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Evaluation of Psychosocial Problems Among African University Students in Uganda: Development and Validation of a Screening Instrument

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Establishing the nature of psychosocial problems for effective intervention through quantitative assessment by university counselors in Uganda is impeded for lack of instruments that are developed or validated in their own environments or they are too costly on the market. This has left many vulnerable university students and the university mental health very much compromised. The aim of the study was to develop a psychometrically sound psychosocial instrument that could be used to identify psychosocial problems among university students for professional intervention. An exploratory, cross-sectional study employing random sampling technique with both qualitative and quantitative approaches was used in the development and validation of the instrument. Respondents from university students and key informants were involved. The resulting 17-item USEPP (University Students Evaluation of Psychosocial Problems) was interpreted as a four dimensional measure of psychosocial problems namely, emotional, concerns, trauma experiences, antisocial behavior, and academic concerns among university students. USEPP cut off point was established at 18 and it reported sensitivity at 99.1% (95% CI = 95-100), specificity at 98.03% (95% CI = 96-99) $p < 0.0001$, +PV = 95, -PV = 96. AUC (area under curve) = 0.997. It has an internal consistency of 0.81. It was validated with HSCL-10 a psychological distress instrument. The validation indicated that USEPP measures psychosocial factors, it discriminates university students with or without psychosocial problems and that it can predict psychological distress. USEPP may be used to screen for psychosocial problems among university students for early intervention and for research purposes.

Keywords: psychosocial problems, African university students, development, validation screening instrument

Introduction

Worldwide, psychosocial problems other than psychiatric illness have been identified to occur among university students at particular times: in relation to entering university, to study stress, examinations, and personal and family life events (Lucas, 1976).

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Psychosocial problems occur in a wide variety of settings and research have shown that they often negatively impact on students' mental health (Ellison, 2004; Ontari & Angolla, 2008) often leading to maladaptive negative or unhealthy coping mechanisms compromising student academic performance (Gladding, 2004; Laelia et al., 2006). The resultant mental health problems including emotional, conduct/behavioural, educational, social/interpersonal problems are often prevalent among adolescents and the youth (Reijneveld et al., 2003). These problems are of special significance in the students' educational career and their overall mental health (Omokhodion & Gureje, 2003; Lucas, 1976) are thus a growing concern worldwide (Hunt & Eisenberg, 2010).

Buckley (2009), for instance, found that 1/3 of college students failed to learn because of psychosocial problems and that psychosocial problems were associated with the students' inability to attend to and engage fully in instructional activities.

Pledge, Lapan, Heppner, and Roehlke (1998) observed that in addition to adjustment and individuation challenges, university students today were reporting severe concerns that included suicidality, substance abuse, and overt psychiatric disorders such as depression, anxiety psychosis, etc., leading to hospitalization. Left untreated and unchecked, they severely interfere with the students' everyday functioning compromising social cohesion and overall mental health and wellbeing, with the increased likelihood of future psychological and social instability (Blignault, Bunde-Birouste, Ritchie, Silove, & Zwi, 2009).

Reijneveld et al. (2003) observed that early identification and intervention given to students reduce these psychosocial problems or their impact. However, little is known about potential risk factors within young adults and student populations particularly in Africa (Eisenberg, Gollust, Golberstein, & Hefner, 2007). One way therefore to identify these problems may be by screening for them using validated instruments (Reijneveld et al., 2003).

Gladding (2004) observed that a culturally sensitive good instrument with sound psychometric properties must be in place to identify the psychosocial problems of the students to enable a counselor to develop wholesome programs for intervention.

At most university counseling centres in Africa, western-oriented screening instruments and counseling styles are commonly utilized. These emphasize an intrapsychic etiology model which tends to have standardized diagnostic criteria and structured interviews that emphasize individualistic phenomena (Kearney, Draper, & Barón, 2003). It has been observed that western-oriented psychological instruments pay little attention to the social needs of minorities or members of collectivistic cultures which often leads to poor diagnosis for effective counseling (Nutt, 2007). Research has further shown that African collectivistic cultural issues concerning beliefs about psychosocial problems and treatments are different from the western individualistic cultures (Nutt, 2007). This would imply that members of collectivistic culture like African university students may perceive counselling services as unrelated to their needs and simply do not apply to them and thereby they may keep away from these services (Gudiño, Lau, Yeh, McCabe, & Hough, 2009).

Contextual Variables and Instrument Development

Moreover, African communities are changing very fast. Gladding (2004) observed that every generation of students is different from its predecessors and each environment presents unique experiences to a particular group of students. The changing demographics and social events in Africa in recent decades are very unique to the present generations. These have created many unique challenges to the students that are susceptible to

induce different emotional and behavioural problems (Harper & Peterson, 2005).

Syed, Zachrisson, Dalgard, Dalen, and Ahlberg (2008) have observed that a dynamic culturally sensitive indigenous instrument would be the best option to assess the contextual variables of today's African student population to arrive at appropriate intervention. Such an instrument must be locally validated, have good psychometric properties, and be easily utilizable to support early identification of the students' psychosocial problems for appropriate intervention (Reijneveld et al., 2003).

Missing Links in Existing Instruments

In Africa, there are very few instruments developed towards the assessment of students' counseling needs that reflect the diverse nature of the students' cultural, social, political, education, and religious context play. Research has shown that the development and duplication of many instruments on the African continent arise, due to the inadequacy of existing instruments to capture the specific contextual variables of the local area of study (Ahia & Bradley, 1984).

Atindanbil and Azasu (2011), for instance, developed an instrument to measure psychosocial problems among university students in Ghana that examined course modules, centres of study, tutorials, exams, release of exam results, administration, and socio-economic problems among distance students. Nicholas (2002) used the SSN (Survey of Student Needs)—an instrument developed at the University of Pittsburgh to investigate the personal, career, and learning skills needs of first-year university students and their preferred counseling sources in South Africa. A few scholars have attempted to develop culture sensitive instruments for use in their centres. The Nigerian Counseling Survey Instrument investigates counseling needs in Nigerian universities with the purpose of accessing data on the variables of sex, age, religion, ethnic identity, grade level, marital status, and school and bases their counselling services on this (Nyutu & Gysbers, 2008). In Kenya, SCNS (the Student Counseling Needs Scale) assesses the human relationships, career development, self-development, social values, and learning skills of high school students in Kenya (Nyutu & Gysbers, 2008). The captured variables among these instruments, however, were to a large extent different from the dimensions that were considered in the instrument developed in this study.

Other workers have simply used Eurocentric developed instruments like GHQ 28 (the General Health Questionnaire) and HSCL-10 (the Hopkins Symptoms Checklist) which are often used in the developing world (Syed et al., 2008). These instruments are mainly concentrated on internalizing problems and measuring one individualistic construct of psychosocial problem namely emotional distress. Besides, these instruments are often uni-dimensional on internalizing psychosocial problems and do not capture the entire scope of psychosocial variables as seen in the varied African context (Reijneveld et al., 2003).

This study aimed to develop and validate an instrument that would embrace a variety of Ugandan university student contextual psychosocial situations to assess their needs/problems to be addressed in their counselling and for research. In doing so, it was desirable to take the theoretical approach which we drew from theory and research to develop an operational definition of psychosocial problems as our central construct and use empirical approach to test both the theory and the measure of interest (Beauchamp et al., 2010). The instrument that was developed was named the USEPP (University Students Evaluation of Psychosocial Problems).

Methods

The development of the instrument in the study followed four sequential steps: model specification, model

identification, model estimation, and model testing for conducting SEM (structural equation modeling) analysis (Crockett, 2012). SEM is a second-generation multivariate analysis technique that determines the extent to which an a priori theoretical model proposed by the researcher is supported by the sample (Crockett, 2012). The four steps were reflected in two major stages proposed by the principal researcher for the study, namely, the preparatory and validation stages. Each stage was treated with its study objectives, particular design study population, data collection procedures and tools, and analysis process and results.

(1) The preparatory stage—model specification: The objective of this stage was to develop a theoretical model using applicable, related theory and research to determine variables of interest and the relationships among them. The preparatory stage involved the creation of an extensive battery of items from extant literature and key informants that reflected the breadth of the theorized content domain of interest, namely psychosocial problems among university students (a detailed exposition of this stage is available on request);

(2) The validation stage—model identification, model estimation, and model testing: The validation stage examined the psychometric properties of the developed structural model obtained in the preparatory stage and the hypothesized model. It involved model identification, model estimation, and model testing. The object of the validation was to identify whether a unique solution to the model could be generated.

Study Design

The study was descriptive, cross-sectional survey using quantitative research techniques.

Study Site and Population

One public and two private universities in Uganda were purposively selected for the study. One thousand five hundred respondents were randomly selected from undergraduate university students for the initial exploratory factor analysis and 900 were selected as a replication sample (follow-up) for the confirmatory factor analysis. Conventional wisdom for selecting representatives in scale development research does not follow, that is, it is not necessary to closely represent any clearly identified population as long as those who would score high and those who would score low are well represented (Gorsuch, 1997). The numbers chosen for the study therefore reflected the researchers' preferences and considerations.

Data Collection Instruments

Social demographic information sheet. These questionnaires were designed to capture socio-demographic information including gender, age, nationality, marital status, residence location, living with parents, program of study, years in university, and course of study.

USEPP. USEPP contained 37 items to measure psychosocial problems of university students and three of the items were inserted to check for random scoring. The items scores were coded as 0/1/2/3 from "Not at all" to "Strongly agree". Each respondent rated individual statements that were the current concern to him/her by ticking the coded option. The USEPP was the instrument to be validated.

HSCL-10. HSCL-10 was used as the gold reference point in the validation of the USEPP. It was used to assess the respondent's state of psychological distress. The HSCL-10 is well known and widely used screening instrument for psychological distress in epidemiological studies. It is also validated against ICD-10 diagnostic criteria in clinical setting detecting psychiatric disorder. The scale has demonstrated internal consistency of 0.86 as measured by Cronbach's alpha. It has good sensitivity and specificity comparable with other assessment instruments in detecting psychiatric illness such as the CES-D (Syed et al., 2008). The HSCL-10 item checklist taps both anxiety and depression. Four-item scale indicates anxiety and 6-item scale indicates the symptoms of

depression. Each item is rated on a scale from 1 ("Not at all") to 4 ("Extremely"). Participants were asked to respond to the items according to their experience during the previous week. It has a standard cut off score of 1.85 to indicate distress (Syed et al., 2008).

Data Collection and Procedure

Upon completion of the survey instruments, copies were submitted to the university IRB (Institutional Review Board) and The National Review Board which approved the design of the study. After receiving approval, additional permissions were obtained from the participating institutions.

An invitation was sent out to all university students to participate in the study using lecturers in their respective universities. The purpose of the study, ethical issues, and consent agreement were explained and the students who consented to the study were served the questionnaires. Additionally, it was indicated that there would be referral information specific to each institution as well as access to counselors for all participants who should be significantly distressed. The instruments were distributed in February and April 2012 to university student respondents during the course of their lectures to obtain data for EFA and CFA analyses respectively. The lecturers and the principal researcher collected the questionnaires after the exercise.

Data Screening

Data for incomplete questionnaires were removed prior to running the EFA and CFA analyses. We also evaluated the assumptions of multivariate and linearity through Medcalc version 12.2.1.0. software program. Using Grubbs-right-sided (alpha-level 0.05) and Box-and-Whisker plots, we observed no univariate or multivariate outliers.

Data Analysis

In the analysis, the psychometric properties of the USEPP were assessed using the EFA and CFA methods. First, the scale structure of the questionnaire was assessed using ML (Maximum-Likelihood) and the internal consistence of each scale was computed. Next the validity of the USEPP was first assessed by correlating it with HSCL-10 as gold standard. The SPSS version 18 for windows and Medcalc version 12.2.1.0. were used to analyze data for EFA and the Roc curve. The CFA was run using the software package of IBM SPSS Amos 21. The following indices as a minimum number to be reported to support model fit were used (Kline, 2005; Crockett, 2012): (1) The model chi-square with corresponding degrees of freedom and level of statistical significance; (2) RMSEA (the Root Mean Square-Error of Approximation) with corresponding 90% confidence intervals, in the present study (RMSEA) was at or below 0.05, with values at or less than 0.05 indicate close model fit, which is customarily considered acceptable (Crockett, 2012; Worthington & Whittaker, 2006); (3) CFI (the comparative fit index) is an incremental fit index, values range between 0.0 and 1.0 with values equal to or exceeding 0.90 indicating a good fit (Crockett, 2012; Miller, Kim, Chen, & Alvarez, 2012; Hu & Bentler, 1999); and (4) Values for RMR (the root mean square residual), values range from 0.0 to 1.0 with well-fitting models obtaining values less than 0.05 (Byrne, 2006), however, values as high as 0.08 are deemed acceptable (Hu & Bentler, 1999).

The results obtained from the CFA were not intended to be subjected to further changes in case the model-fit indices were not acceptable indicating that the sample data did not support the hypothesized model, requiring the respecification of the theoretical model (Crockett, 2012). Once model respecification takes place following a CFA, the process effectively reverts to the exploratory phase (Byrne, 2006).

Results

The Preparatory Stage

Grounded theory for the model. A theoretical model for this study was derived, which posited that psychosocial problems among university students were constituted in: (1) individual factors and experiences (such as age, sex, innate personality characteristics, family issues, student status, personal exposure to traumatic experiences, and socioeconomic status); and (2) contextual factors (e.g., the sociopolitical environment, the university atmosphere, and peer factors). A list of the identified items representing a given factor from the qualitative study is available on request.

It was therefore hypothesized that observed manifest behaviours in individual and environment experiences influenced the psychosocial status of the university students. The model assumed from theory posited that academic, antisocial behavior, emotional problems, and traumatic experiences had a direct effect on the presence of psychosocial problems (see Figure 1).

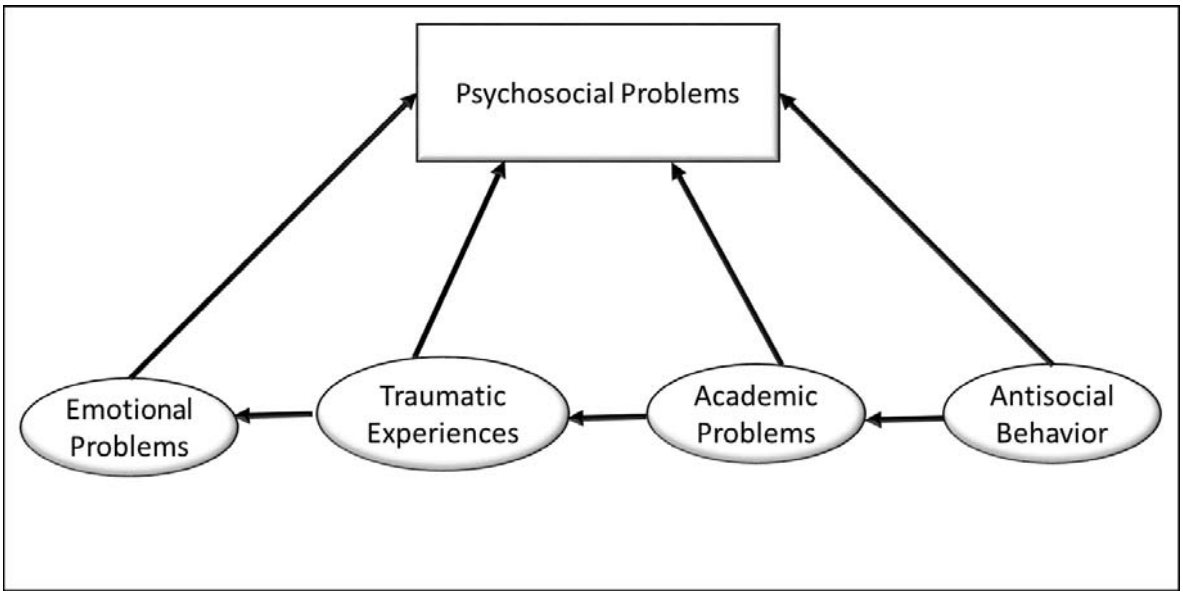

Figure 1. The structural model.

Initial instrument structure. Expert advice was sought to evaluate the items for readability and wording, the adequacy of the items in terms of contextual relevancy, language simplicity, length, format, and content coverage. Experts with different professional backgrounds were chosen for their interests and expertise in relevant areas: education, counselling: mental health, measurement, and evaluation. For each item, respondents were asked to rate the relevance on a scale of 1 (not relevant) to 4 (highly relevant). The content validity index (CVI) was calculated for each item as the proportion of experts rating the item as relevant (Polit & Beck, 2006). The item with a value level (CVI) of ≥ 0.78 was upheld and those below were removed (Tuffrey, Bateman, & Colver, 2013). The comments from the experts also guided in altering or removing certain items. Thirty seven items were deduced from the initial 47 items and they were classified under four latent construct variables (see Table 1).

The first latent variable, emotional problems were estimated by 11 observed factors. The second latent variable, antisocial behaviours concerns were estimated by 11 observed factors. The third latent variable,

traumatic experiences were estimated by eight observed factors. The fourth latent variable, academic problems were estimated by seven observed factors. Three items were included to check random responding. Altogether, there were 40 items. Answers on all the four scales were 0/1/2/3 coded. A summary score ranging from 0 to 111 was computed on the basis of weighing each content domain. The direction of scoring was ultimately arbitrary, where higher scores indicated presences of need. The respondents were asked to go through the list of issues/problems contained in the instrument and indicate their level of agreement with the issue/problem that was the current concern to the respondent. They scored their response from "Not at all" = 0 to "Strongly agree" = 3.

Table 1

37 Items of the USEPP Emotional Problems

1	Feeling stressed, being in low mood
2	Sometimes experiencing wishes of being dead
3	I have unwanted thoughts I can't control
4	I have problems of concentrating in life generally
5	Poor ways of expressing my feelings
6	Experiences of irrational fears/phobia
7	I sometimes find it difficult to sleep or I sleep too much
8	Still worried about a terrible incident I got involved in sometime in the past
9	Feeling saddened due to altogether failed love relationship
10	Worry for future employment
11	I am still distressed by the sickness/death of a family member
Antisocial behaviour	
12	Diverting tuition fees for personal use
13	Use of drugs e.g. marijuana
14	Involved in one way or the other in academic mal practice
15	I take sexual advantage of others
16	I am involved in behaviors I should be ashamed of if they became public
17	Uncontrolled drinking of alcohol
18	Eating with almost no self–control
19	Gambling/betting for financial gain
20	"Detoothing" (taking advantage of) others for personal gain
21	Dodging classes/lectures
22	I do not miss listening or watching premier league matches while at campus
Traumatic experiences	
23	Often lacking welfare/pocket money for personal use
24	Lacking skills to handle personal difficulties
25	I have constant problems with my family
26	My family is experiencing a financial crisis
27	Unpredictable/Insecure tuition fees status
28	Adjustment problems in my new environment i.e. hostel, campus life
29	My major mistakes in life have been influenced by my peers
30	My family is experiencing problems to which I am of great concern
Academic problems	
31	Feelings of uneasiness about teaching methods in my course
32	I have problems with completing course work
33	Low academic grades
34	I am not able to concentrate on my studies as I would have liked
35	Feeling of tiredness due to academic pressure
36	Inadequate study skills to meet university academic demands
37	Lack of motivation to study

The 37 item instrument was then pilot tested with 10 members of the target group. Respondents completed the questionnaire as if they were part of the survey. This was done to estimate the time taken to complete it and to establish completion and comprehension difficulties. The outcome of these exercises mapped out the initial scale structure to measure psychosocial problems among university students in Uganda. It was referred to as USEPP.

Results of the Validation Stage

Participants

One thousand four hundred twenty seven respondents (95%) had completed questionnaires for the EFA. Seventy three respondents (5%) either did not have completed questionnaires or some did not hand in voluntarily the questionnaire which indicated that they withdrew from the exercise. A replication sample for CFA had 869 respondents (97%) who completed questionnaires. Thirty one respondents (3%) did not have completed questionnaires. Uncompleted questionnaires were not included in the analysis. The researchers decided to leave out the demographic information for the CFA because it was deemed not necessary for model confirmation and other subsequent analyses.

The majority of the students were aged ≤ 24 years (72.5%), female (55.6%), Ugandan (93.6%), single (88.8%), and of Christian religious background (79.3%) with Moslems being 19.1% and others 1.6%. Most students lived in student accommodation (88%) either in off campus hostels (50%) or on campus hostels (38%). In holidays most, 67.2%, lived with their parents, 8.7% living as married and the rest (23.1%) with relatives or alone. According to year of study, the majority were in the third year, 45.1% followed by the second year, 37.4%. Table 2 summarizes their study program characteristics and their self-reported health status.

Exploratory Factor Analysis-Structure of the Questionnaire

The scale structure of USEPP was assessed by exploratory factor analysis and confirmatory factor analysis to define the scale structure. The internal reliability of each of the instrument's subscales and the entire USEPP were analysed using Cronbach's alpha.

KMO (the Kaiser-Meyer-Olkin) measure of sampling adequacy yielded an index of 0.90 ($\chi 2_{(df = 13,790)} = 666$; $p < 0.000$) indicating that the sample size was large enough to evaluate the factor structure and not simply chance correlations between a small subset of variables (Child, 1990; Worthington and Whittaker, 2006). As many as nine probable factors solutions met the Kaiser-Guttman criterion of eigenvalue 1.00 were suggested and they accounted for 53% of the variance. The eigenvalue for the first factor was 7.8, accounting for 21% of the variance and the last factor was 1.0, accounting for 2.7% of the variance. No other factors had eigenvalues > 1. The nine factors did not indicate any coherent solution so further extraction of factors was performed on the seven-, six-, five-, four-, three-, and two-factor solution.

After examining the data, a four-factor model was considered as the most suitable solution. It had an overall KMO statistic of 0.85 ($\chi 2_{(df=136)} = 4,637$; $p < 0.000$). The selected factors fulfilled the following criteria as suggested by Tabachnick and Fidell (2007) and Worthington and Whittaker (2006): (1) A factor identified itself with three items and above with the presence of a coherent construct; (2) The items on each factor had interpretability and clinical utility of the subscale; (3) All items had a loading of 0.30 and above; and (4) No variables cross-loaded on more than one factor. The remaining factors were dropped because their items did not meet the criteria. The four factors identified had eigenvalues of 4.28, 1.65, 1.26, and 1.13.

Table 2
Participants' Demographic Statistics for the EFA, N =1,427

Variables	Number	Percentage %
Gender		
Male	633	44.4
Female	794	55.6
Age		
≤ 24	1,034	72.5
25-29	330	23
30-34	41	2.9
35-39	17	1.2
≥ 40	5	0.36
Religious affiliation		
Moslem	272	19.1
Protestant	395	27.7
Catholic	396	27.8
Born again	341	23.9
Other	23	1.6
Nationality		
Ugandan	1,335	93.6
Other	92	6.4
Marital status		
Single	126	88.8
Married	124	8.7
Other	36	2.5
University residence location		
On-campus residence	542	38
Off-campus hostel	710	50
Other	175	12
Program of study		
Day	1,372	96.1
Weekend	55	3.9
Years in university		
1st Year	250	17.5
2nd Year	533	37.4
3rd Year	644	45.1
Living with parents during holidays		
Yes	959	67.2
No	468	32.8
Education sponsorship		
Parents	911	63.8
Relative	251	17.6
Government	103	7.2
Other	162	11.4
Course of study		
Journalism	177	5.4
Business administration	252	17.7
Mass communication	69	4.8
Education	266	18.6
Public administration	280	19.6
Guidance/counselling	149	10.4
Information technology	141	9.9
Development studies	113	7.9
International relations diplomacy	31	2.2
community based development	19	1.3
Human resource management	30	2.1

A four-factor model reduced the total items of the instrument from 37 to 17. Five items loaded on the first factor, five on the second, three on the third, and four on the fourth factor. The final scale compositions and item factor loadings after an EFA are presented in Table 3.

Table 3

Exploratory Factor Analysis of USEPP Results: Scale Compositions and Item-Factor Loadings

USEPP item number and wording	Factors			
	Emotional problems	Antisocial behaviour	Academic problems	Traumatic experiences
6. Experiences of irrational fears/phobia	**0.431**	-0.140	-0.005	-0.004
9. Feeling stressed, being in low mood	**0.512**	0.081	0.004	0.091
35. Sometimes experiencing wishes of being dead	**0.591**	-0.032	-0.047	-0.036
23. I sometimes find it difficult to sleep or I sleep too much	**0.546**	-0.011	-0.101	-0.050
20. I have problems of concentrating in life generally	**0.460**	-0.042	-0.076	0.119
14. Gambling/betting for financial gain	0.106	**-0.459**	0.051	0.147
15. I am involved in behaviors I should be ashamed of if they became public	0.273	**-0.363**	0.029	-0.027
24. I take sexual advantage of others	0.058	**-0.685**	-0.044	-0.051
37. Uncontrolled drinking of alcohol	-0.025	**-0.577**	-0.051	0.068
26. Involved in one way or the other in academic mal practice	-0.047	**-0.626**	-0.162	-0.053
25. Inadequate study skills to meet university academic demands	-0.001	-0.077	**-0.627**	0.096
16. I am not able to concentrate on my studies as I would have liked	0.103	0.015	**-0.356**	0.035
29. Low academic grades	0.005	-0.034	**-0.723**	-0.033
13. My family is experiencing problems to which I am of great concern	0.196	-0.075	0.041	**0.416**
2. Adjustment problems in my new environment i.e. hostel, campus life	0.042	0.134	-0.043	**0.307**
33. Often lacking welfare/pocket money for personal use	-0.071	-0.041	-0.114	**0.615**
38. Unpredictable/Insecure tuition fees status	-0.010	-0.133	-0.005	**0.497**

Notes. n = 1427; Loadings above 0.300 are bold.

The first factor accounted for 25.1% of the variance. It was categorized as the emotional problems subscale with item factor loadings ranging from 0.43 to 0.59. The second factor accounted for 9.7% of the variance. It was categorized as the antisocial behaviour subscale with item factor loadings ranging from 0.36 to 0.69. The third factor accounted for 7.4% of the variance. It was categorized as the academic problems subscale with item factor loadings from 0.36 to 0.72. The fourth factor accounted for 6.6% of the variance. It was categorized as the traumatic experiences subscale with item factor loadings ranging from 0.42 to 0.62.

The four factor solution showed a clustering pattern in factor loadings for emotional problems, antisocial behavior, academic problems, and traumatic experiences. The four factors altogether accounted for 49% of the variance. The analyses of the factors indicated that the USEPP may be meaningfully perceived as a four dimensional measure of psychosocial problems among university students.

Reliability

Cronbach's alpha coefficients were calculated for both the USEPP total scale (0.81) and the four subscales: emotional problems (0.70), antisocial behavior (0.73), traumatic experiences (0.60), and academic problems (0.63). Reliabilities for all domains and the total USEPP were satisfactory using the guide of Kirk (2012) for the conventional cut-off criterion for an acceptable alpha statistic of the scale.

By convention and psychometric theory (see e.g., Nunnally, 1978; De Vellis, 1991), alphas 0.4 are considered acceptable during scale development, alphas of 0.7 or higher are considered to be acceptable for

clinical applications, alphas of 0.8 or higher are considered high and alphas of 0.9 or above are considered to be very high (Kirch, 2012, p. 5).

Subscale Means and Item Means for the Different Subscales

The calculated means and standard deviations of the different subscales for 1,427 respondents were as follows: Total USEPP scale (*M* (mean) = 15.4, *SD* = 8.5); emotional problems (*M* = 5.7, *SD* = 3.5); traumatic experiences (*M* = 4.6, *SD* = 2.9); academic problems (*M* = 2.8, *SD* = 2.3); antisocial behaviour (*M* = 2.3, *SD* = 3.1). The different item means for the different subscales can be seen from Table 4.

Table 4

Correlations, M, SD Among Scales

Measured variable	1	2	3	4	5	6
1. USEPP	1	-0.08**	0.80**	0.66**	0.71**	0.67**
2. HSCL-10	-0.08**	1	-0.11**	0.02	-0.12**	0.00
3. Emotional problems	0.80**	-0.11**	1	0.36**	0.43**	0.38**
4. Traumatic experience	0.66**	0.02	0.36**	1	0.22**	0.34**
5. Anti-Social behavior	0.71**	-0.12**	0.43**	0.22**	1	0.35**
6. Academic problems	0.67**	0.00	0.38**	0.34**	0.35**	1
Number of items	17	10	5	4	5	3
M	15.4	19.62	5.70	4.62	2.34	2.79
SD	8.51	5.30	3.52	2.89	3.14	2.29
α	0.81	0.70	0.70	0.60	0.73	0.63

Notes. * $p < 0.05$ (2-tailed); ** $p < 0.01$ (2-tailed); $n = 1{,}427$.

Corrected Item-Total Correlations

The inter-item correlations and corrected item-total correlations that reflected an underlying factor were intercorrelated with each other and they were also correlated with the total subscale. Alphas when a particular item was deleted ranged from 0.79 to 0.81 (for all items of the emotional problems, antisocial behaviour, academic problems, and traumatic experiences subscales) (see Table 5).

The results of the subscale means and item means for the different subscales; the subscale means and inter-item correlations; the corrected item-total correlations specified that the subscales correlated with each other which meant that they were conceptually related and they also indicated relative independence of each subscale. There was no duplication of items and that no single item deviated in any significant way from the total scale functioning. This indicated that the USEPP is sensitive in discriminating among the different items and the four constructs namely, the emotional problems, antisocial behaviour, academic problems, and traumatic experiences.

Confirmatory Factor Analysis of USEPP

After establishing the factor structure of USEPP, the CFA was run using Amos 21 to determine whether the hypothesized factor structure provided a good fit to the data, or in other words, that a relationship between the observed variables and their underlying latent, or unobserved, constructs existed. The CFA would also verify that all items are properly aligned with the correct facets within the general construct being measured. The CFA model was assumed to successfully predict the particular outcome variables (Child, 1990).

To evaluate the model adequacy, four measures of fit were used: chi-square, RMR value less than or equal to 0.09, RMSEA values less than 0.10, and CFI, values greater than or equal to 0.90 are individually indicative

of adequate model fit (Bentler, 1990; Browne & Cudeck, 1992; Hu & Bentler, 1999; Miller, Kim, Chen, & Alvarez, 2012; Crockett, 2012).

Table 5

USEPP Item Level Values, Item-Total Correlations, and Cronabach' Alpha (N =1,427)

Item	*M*	*SD*	Corrected item-total correlation	Alpha if item deleted
1. Feeling stressed, being in low mood	1.34	1.01	0.38	0.80
2. Sometimes experiencing wishes of being dead	1.20	1.12	0.46	0.79
3. I have problems of concentrating in life generally	1.04	1.03	0.49	0.79
4. Experiences of irrational fears/phobia	0.97	1.02	0.41	0.79
5. I sometimes find it difficult to sleep or I sleep too much	1.15	1.09	0.44	079
6. Involved in one way or the other in academic mal practice	0.40	0.85	0.40	0.79
7. I take sexual advantage of others	0.45	0.91	0.44	0.79
8. I am involved in behaviours I should be ashamed of if they became public	0.61	0.99	0.39	0.80
9. Uncontrolled drinking of alcohol	0.37	0.83	0.40	0.80
10. Gambling/betting for financial gain	0.52	0.95	0.41	0.79
11. Often lacking welfare/pocket money for personal use	1.40	1.10	0.37	0.80
12. Unpredictable/Insecure tuition fees status	1.07	1.14	0.35	0.80
13. Adjustment problems in my new environment, i.e., hostel, campus life	1.04	1.01	0.15	0.81
14. My family is experiencing problems of which I am of great concern	1.13	1.16	0.41	0.79
15. Low academic grades	0.83	0.90	0.44	0.79
16. I am not able to concentrate on my studies as I would have liked	0.97	1.10	0.32	0.80
17. Inadequate study skills to meet university academic demands	0.99	1.01	0.48	0.79

An examination of the coefficients of hypothesized relationships between the structural and the hypothesized model suggested that the model was a reasonably acceptable fit to the data, given the guidelines described earlier. The $\chi 2$ statistic for model fit was significant ($\chi 2_{(df = 126,\ n = 869)} = 288.203$, $p < 0.000$) meaning that the null hypothesis of a good fit to the data can be rejected. It is observed that large samples always produce significant $\chi 2$ values leading to the rejection of the model. A good model fit would provide an insignificant result at a 0.05 threshold (Crochett, 2012). A relative $\chi 2$ estimate ($\chi 2/df$) with recommended values lying from as high as 5.0 (Wheaton et al., 1977) to as low as 2.0 (Tabachnick & Fidell, 2007) which adjusts for sample size was adopted. The model $\chi 2/df$ (288.203/126) yielded an accepted value of 2.287. The RMSEA was 0.039 (90% CI (confidence interval) = (0.033-0.044); RMR = 0.050); CFI index was 0.924 and thus suggesting that the data were a good fit for the model.

The confirmatory factor analysis confirmed the stability of the factors established in the initial factor analysis. All the items on the different factors had moderate to strong standardized loadings. The lowest loading was 0.45 and the majority of the items had 0.50 and above ($p < 0.000$ level, see Table 7) suggesting that they were reliable indicators of the four factors underlying psychosocial problems. The regression weights were all significant for the four-factor model.

In addition, the R^2 corresponding to all the 17 observed variables indicated that the respective factors explained a respectable portion of the variance (between 21% and 49%) suggesting that model fits the data and that the variables were really tapping the respective factor values dimensions (see Table 6).

The correlation among the four factors of USEPP indicated low to moderate correlations. This is evidence that there are truly four independent unique dimensions which underlie university students' psychosocial

problems namely emotions problems, trauma experiences, academic problems, and antisocial behaviour. Emotions were significantly related to trauma ($r = 0.60$, $p < 0.000$) to antisocial behaviour ($r = 0.52$, $p < 0.000$) and to academic ($r = 0.46$, $p < 0.000$); academic to antisocial behaviour ($r = 0.34$, $p < 0.000$) and to trauma ($r = 0.53$, $p < 0.000$); antisocial behaviour to trauma ($r = 0.27$, $p < 0.000$).

Table 6

Standardized, Unstandardized Coefficients and R^2 for CFA Analysis

Items	Parameter estimates			Squared multiple correlations for the indicator
	Latent construct	Unstandardized	Standardized	
Feeling stressed, being in low mood	Emotional	0.79	0.52	0.27
Sometimes experiencing wishes of being dead	Emotional	0.58	0.57	0.34
I have problems of concentrating in life generally	Emotional	0.74	0.52	0.27
Experiences of irrational fears/phobia	Emotional	073	0.52	0.26
I sometimes find it difficult to sleep or I sleep too much	Emotional	0.85	0.49	0.24
Involved in one way or the other in academic mal practice	Antisocial	0.37	0.57	0.33
I take sexual advantage of others	Antisocial	0.43	0.54	0.29
I am involved in behaviors I should be ashamed of if they became public	Antisocial	0.69	0.45	0.21
Uncontrolled drinking of alcohol	Antisocial	0.35	0.58	0.34
Gambling/betting for financial gain	Antisocial	0.64	0.47	0.22
Often lacking welfare/pocket money for personal use	Traumatic	0.77	0.54	0.29
Unpredictable/Insecure tuition fees status	Traumatic	0.95	0.50	0.25
Adjustment problems in my new environment i.e. hostel, campus life	Traumatic	0.90	0.51	0.26
My family is experiencing problems to which I am of great concern	Traumatic	1.00	0.49	0.24
Low academic grades	Academic	1.41	0.49	0.29
I am not able to concentrate on my studies as I would have liked	Academic	0.59	0.66	0.44
Inadequate study skills to meet university academic demands	Academic	0.47	0.70	0.49

Note. $n = 869$.

Finally, the covariance estimates were all significantly suggesting that they were statistically discernable from zero ($p > 0.000$).

Table 7

Covariance Estimates Among the Factors of USEPP

Factors			Estimate	S.E.	C.R.	P	Label
Academics	<-->	Antisocial	0.096	0.015	6.463	***	
Traumatic	<-->	Antisocial	0.065	0.013	4.903	***	
Traumatic	<-->	Emotions	0.176	0.017	10.284	***	
Academics	<-->	Emotions	0.162	0.019	8.634	***	
Emotions	<-->	Antisocial	0.115	0.012	9.584	***	
Academics	<-->	Traumatic	0.200	0.022	9.292	***	

In conclusion, the statistical analyses of the CFA suggested the hypothesized structure provided a good fit to the data, or in other words, that a relationship between the observed variables and their underlying latent, or unobserved constructs identified in the structural model existed (Child, 1990). All items were properly aligned with the correct factors within the general construct being measured, that USEPP is a valid and reliable four

factor instrument for measuring the psychosocial problems among the university student population. The final CFA model is presented in Figure 2.

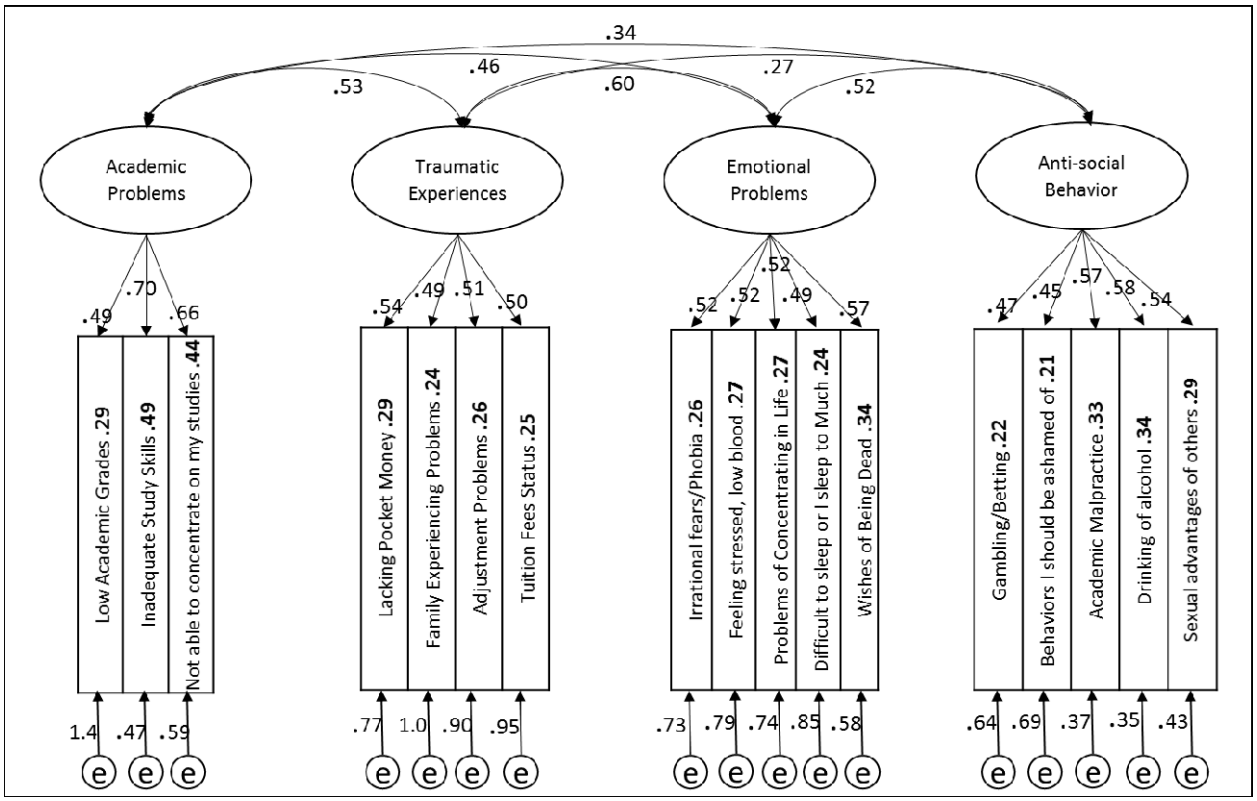

Figure 2. Path diagram showing the results for the confirmatory factor analysis, $x^2 = 2.87$, $df = 126$, $p = 000$, CF 0.924, RMR 0.050, RMSEA 0.39.

Instrument Validity

Construct Validity of USEPP

To determine construct validity of USEPP two steps were considered: (1) The USEPP was correlated with HSCL-10; and (2) The differences in means of those with or without psychosocial needs by using dichotomized (normal /problem scores obtained from the HSCL-10 (after its validation in Uganda) with the dichotomized (normal /problem scores) on the USEPP were assessed. Pearson's correlation was used to establish correlations. Analysis was done using SPSS version 18 for windows and Medcalc version 12.2.1.0.

Using HSCL-10 as the gold reference point, problem scores, i.e., those who depicted sensitivity on HSCL-10 also showed elevated scores on USEPP. Those who had normal scores on HSCL-10 also had lower scores on USEPP. Furthermore, those with elevated scores had higher means than those with normal scores. The means for those with elevated and normal scores on USEPP were 24.34 and 10.22 respectively. The means for those with elevated and normal scores on HSCL-10 were 25.40 and 16.60 respectively (see Table 8).

However, when the total scores of both HSCL-10 and USEPP were correlated they indicated significant relationship ($r = -0.08$, $p < 0.01$). When HSCL-10 and USEPP were further correlated with individual USEPP subscales, the results with HSCL-10 indicated only two significant but with low correlations: (1) emotions subscale and the HSCL-10 ($r = -0.11$, $p < 0.01$); and (2) antisocial behaviours and HSCL-10 ($r = -0.12$, $p <$

0.01). On the USEPP there were moderate to high significant correlations with all its subscales. Emotions (r = 0.80, $p < 0.01$); antisocial (r = 0.71, $p < 0.01$); academics (r = 0.67, $p < 0.01$); trauma (r = 0.66, $p < 0.01$) (see Table 4). The explanation to this variance could be based on the differences in the constructs both instruments use. The HSCL-10 constructs are not entirely the same with those of USEPP. HSCL-10 has two constructs of anxiety and depression with their related items. In contrast USEPP has four constructs of emotional problems, antisocial behavior, traumatic experiences and academic problems with quite different item constructs when compared HSCL-10.

Table 8

Positive and Negative Status Levels of Students on Different Scales N =1,427

Scale	Cut off point for caseness	Number of +ve cases	% +ve cases	*M*	*SD*	numbers of -ve cases	% of -ve cases	*M*	*SD*
USEPP	18	528	37	24.3	6.02	899	63	10.2	4.48
HSCL-10	22 or 2.2	496	34.8	25.4	3.25	931	65.2	16.6	3.20
Subscales									
Emotional	5	544	38.1	9.37	2.17	883	61.9	3.42	1.89
Antisocial	5	263	18.4	7.95	2.65	1,164	81.6	1.08	1.34
Traumatic	4	681	47.7	7.11	1.90	746	52.3	2.34	1.32
Academics	3	468	32.8	5.49	1.49	959	67.2	1.47	1.14

On the other hand, after correlating the subscales of USEPP among themselves, the results showed low significant relationships (see Table 4). This indicated that the subscales of USEPP were conceptually sound and not redundant to suggest that they measure the same construct. Therefore, the entire USEPP scale is valid for measuring psychosocial problems as distinct from entirely measuring anxiety and depression as it is the case with HSCL-10.

The Predictive Validity of USEPP, HSCL-10: Sensitivity and Specificity

To assess the predictive validity of USEPP, its external validity was first established through ROC (the Receiver Operating Characteristics) curve, with specifying measurements for sensitivity and specificity (Haavet, Sirpala, Haugenb, & Christensen, 2011). The aim of this step was to define the degree to which scores on USEPP were elevated to determine presences of psychosocial problems (i.e., sensitivity) and lower scores as "normal" in case of absence of these problems (i.e., specificity). This was also carried out on HSCL-10 which was the golden standard for the Ugandan context.

The diagnostic accuracy of both USEPP and HSCL-10 instruments reported very good positive predictive values and negative predictive values. USEPP reported sensitivity at 99.1% (95% CI = 95-100), specificity at 98.03% (95% CI = 96-99) $p < 0.0001$, +PV = 95, -PV = 96. AUC = 0.997. The HSCL-10 reported sensitivity at 99.1% (95% CI = 97-99.9), specificity at 99.4% (95% CI = 79-91) $p < 0.0001$, +PV = 97, -PV = 79. Area under curve was 0.993. USEPP cut-off point was established at a score of 18 while the cut-off point for HSCL-10 was established at a score of 22 (2.2) (HSCL-10 = 22/10 items = 2.2) compared to the standardized cut off point of 18.5. The values depicted that the ROC curves were on the upper left corner, or the AUC were above 0.99 which implied that the higher they moved the overall accuracy of the test (Zweig & Campbell, 1993). These values therefore indicated that USEPP and HSCL-10 are good instruments to discriminate between university students with and without psychosocial problems; and those with and without psychological distress respectively. Further analysis was done on the individual subscales of USEPP to establish their sensitivity and

specificity on the particular constructs they were measuring. They also reported good sensitivity, specificity, positive predicative, and negative predicative values.

Discussions and Conclusions

In this article, we have described the development and psychometric evaluation of a self-administered inventory USEPP designed to be used in detecting psychosocial problems among university students in Uganda. Cronbach alphas for the entire instrument and its subscales are reliable. These results indicated that the scale items contributed substantially to the measured constructs. Both construct and predicative validity were established in relation to the respondent's psychological distress measured by the HSCL-10 which was used as a gold criterion for the validation of USEPP.

USEPP had a strong theoretical background, formulated on the basis of a review of the literature and existing methods of measurement and key informant interviews conducted with people/students who have had experiences of psychosocial problems in a university setting. It was also empirically justified by EFA and CFA analyses to derive the final content of the questionnaire.

The present study extends previous research on psychosocial problems affecting university students in several important directions. First the results indicated a developed and validated instrument referred to as USEPP. It is a 17-item instrument developed with two samples of 1,427 and 869 university students for reported empirical support to identify those with psychosocial problems. It was validated against HSCL-10 in non-clinical setting. The scale has demonstrated internal consistency of 0.81 as measured by Cronbach's alpha. It has good sensitivity at sensitivity at 99.1% (95% CI = 95-100), specificity at 98.03% (95% CI = 96-99) $p < 0.0001$, +PV = 95, -PV = 96, AUC = 0.997. USEPP was interpreted as a four dimensional measure of psychosocial problems namely, Emotional problems-5 items, ($r = 0.70$); Traumatic Experiences-4 items, ($r = 0.60$); Antisocial Behaviour-5 items, ($r = 0.73$) and Academic problems-3 items, ($r = 0.63$). It taps psychosocial status with 18 standard cut off score to indicate compromised psychosocial status. It also predicts psychological distress among university students with psychosocial problems. Each item is rated on a scale from 0 ("Not at all") to 3 ("Strongly agree"). Therefore, a minimum score is 0 and a maximum score of 51 could be awarded to a client. An individual is asked to indicate his/her level of agreement with the items that are the current concerns to him/her.

Psychosocial status is more appropriate with lower scores. Higher scores indicate more problems (Kansal, 2010). Higher scores from a cut off score point (diagnostic index) were interpreted as problem scores of moderate to severe levels indicating caseness. While those below a cut-off were interpreted as normal or mild in psychosocial functioning.

The highest import of HSCL-10 as a criterion for validating USEPP indicated that USEPP measures other constructs, e.g., trauma experiences, antisocial behaviour, and academic problems which HSCL-10 does not measure. This aspect of USEPP in this study revealed that the scale was not unidimensional as other instruments often used to measure students' needs. Unlike many instruments which concentrate on internalizing factors alone (Kearney et al., 2003) in assessing student needs, USEPP combines both internalizing and externalizing factors that play a major part in effective functioning of a student. This observation explains why HSCL-10 when correlated with the entire USEPP scale had very low but significant relationship ($r = -0.08$, $p < 0.01$).

Preliminary evidence of the ability of the scale to identify factors associated with university student

psychosocial problems highlights its potential usefulness and distinguishes it from other instruments. The ability of USEPP to correctly classify 37% of the students with psychosocial needs in general and with particular psychosocial problems, e.g., 38% with emotional problems, 18.4% with antisocial behaviour, 47.7% with traumatic experiences, and 32.8% with academic problems may be indicative of the usefulness of USEPP in this area of psychosocial problems among university students.

Another outcome on USEPP, although it was not the focus of the study, is that besides being an instrument measuring psychosocial problems, it is an indicative measure to psychological distress. The scores on USEPP indicating problems were also related to problem scores on HSCL-10. In practice, it may be used to deduce the presence of psychological distress among university students with psychosocial problems.

The latent variables of USEPP, i.e., emotional problems, antisocial behaviour, traumatic experiences, and academic problems contributed to a further understanding of the diversity of the type of psychosocial problems affecting university students that previous instruments have not captured (Ovuga, 2005; Ovuga, Boardman, & Wasserman, 2006; Ahmad, Khalique, Khan, & Amir, 2007; Atindanbila & Azasu, 2011; Betancourt, Speelman, Onyango, & Bolton, 2009; Hunt & Eisenberg, 2010; Gulliver, Griffiths, & Christensen, 2010; Reijneveld et al., 2003). These researchers have theoretically suggested a number of psychological, educational, physiological-related characteristics that were likely to have a relationship with unidimensional psychosocial problems.

The items on the scale represent the contextual issues that Uganda university students grapple with as they pursue their academic careers. The items put into consideration the understanding, openness of the African collective culture dynamics of self-assertion. For instance, collective cultures are not so assertive about their problematic experiences. They would express their feelings, etc., in cryptic manners unlike the western counterparts (Nutt, 2007). For instance, item “I am involved in behaviours I should be ashamed of if they became public” depicts a right phrasing for understanding the problematic experiences of African students who would not want to lose face by mentioning the intricate issues most considered shameful to them. This item ranks the highest mean on the antisocial behaviour subscale with five items. For a multicultural helper an agreement by a client on this item would imply an ally of antisocial behaviour associated with university students whether researched or by a general consensus.

Furthermore, USEPP encloses items on the emotional subscale which depict experiences that describe mental health compromised status which many people including students generally do not describe as mental health concerns (Jorm, 2000). A score of aggregate seven and above on the subscale would indicate the presence of an emotional compromised state.

Limitations of the Study

As possible limitations of the present study there is a need to further validate the USEPP in other universities across the nation. The study did not include student samples who had been clinically diagnosed with psychosocial problems so as to compare with the general student population under study.

Implications

There are several mental health services implications in a university setting that stem from findings of this study. First, the developed and validated instrument may help in filling the gap of lack of validated instruments for the detection of psychosocial problems among university students in Uganda.

University counselors and other mental health professionals may use it to screen for psychosocial problems among university students for early intervention. Kansal (2010) noted that early identification of psychosocial problems can prevent the development of psychiatric disorders like depression.

Counsellors may develop programs that will mitigate in the prevention of specific types of problems, e.g., drug use, academic apathy, and poor communication issues among university students etc. (Erdur-Baker, Aberson, Barrow, & Draper, 2006) and to address those students with psychosocial problems. This may help in utilization of mental health services for vulnerable students. Above all those programs need to instill positive values and behaviours that enable formerly troubled students to flourish, contribute to society, and be happy and healthy (Evans et al., 2005).

The instrument may also contribute to research in mental health.

Direction for Further Studies

Further studies should investigate the psychosocial problems in other universities. Comparative studies between psychosocial problems associated other university students should also be examined. Cross validation of USEPP with other college and university students in other countries should be examined.

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