was used to identify psychological distress with no diagnostic interview conducted to establish the presence of psychological distress. Moreover, there is a tendency of giving social desirable responses by the students and some questions require recall of past history which is prone to recall bias.

Conclusions

A high prevalence of psychological distress was identified among secondary school students in Uganda. The finding indicates that one in every two school-going adolescent have some symptoms of psychological distress. Besides, the results of this study revealed that risky sexual behavior, alcohol consumption, smoking and substance use were associated with psychological distress. Hence, psychological distress in adolescents may be linked to high rate of HIV/AIDS, sexual transmitted infections, unwanted pregnancies and other negative consequences in this population. Thus, incorporating mental health services with substance and sexual health programs for adolescents is

recommended. Also, it is needful to institute counseling and mental health programs for secondary school students.

Declarations

Ethics approval and consent to participate

The study was approved by the Research Ethics Committee of Mbarara University of Science and Technology. Participation was voluntary and informed written consent was obtained from all the participants. All procedures performed were in accordance with the 1964 Helsinki declaration and its later amendments.

Consent for publication

Not Applicable.

Availability of data and materials

The datasets used and/or analyzed during this study are available from the corresponding author on reasonable request.

Competing Interests

The author declares that there is no competing interest.

Authors' Contributions

MUA was the sole author involved in the conceptualization, data collection, and writing of this article.

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