Depression, Anxiety, and Suicide Risk Among Ugandan Youth in Vocational Training

Badru Bukenya

Makerere University

Rogers Kasirye

Uganda Youth Development Link

Joanne Lunkuse

Uganda Youth Development Link

Moses Kinobi

Uganda Youth Development Link

Sylvanna M. Vargas (✉ sylvannv@usc.edu)

Semel Institute, University of California <https://orcid.org/0000-0002-6824-1842>

Rupinder Legha

Semel Institute, University of California

Lingqi Tang

Semel Institute, University of California

Jeanne Miranda

Semel Institute, University of California

Research

Keywords: anxiety, depression, Uganda, youth

Posted Date: May 24th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-460485/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Version of Record: A version of this preprint was published at Psychiatric Quarterly on November 13th, 2021. See the published version at <https://doi.org/10.1007/s11126-021-09959-y>.

Abstract

Background: The current study examines the prevalence of depression, anxiety, suicide risk, and PTSD in Ugandan youth (13-25 years) attending vocational training programs.

Methods: Youth from five urban ($n=224$ females, 81 males) and four rural ($n=153$ females only) vocational training centers operated by a non-governmental organization completed demographic and mental health questionnaires.

Results: Nearly half of the youth reported moderate or severe depression and/or anxiety. More than half reported anxiety and depression-related impairment. Nearly a quarter of youth had considered or attempted suicide. More than half screened positive on the PC-PTSD screen. Rural female youth reported the most food insecurity (56.9%), trafficking (37.9%), severe depression (35.9%), depression-related impairment (56.9%), severe anxiety (26.1%), and anxiety-related impairment (55.6%).

Conclusions: Results from this study suggest that Ugandan youth have exceedingly high rates of depression, anxiety, suicide risk, and probable PTSD. Rural female youth may be especially at risk. Relevant treatment interventions are needed that can be adapted to youth in vocational training centers.

Background

Depression is the leading cause of disability worldwide and a major contributor to the overall global burden of disease (World Health Organization, 2017). Among adolescents aged 15-19 years old worldwide, depression is the leading cause of illness and disability (World Health Organization, 2014). Suicide, for which depression is a significant risk factor, is the second leading cause of death among young adults aged 15-29 (World Health Organization, 2016). Most mental disorders begin during adolescence but often go undetected and untreated, exacting enduring effects on physical health and educational achievement and increasing the risk of substance abuse, violence, and poor reproductive and sexual health (Patel et al., 2007; Thapar et al., 2012). Because low and middle income countries (LMICs) are home to 80% of the world's population, including the largest proportion of youth, depression has emerged as a major public health concern there (Kieling et al., 2011). Efficacious and affordable treatments for depression among youth in these settings are available and can potentially bring a wealth of benefit to future adult life (Patton et al., 2016). However, a major gap in knowledge involves the prevalence of depression and associated factors in these settings (Yatham et al., 2018).

In Uganda, more than 75% of the population is under 30 years of age, and another 22.5% is between ages 18-30 (Ministry of Health of Uganda, 2017; Uganda Bureau of Statistics, 2017). Youth may face multiple psychosocial stressors, including exposure to physical, emotional, interpersonal, and sexual violence (Devries et al., 2017; Self-Brown et al., 2018; Swahn et al., 2018). Millions of children have been orphaned by the AIDS epidemic and suffer high levels of psychosocial and psychological distress as a result (Atwine et al., 2005). Children living in the slums of Kampala have reported high rates of abuse ($N=380$, 34.0%) and commercial sexual exploitation ($N=593$, 39%), (Clarke et al., 2016; Swahn et al., 2017; Swahn

et al., 2016). Though country-wide poverty has declined significantly in the recent decades, the unemployment rate is disproportionately higher for youth versus adults and even higher among urban and female youth when compared to their rural and male counterparts (Uganda Bureau of Statistics, 2017). Poverty and unemployment, in turn, make youth susceptible to forced-labour and sex trafficking (U.S. Department of State, 2017). Cumulatively, these stressors can contribute to significant psychiatric morbidity, including depression, anxiety, and post-traumatic stress disorder, especially among more vulnerable young people (Kessler et al., 2015; Kilpatrick et al., 2003; Thapar et al., 2012).

The existing literature documenting the need for mental health care among groups of Ugandan youth is very limited. Several studies have focused on the elevated psychological distress experienced by Ugandan adolescents with HIV or exposed to war trauma, including being abducted to become child soldiers (Amone-P'Olak & Ovuga, 2017; Knizek et al., 2017; Mutumba et al., 2017, 2016; Olak et al., 2015). High rates of suicidal ideation among youth (N=1134, 23.54%), depressive symptoms among adolescents (N=519, 21.0%), and anxiety disorders among children and adolescents (N=1680, 26.6%) have also been reported (Abbo et al., 2013; Culbreth et al., 2018; Nalugya-Sserunjogi et al., 2016).

These findings underscore the importance of determining the prevalence of common mental illnesses among groups of Ugandan youth in settings that could provide mental health care. Enabling young people to enter the workforce is essential for reducing the burden of poverty in Uganda. Identifying key groups of youth likely to enter the workforce and in need of mental healthcare is key to capitalizing on their full socioeconomic potential. The present study attempts to address this critical gap in knowledge by describing the prevalence of depression, anxiety, and PTSD among impoverished and unemployed Ugandan youth participating in vocational training programs. We compare youth based on gender because of depression's well-established disproportionate prevalence among post-pubertal adolescent and adult females across diverse settings (Kessler & Bromet, 2013; Thapar et al., 2012), as well as the greater risk Ugandan female youth face for unemployment and sexual exploitation (U.S. Department of State, 2017; Uganda Bureau of Statistics, 2017). Due to the unique stressors facing rural youth, including proximity to health care, lacking daily necessities, and greater likelihood of unemployment, this study also included an urban versus rural analysis (Cooper-Vince et al., 2018; Uganda Bureau of Statistics, 2017).

Method

Study Sample and Setting

The study sample is comprised of youth ages 13-25 drawn from nine youth drop-in centres. The drop-in centres are operated by Uganda Youth Development Link (UYDEL) a non-governmental organization started in 1993 with the aim of enhancing socioeconomic opportunities for vulnerable and disadvantaged young people. UYDEL targets young people who have been victims of commercial sexual exploitation and child labour trafficking, who have suffered from alcohol, drug, and substance abuse, and who have little ability to obtain gainful employment without training and toolkits to begin gainful employment. UYDEL provides evaluation of and support for these vulnerable youth, including vocational

skills training and emotional support at 13 youth drop-in centres located in eight districts in the central region of Uganda (Kampala, Wakiso, Mukono, Mubende, Mityana, Gomba, Sembabule, Bukomansimbi, and Rakai). The study sample was drawn from five drop-in centres in urban settings and four drop-in centres in rural settings. Because the rural drop-in centres operate a project exclusively for young women, no males were drawn from the rural drop-in centres. All youth who visited the drop-in centres on the days the research team held screenings were invited to participate. A total of 224 women and 81 men from the urban drop-in centres and 157 women from the rural drop-in centres participated.

Data Collection Procedure

Prior to participating all youth completed informed consent. Staff members at the youth drop-in centres interviewed each participant individually and entered data into tablets directly. Data was gathered through October 2017 to May 2018. Less than 2% declined to participate.

Measures

Sociodemographic characteristics included age, sex, and education (less than secondary, some secondary, and secondary school graduates). Food security was determined by a single question asking about going without food for a whole day (24 hours) in the past month (never, at least once). Housing status was evaluated by the number of rooms (single room, two rooms, three or more rooms) or homelessness. Living situation was based on whether youth were living with their parents or with other adults. Participants were also asked about a history of being trafficked for work (yes/no).

The PHQ-9 is a brief nine-item self-report assessment for screening, diagnosing, monitoring, and measuring the severity of depression. The PHQ-9 asks about the degree to which the respondent has been bothered by depressive symptoms over the past 14 days. Response options are measured from 0 ("Not at All") to 3 ("Nearly Every Day"). Scores range from 0-27 and are categorized as minimal (0-4), mild (5-9), moderate (10-14), or severe (15 or higher). Good construct, criterion, and external validity have been demonstrated (Lotrakul et al., 2008).

Each study participant was asked to answer yes or no to the following questions about suicide risk: 1) "Has there been a time in the past month when you have had serious thoughts about ending your life?"; 2) "Have you ever in your whole life tried to kill yourself or made a suicide attempt?"; and 3) "Have any of your blood relatives committed suicide?".

We assessed anxiety using the Generalized Anxiety Disorder 7 (GAD-7), a brief seven-item self-report questionnaire for screening and assessing severity of generalized anxiety disorder. Response options describe the number of days symptoms have been experienced over the past two weeks, from 0 ("Not at All") to 3 ("Nearly Every Day"). Scores range from 0-21 and are categorized as minimal (0-4), mild (5-9), moderate (10-14), and severe (15 or higher). Reliability as well as criterion, construct, factorial, and procedural validity have been well established (Lowe et al., 2008).

After completing the PHQ-9, participants reported depression's associated degree of functional impairment by responding to "How difficult have these problems made it for you?" ("not difficult at all," "somewhat difficult," "very difficult," "extremely difficult"). They reported the degree of anxiety-related impairment in a similar fashion after completing the GAD-7.

The Primary Care PTSD (PC-PTSD) Screen is a 4-item, self-report screening tool. It includes an introductory sentence to cue respondents to traumatic events followed by four symptoms items pertaining to a DSM-IV diagnosis of PTSD. Screens are considered positive if the participant answers yes to any three items. A cut-off score of 3 is considered optimally sensitive for a probable diagnosis of PTSD (Prins et al., 2004).

Data Analyses

We conducted bivariate analyses to compare gender (female vs. male) from urban and geographic area (rural vs. urban) among females with sociodemographic factors and depression variables. We present means with standard deviation for continuous variables or percentages for categorical variables. These analyses used *t*-tests for continuous variables and Chi-square tests for categorical variables. For variables with small cell sizes (expected values less than 5), we conducted sensitivity analyses using the Fisher exact test, with no change in results.

Results

Sample characteristics of urban youth, male versus female

Table 1 presents the demographic similarities and differences between male ($n=81$) and female ($n=224$) participants drawn from the five urban youth drop-in centres. Males (17.9 ± 2.3 , 13-24) and females (17.9 ± 2.2 , 13-25) were of similar age. They reported similar educational background, food insecurity, housing, and living arrangements. For example, only a very small percentage completed secondary education (8.6% for males and 4.5% for females), and most lived in either one or two-room homes with only 1.2-1.3% reporting homelessness. Nearly a third reported living with adults other than their parents (30.6-31.9%), while a lesser though still notable number reported a history of being trafficked for work (9.9% for males and 14.7% for females). Male youth (53.1%) reported greater food insecurity compared to female youth (33.9%).

Depression, suicide risk, anxiety, and PTSD for urban male versus female youth

As noted in Table 2, both male and female youth reported high rates of moderate (34.6-40.6%) and severe (9.9%-11.2%) depression and somewhat depression-related impairment (25.9-35.7%). However, female youth (26.8%) were more likely than males (12.3%) to report suicidal ideation in the past month, but both groups shared similar histories of previous suicide attempts (16.0-22.8%) and family histories of suicide (9.9-15.2%). The majority of youth reported mild (35.8-37.9%) to moderate (29-37%) anxiety; females

experienced greater anxiety-related impairment (35.7% vs. 23.5%). More than half screened positive on the PC-PTSD (51.9-54.5%).

Sample characteristics of female urban versus rural youth

Table 3 presents the demographic similarities and differences between females from the five urban (n=224) and four rural (n=153) drop-in centres. The rural youth (19.3±2.4, 15-24) were older than the urban youth (17.9±2.2, 13-25) but had similar educational backgrounds and housing arrangements. More specifically, only 3.3-4.5% completed secondary school, while 0.7-1.3% were homeless, and a substantial number (35.9-42.9%) were living in single-room dwellings. Compared to urban female youth, rural female youth were more likely to report food insecurity (56.9% vs. 33.9%), a history of trafficking (37.9% vs. 14.7%), and living with adults other than their parents (69.1% vs. 31.9%).

Depression, suicide risk, anxiety, and PTSD of female urban versus rural youth

The majority of youth reported moderate or severe depression and depression related impairment, but rural youth reported a greater burden of severe depression (35.9% vs 11.2%) and impairment (56.9% vs 35.7%). Both groups reported similar lifetime histories of suicide attempts (21.6-22.8%) and family histories of suicide (15.2-19.6%). However, rural youth were also more likely to report suicidal ideation in the past month (37.9% vs. 26.8%). While the overall rates of moderate (29.4%) and severe (12.7%) anxiety were high, rural youth were much more likely to report severe anxiety (26.1% vs. 3.6%). Rural youth experienced greater anxiety-related impairment (55.6% vs 35.7%). Over half (54.5-62.1%) screened positive on the PC-PTSD.

Discussion

High rates of depression, anxiety, and probable PTSD were reported among Ugandan youth attending vocational training programs. Furthermore, just under a quarter of these youth considered or had attempted suicide in the past. Over half of these youth felt that depression and anxiety made it very or extremely difficult for them to function. This strongly suggests that evidence-based interventions, such as cognitive behavioural therapy, should be provided within these settings to support these youth as they gain vocational skills and gain employment.

Several factors likely contribute to the high rates of emotional disorders and impairment noted in these youth. They have low levels of educational attainment, and many experience extreme stressors such as food insecurity. Nearly a quarter have been subjected to human trafficking. These factors may help explain depression differences based on gender and geographical residence. The current study found no gender differences in rates of depression or related impairment, or rates of anxiety or PTSD. This is surprising given that post-pubertal females are typically more likely to be depressed than males (Kessler & Bromet, 2013; Thapar et al., 2012). It is possible that the occurrence of major stressors experienced by both female and male youth in our sample may account for the high rates of depression among both genders. In contrast, rural female youth were more likely than urban female youth to endorse severe

depression and anxiety, as well as related impairment. Rural youth in the current sample were also more likely to experience major stressors and a history of trafficking, which may have contributed to their heightened rates of depression.

Gender and geographic differences also emerged in suicide risk among youth in the current sample. While female youth were more likely to endorse active SI, no differences emerged in rates of past suicide attempts. Several studies have documented that females are more likely to experience SI and attempt suicide than males (McKinnon et al., 2016). However, much of this research is based on high income countries. Research examining suicide risk in African LMICs suggests that gender differences may not be as pronounced as in high-income countries (WHO, 2019; McKinnon et al., 2016). Similarly, rural vs. urban female youth were more likely to endorse SI but not SA. More population-level data is needed to understand suicide in Uganda. The current findings indicate that among largely disadvantaged youth who are preparing to enter the workforce, suicidal ideation and prior attempts are a significant problem.

Existing studies have suggested that rates of psychopathology are high among Ugandan youth. However, little is known about youth attending settings where services could potentially be provided. NGOs and other organizations that provide services to youth often prepare them for the workforce, but maybe miss important psychological problems that can further improve the chances youth will be able to maintain work and stable life. Furthermore, youth who are already linked to a service, such as the drop-in centres in our study, may be easier to engage in mental health care. Youth who are already engaged with a type of service setting may experience fewer logistical barriers related to accessing mental health care. The current study recruited youth from drop-in centres providing vocational training and emotional support to disadvantaged youth. Despite being connected to some support at the drop-in centres, youth in the current study still reported high rates of psychopathology. Fortunately, these youth have an opportunity to develop vocational skills that could improve their lives significantly. The social work staff in these settings are potentially available to provide evidence-based care for depression and anxiety within the vocational training program. Future research should examine the effectiveness of evidence-based mental health treatments, such as cognitive-behavioural therapy, for disadvantaged youth in these settings.

Several limitations should be noted with this study. The participants are a volunteer sample, although nearly all youth attending the programs were screened. The instruments were screening instruments and might not be indicative of need for treatment for all youth who screened positive. Nonetheless, this study clearly identifies a need for mental health treatment to be embedded within vocational training programs for Ugandan youth to improve the quality of their lives, as well as help them to potentiate the training.

Declarations

Funding: “Center for HIV Identification, Prevention, and Treatment Services.” P30MH058107, National Institute of Mental Health

Conflicts of interest: None to report.

Ethics approval: The current study was approved by the UCLA and Ugandan National Council for Science and Technology Institutional Review Boards.

Consent to participate: Youth provided informed consent to participate.

Consent for publication: NA

Availability of data or code: NA

Author contributions: Badru, Rogers, & Miranda: developed the conceptualization of the study and supervised the operations. Kinobi & Lunkuse: developed materials and executed the study. Vargas: manuscript preparation. Legha: analysis and manuscript preparation. Tang: analysis.

References

1. Abbo C, Kinyanda E, Kizza RB, Levin J, Ndyababangi S, Stein DJ. Prevalence, comorbidity and predictors of anxiety disorders in children and adolescents in rural north-eastern Uganda. *Child Adolescent Psychiatry Mental Health*. 2013;7(1):1–11. <https://doi.org/10.1186/1753-2000-7-21>.
2. Amone-P'Olak K, Omech B. Coping with post-war mental health problems among survivors of violence in Northern Uganda: Findings from the WAYS study. *Journal of Health Psychology*. 2018. <https://doi.org/10.1177/1359105318775185>.
3. Amone-P'Olak K, Ovuga E. The influence of types of war experiences on conduct problems in war-affected youth in Northern Ugandan: Findings from the WAYS study. *Psychiatry Res*. 2017;251:14–9. <https://doi.org/10.1016/j.psychres.2017.01.092>.
4. Atwine B, Cantor-Graae E, Bajunirwe F. Psychological distress among AIDS orphans in rural Uganda. *Soc Sci Med*. 2005;61(3):555–64. <https://doi.org/10.1016/j.socscimed.2004.12.018>.
5. Clarke K, Patalay P, Allen E, Knight L, Naker D, Devries K. Patterns and predictors of violence against children in Uganda: A latent class analysis. *BMJ Open*. 2016;6(5):1–9. <https://doi.org/10.1136/bmjopen-2015-010443>.
6. Cooper-Vince CE, Arachy H, Kakuhikire B, Vořechovská D, Mushavi RC, Baguma C, ... Tsai AC. Water insecurity and gendered risk for depression in rural Uganda: a hotspot analysis. *BMC Public Health*. 2018;18(1):1143. <https://doi.org/10.1186/s12889-018-6043-z>.
7. Culbreth R, Swahn MH, Ndeti D, Ametewee L, Kasirye R. Suicidal ideation among youth living in the slums of Kampala, Uganda. *International Journal of Environmental Research Public Health*. 2018;15(2):11–6. <https://doi.org/10.3390/ijerph15020298>.
8. Devries KM, Knight L, Child JC, Kyegombe N, Hossain M, Lees S, ... Naker D. Witnessing intimate partner violence and child maltreatment in Ugandan children: a cross-sectional survey. *BMJ Open*. 2017;7(2):e013583. <https://doi.org/10.1136/bmjopen-2016-013583>.
9. Kessler RC, Bromet EJ. The epidemiology of depression across cultures. *Annu Rev Public Health*. 2013;34:119–38. <https://doi.org/10.1146/annurev-publhealth-031912-114409>.

10. Kessler RC, Sampson NA, Berglund P, Gruber MJ, Al-Hamzawi A, Andrade L, ... Wilcox MA. Anxious and non-anxious major depressive disorder in the World Health Organization World Mental Health Surveys. *Epidemiology Psychiatric Sciences*. 2015;24(03):210–26.
<https://doi.org/10.1017/S2045796015000189>.
11. Kieling C, Baker-Henningham H, Belfer M, Conti G, Ertem I, Omigbodun O, ... Rahman A. (2011, October 22). Child and adolescent mental health worldwide: Evidence for action. *The Lancet*. Elsevier. [https://doi.org/10.1016/S0140-6736\(11\)60827-1](https://doi.org/10.1016/S0140-6736(11)60827-1).
12. Kilpatrick DG, Ruggiero KJ, Acierno R, Saunders BE, Resnick HS, Best CL. (2003). Violence and risk of PTSD, major depression, substance abuse/dependence, and comorbidity: Results from the National Survey of Adolescents. *Journal of Consulting and Clinical Psychology*. Kilpatrick, Dean G.: National Crime Victims Research & Treatment Ctr, Dept of Psychiatry & Behavioral Sciences, Medical U of South Carolina, P.O. Box 250852, 165 Cannon Street, Charleston, SC, US, 29425, kilpatdg@musc.edu: American Psychological Association. <https://doi.org/10.1037/0022-006X.71.4.692>.
13. Knizek BL, Mugisha J, Osafo J, Kinyanda E. (2017). Growing up HIV-positive in Uganda: “ psychological immunodeficiency ” ? A qualitative study, 1–10. <https://doi.org/10.1186/s40359-017-0199-7>.
14. Lotrakul M, Sumrithe S, Saipanish R. Reliability and validity of the Thai version of the PHQ-9. *BMC Psychiatry*. 2008;8:46.
15. Lowe B, Decker O, Muller S, Brahler E, Schellberg D, Herzog W, Herzberg PY. Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. *Med Care*. 2008;46(3):266–74. <https://doi.org/10.1097/MLR.0b013e318160d093>.
16. McKinnon B, Gariépy G, Sentenac M, Elgar FJ. (2016). Adolescent suicidal behaviours in 32 low-and middle-income countries. *Bulletin of the World Health Organization*, 94(5), 340.
17. Ministry of Health of Uganda. (2017). *Child and Adolescent Mental Health Policy Guidelines*.
18. Mutumba M, Bauermeister JA, Harper GW, Musiime V, Lepkowski J, Resnicow K, ... Snow RC. (2017). Psychological distress among Ugandan adolescents living with HIV: Examining stressors and the buffering role of general and religious coping strategies, 1692.
<https://doi.org/10.1080/17441692.2016.1170871>.
19. Mutumba M, Musiime V, Lepkowski JM, Harper GW, Snow RC, Resnicow K, Bauermeister JA. Examining the relationship between psychological distress and adherence to anti-retroviral therapy among Ugandan adolescents living with HIV. *AIDS Care - Psychological Socio-Medical Aspects of AIDS/HIV*. 2016;28(7):807–15. <https://doi.org/10.1080/09540121.2015.1131966>.
20. 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 Adolescent Psychiatry Mental Health*. 2016;10(1):4–11.
<https://doi.org/10.1186/s13034-016-0133-4>.
21. Olak KA, Ovuga E, Jones PB. (2015). The effects of sexual violence on psychosocial outcomes in formerly abducted girls in Northern Uganda: the WAYS study. *BMC Psychology*, 1–9.

<https://doi.org/10.1186/s40359-015-0103-2>.

22. Patel V, Flisher AJ, Hetrick S, McGorry P. (2007, April 14). Mental health of young people: a global public-health challenge. *Lancet*. Elsevier. [https://doi.org/10.1016/S0140-6736\(07\)60368-7](https://doi.org/10.1016/S0140-6736(07)60368-7).
23. Patton GC, Sawyer SM, Santelli JS, Ross DA, Afifi R, Allen NB, ... Viner RM. Our future: a Lancet commission on adolescent health and wellbeing. *The Lancet*. 2016;387(10036):2423–78. [https://doi.org/10.1016/S0140-6736\(16\)00579-1](https://doi.org/10.1016/S0140-6736(16)00579-1).
24. Prins A, Ouimette P, Kimerling R, Camerond RP, Hugelshofer DS, Shaw-Hegwer J, ... Sheikh JI. The primary care PTSD screen (PC-PTSD): development and operating characteristics. *Primary Care Psychiatry*. 2004;9(1):9–14. <https://doi.org/10.1185/135525703125002360>.
25. Self-Brown S, Culbreth R, Wilson R, Armistead L, Kasirye R, Swahn MH. (2018). Individual and Parental Risk Factors for Sexual Exploitation Among High-Risk Youth in Uganda. *Journal of Interpersonal Violence*, 886260518771685. <https://doi.org/10.1177/0886260518771685>.
26. Swahn MH, Culbreth RE, Staton CA, Self-Brown SR, Kasirye R. (2017). Alcohol-Related Physical Abuse of Children in the Slums of Kampala, Uganda. *International Journal of Environmental Research Public Health*, 14(10). <https://doi.org/10.3390/ijerph14101124>.
27. Swahn MH, Culbreth R, Salazar LF, Kasirye R, Seeley J. (2016). Prevalence of HIV and Associated Risks of Sex Work among Youth in the Slums of Kampala. *AIDS Research and Treatment*, 2016, 5360180. <https://doi.org/10.1155/2016/5360180>.
28. Swahn MH, Culbreth R, Tumwesigye NM, Topalli V, Wright E, Kasirye R. (2018). Problem Drinking, Alcohol-Related Violence, and Homelessness among Youth Living in the Slums of Kampala, Uganda. *International Journal of Environmental Research Public Health*, 15(6). <https://doi.org/10.3390/ijerph15061061>.
29. Thapar A, Collishaw S, Pine DS, Thapar AK. Depression in adolescence. *The Lancet*. 2012;379(9820):1056–67. [https://doi.org/10.1016/S0140-6736\(11\)60871-4](https://doi.org/10.1016/S0140-6736(11)60871-4).
30. The World Bank Group. (2016). *Poverty Assessment Report 2016*. DOI: 10.1016/0032-5910(93)80007-W.
31. Thumann BF, Nur U, Naker D, Devries KM. Primary school students' mental health in Uganda and its association with school violence, connectedness, and school characteristics: A cross-sectional study. *BMC Public Health*. 2016;16(1):15–7. <https://doi.org/10.1186/s12889-016-3351-z>.
32. U.S. Department of State. 2018 Trafficking in Persons Report Country Narrative: Uganda. *U.S Department of State*, 2017.
33. Uganda Bureau of Statistics. (2017). *2017 Statistical Abstract*.
34. World Health Organisation. (2016). WHO | Suicide data.
35. World Health Organization. (2014). Health for the World's Adolescents.
36. World Health Organization. (2017). Depression and Other Common Mental Disorders.
37. World Health Organization. (2019). Suicide in the World.

38. Yatham S, Sivathasan S, Yoon R, da Silva TL, Ravindran AV. Depression, anxiety, and post-traumatic stress disorder among youth in low and middle income countries: A review of prevalence and treatment interventions. Asian Journal of Psychiatry. 2018;38:78–91.
<https://doi.org/10.1016/j.ajp.2017.10.029>.

Tables

Table 1. Sample characteristics by gender (urban)

	Analytic n	Overall (n=305)	Male (n=81)	Female (n=224)	p- value
Age					
	304	17.9±2.2(13-25)	17.9±2.3(13-24)	17.9±2.2(13-25)	0.99
Education					0.365
Seven years of education or less	305	151/305 (49.5%)	38/81 (46.9%)	113/224 (50.4%)	
Some secondary education	305	137/305 (44.9%)	36/81 (44.4%)	101/224 (45.1%)	
Secondary education completed	305	17/305 (5.6%)	7/81 (8.6%)	10/224 (4.5%)	
Food insecurity past month					0.002
Never	305	186/305 (61.0%)	38/81 (46.9%)	148/224 (66.1%)	
At least once	305	119/305 (39.0%)	43/81 (53.1%)	76/224 (33.9%)	
Housing					0.621
Homeless	305	4/305 (1.3%)	1/81 (1.2%)	3/224 (1.3%)	
One room	305	137/305 (44.9%)	41/81 (50.6%)	96/224 (42.9%)	
Two rooms	305	90/305 (29.5%)	23/81 (28.4%)	67/224 (29.9%)	
Three or more rooms	305	74/305 (24.3%)	16/81 (19.8%)	58/224 (25.9%)	
Living arrangements					0.839
With parents	254	174/254 (68.5%)	50/72 (69.4%)	124/182 (68.1%)	
With others	254	80/254	22/72	58/182	

		(31.5%)	(30.6%)	(31.9%)	
Trafficked for work					0.272
Yes	305	41/305	8/81	33/224	
		(13.4%)	(9.9%)	(14.7%)	

Table 2. Depression, suicide risk, anxiety, PTSD by gender (urban)

	Overall (n=305)	Male (n=81)	Female (n=224)	p- value
PHQ-9 (depression) results				0.399
Minimal	63/305 (20.7%)	22/81 (27.2%)	41/224 (18.3%)	
Mild	90/305 (29.5%)	23/81 (28.4%)	67/224 (29.9%)	
Moderate	119/305 (39.0%)	28/81 (34.6%)	91/224 (40.6%)	
Severe	33/305 (10.8%)	8/81 (9.9%)	25/224 (11.2%)	
Depression related impairment				0.109
Very or extreme difficulty functioning	101/305 (33.1%)	21/81 (25.9%)	80/224 (35.7%)	
Suicide risk				
Has there ever been a time in the past month when you had serious thoughts about ending your life?	70/305 (23.0%)	10/81 (12.3%)	60/224 (26.8%)	0.008
Have you ever in your whole life tried to kill yourself or made a suicide attempt?	64/305 (21.0%)	13/81 (16.0%)	51/224 (22.8%)	0.203
Have any of your blood relatives committed suicide?	42/305 (13.8%)	8/81 (9.9%)	34/224 (15.2%)	0.235
GAD-7 (anxiety) results				0.572
Minimal	86/305 (28.2%)	20/81 (24.7%)	66/224 (29.5%)	
Mild	114/305 (37.4%)	29/81 (35.8%)	85/224 (37.9%)	
Moderate	95/305 (31.1%)	30/81 (37.0%)	65/224 (29.0%)	
Severe	10/305 (3.3%)	2/81 (2.5%)	8/224 (3.6%)	

Anxiety related impairment				0.043
Very or extreme difficulty functioning	99/305 (32.5%)	19/81 (23.5%)	80/224 (35.7%)	
PC-PTSD (post-traumatic stress disorder) results				
Screened positive	164/305 (53.8%)	42/81 (51.9%)	122/224 (54.5%)	0.686

Table 3. Sample characteristics of women by residential status (urban versus rural)

	Analytic n	Overall (n=377)	Urban (n=224)	Rural (n=153)	p- value
Age					
	358	18.4±2.4, 13-25	17.9±2.213- 25	19.3±2.4, 15- 24	<0.001
Education					0.682
Less than seven years of education	377	186/377 (49.3%)	113/224 (50.4%)	73/153 (47.7%)	
Some secondary education	377	176/377 (46.7%)	101/224 (45.1%)	75/153 (49.0%)	
Secondary education completed	377	15/377 (4.0%)	10/224 (4.5%)	5/153 (3.3%)	
Food insecurity past month					<.001
Never	377	214/377 (56.8%)	148/224 (66.1%)	66/153 (43.1%)	
At least once	377	163/377 (43.2%)	76/224 (33.9%)	87/153 (56.9%)	
Housing					0.122
Homeless	377	4/377 (1.1%)	3/224 (1.3%)	1/153 (0.7%)	
One room	377	151/377 (40.1%)	96/224 (42.9%)	55/153 (35.9%)	
Two rooms	377	107/377 (28.4%)	67/224 (29.9%)	40/153 (26.1%)	
Three or more rooms	377	115/377 (30.5%)	58/224 (25.9%)	57/153 (37.3%)	
Living arrangement					<.001
With parents	321	167/321 (52.0%)	124/182 (68.1%)	43/139 (30.9%)	
With others	321	154/321 (48.0%)	58/182 (31.9%)	96/139 (69.1%)	
Trafficked for work					
Yes	377	91/377 (24.1%)	33/224 (14.7%)	58/153 (37.9%)	<.001

Table 4. Depression, suicide risk, anxiety, PTSD for women by residential status (urban versus rural)

	Overall (n=377)	Urban (n=224)	Rural (N=153)	p- value
PHQ-9 (depression) results				<.001
Minimal	60/377 (15.9%)	41/224 (18.3%)	19/153 (12.4%)	
Mild	109/377 (28.9%)	67/224 (29.9%)	42/153 (27.5%)	
Moderate	128/377 (34.0%)	91/224 (40.6%)	37/153 (24.2%)	
Severe	80/377 (21.2%)	25/224 (11.2%)	55/153 (35.9%)	
Depression related impairment				<.001
Very or extreme difficulty functioning	167/377 (44.3%)	80/224 (35.7%)	87/153 (56.9%)	
Suicide risk				
Has there ever been a time in the past month when you had serious thoughts about ending your life?	118/377 (31.3%)	60/224 (26.8%)	58/153 (37.9%)	0.022
Have you ever in your whole life tried to kill yourself or made a suicide attempt?	84/377 (22.3%)	51/224 (22.8%)	33/153 (21.6%)	0.783
Have any of your blood relatives committed suicide?	64/377 (17.0%)	34/224 (15.2%)	30/153 (19.6%)	0.261
GAD-7 (anxiety) results				<.001
Minimal	89/377 (23.6%)	66/224 (29.5%)	23/153 (15.0%)	
Mild	129/377 (34.2%)	85/224 (37.9%)	44/153 (28.8%)	
Moderate	111/377 (29.4%)	65/224 (29.0%)	46/153 (30.1%)	
Severe	48/377 (12.7%)	8/224 (3.6%)	40/153 (26.1%)	
Anxiety related impairment				<.001
Very or extreme difficulty functioning	165/377 (43.8%)	80/224 (35.7%)	85/153 (55.6%)	
PC-PTSD (post-traumatic stress disorder) results				
Screened positive	217/377 (57.6%)	122/224 (54.5%)	95/153 (62.1%)	0.141