Psychosocial factors affecting self-esteem among youth living with human immunodeficiency virus (HIV) in Namibia

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ABSTRACT

Social work with young people under 18 years of age living with HIV, one of the fastest growing populations of people living with human immunodeficiency virus (HIV), is emerging as an increasingly important practice area in Sub-Saharan Africa. This current study focused on the association between several psychosocial factors and self-esteem among 188 youth living with HIV in the Zambezi region of rural north-eastern Namibia. This study used hierarchical multivariate regression to examine how depressive symptoms, adherence to HIV treatment, HIV/AIDS transmission literacy, and HIV status disclosure were associated with self-esteem among youth living with HIV in the Zambezi region. Our study found that having grandparents as primary caregivers, knowing about HIV transmission, adhering to HIV treatment protocols, disclosing one's HIV status to someone else, and having fewer depressive symptoms had a positive effect on a youth's self-esteem. Our findings point to the need for African social workers to expand youth-focused interventions that promote mental health, HIV adherence, HIV/AIDS transmission literacy, and HIV disclosure, especially among youth living in rural areas of Africa with high HIV prevalence rates.

KEY TERMS: adherence self-esteem, AIDS, HIV, Namibia, psychosocial factors, self-esteem, youth

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INTRODUCTION

Social workers are increasingly working with the growing numbers of young people living with Human Immunodeficiency Virus (HIV) in Sub-Saharan Africa. Youth living with HIV in sub-Saharan Africa not only face medical and treatment challenges but are also confronted with a myriad of psychosocial challenges, such as parental illness and death, food insecurity, stigma, limited access to sexual reproductive health services, and mental health challenges, all which can have important implications for their well-being. In research on adults living with HIV, scholars have found that many of these and other psychosocial factors that youth living with HIV are experiencing are associated with lower levels of self-esteem, and that low levels of self-esteem can lead to high-risk sexual behavior, thereby further spreading the disease. However, most of the studies examining the relationship between psychosocial factors and self-esteem have been conducted either in the west, despite the high rates of HIV in Africa. As youth make up so much of the African population of people living with HIV, understanding the link between psychosocial factors and youth living with HIV would be especially useful for designing culturally appropriate social work practice interventions for this growing population. This study intended to fill this gap in social work knowledge through exploring various psychosocial and contextual factors associated with self-esteem of youth living with HIV in rural Namibia in a region with high a HIV prevalence rate.

BACKGROUND

Internationally, there are studies that demonstrate that self-esteem has the potential to enhance long-term behavioral change and ultimately cause a reduction in teenage pregnancy and sexually transmitted infections, including HIV and AIDS. Self-esteem, originally a western concept, is broadly defined as an individual's set of thoughts and feelings about his or her own worth, value, and importance or the overall evaluation or appraisals of one's own worth (Rosenberg, 1965). This development occurs primarily through interactions with others and reflects others' appraisals of oneself (Mo et al., 2015). For example, a youth living with HIV who perceives herself to be stigmatized due to her association with other stigmatized individuals would have a negative evaluation of herself; thus, resulting in a low perception of her own self (Mo et al., 2015). Self-esteem is somewhat similar to resiliency in that it is an individual's personal resources that are employed during times of adversity and distress. Resiliency theorists posit that adolescents and youth in high-risk social environments such as those who are in HIV endemic communities may be protected from adopting negative health behaviors because of their high self-esteem, and this has been the basis for many types of social work interventions in Africa (Mwansa & Osei-Hwedie, 1994). For example, self-esteem has been a central focus positive youth development intervention strategies in Africa aiming to prevent sexually risk behavior among young adults (Okwumabua et al., 1999).

International researchers have found that self-esteem is correlated with depression, HIV/AIDS knowledge, adherence to treatment, and HIV status disclosure, though much of this research has been conducted on adults, outside of Africa or among gay men. The correlation between self-esteem and depression is particularly well established among people living with HIV around the world. Sowislow and Orth's (2013) meta-analysis of 77 longitudinal studies found that low self-esteem is a predictor of depressive symptoms across gender and age groups. Researchers have found that depression is associated with self-esteem in African countries as well and self-esteem scales have been normed in Africa (Monahan et al, 2008; Van Dyk, 2008), though this relationship has not been studied among youth living with HIV in the African context.

There are also numerous international studies that have explored the relationship between HIV transmission literacy and self-esteem, particularly in the context of evaluating HIV prevention programs. Some studies have found that increased HIV knowledge is related to increased self-esteem (Oxley, 2001; Villegas et al., 2013), though these studies have been conducted in western contexts. Likewise, researchers in western contexts have also shown that medication adherence was highly correlated with self-esteem (Villegas et al., 2013). While the link between self-esteem and adherence to HIV treatment has been established in Western settings, this phenomenon has not been investigated thoroughly in Africa and it is imperative that African social workers, who are often designing programs based on this assumption assure that this relationship is valid in the African context

Finally, there are several studies in Africa that have documented the importance of disclosure in HIV treatment (Kidia et al., 2014; Kunapareddy et al., 2017), and others that have explored the association between HIV disclosure and self-esteem with disclosure positively associated with self-esteem (Bachanas et al., 2001). While this relationship is well-established in adults, there are no African studies that explore HIV disclosure and self-esteem among youth.

There is a compelling need to understand contextual factors that influence the positive outcomes of youth living with HIV in southern Africa, so that African social workers can design culturally and age appropriate interventions and programs. Therefore, this study explored the relationship between depression, HIV/AIDS knowledge, HIV adherence, HIV non-disclosure, and self-esteem among youth living with HIV. We tested four hypotheses: (1) Higher levels of depressive symptoms will be associated with lower levels of self-esteem; (2)

Higher levels of HIV/AIDS transmission literacy will be associated with higher levels of self-esteem; (3) Higher levels of HIV treatment adherence will be related to higher levels of self-esteem; (4) Higher levels of HIV non-disclosure will be associated with lower levels of self-esteem.

METHODS

Research site

The site of this study was the Zambezi region of Northern Namibia, one of Namibia's most remote rural region with one of the highest poverty rates (Namibia Statistics Agency [NSA], 2013/14). In 2013, the Zambezi region had one of the highest HIV prevalence rates of women aged 15 and 49 in the world (30%), which is nearly twice as high as Namibia's national average of 16% (Namibia Ministry of Health and Social Services [MoHSS] and ICF International, 2014).

Participants

A total of 188 youth and young adults living with HIV from a healthcare center in Katima Mulilo, Northeast Namibia, participated in the study. Participants were recruited as they came for their monthly routine of HIV care. The inclusion criteria for participation were: (1) being between the age 10 and 24 years; (2) diagnosed with HIV; (3) fluent in English or Silozi; (4) residing in the Zambezi region. This study excluded young people not residing in the Zambezi region and who were not diagnosed with HIV.

Procedures and design

The study employed an exploratory design using a purposive convenience sample. Face-to-face interviews were conducted with youth living with HIV between September and December 2018. All interviews were conducted in Silozi or English by a bilingual member of the research team and lasted between 50 and 60 minutes. Potential participants were approached in waiting rooms at the antiretroviral treatment (ART) health facility. Participation was voluntary, and all participants 19 years and older signed informed consent forms to confirm their willingness to participate in the study. Children younger than 18 years signed an assent form and their parents or guardians signed a consent form to confirm their willingness to participate in the study. The study received ethics approval from the academic institution of the first author and consent from local leaders.

Measures

Self-esteem
The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) was used to measure the level of self-esteem among participants. While neither the RSES nor any self-esteem scale has been validated in Namibia, the RSES has been validated in nearby South Africa and Botswana, and is widely used in research in Africa by African researchers, including in Namibia (Westaway, Jordaan & Tsai, 2015; Schmitt & Allik, 2005; Eller, Rivero-Mendez *et al*, 2014). The scale includes 10-items, for example, "On the whole, I am satisfied with myself," "At times, I think I am no good at all," and "I feel that I have a number of good qualities." Negative items on the scale were reverse coded. Responses are on a 4-point scale ranged from "Strongly agree" (4) to "Strongly disagree" (1). The higher score indicates a higher level of self-esteem. The total self-esteem score was calculated as a sum of all ten items. The internal consistency of the scale was calculated via Cronbach's Alpha (α= .72).

HIV transmission literacy
A set of questions were developed to estimate the level of knowledge about HIV transmission. There were 11 questions asking about modes of HIV transmission with yes or no response format that was developed specifically for the Namibian context. The 11 modes included blood transfusion, mother to child transmission, unprotected sex, needle sharing, oral sex, kissing, witchcraft, touching someone with HIV, sharing drinks, using the same toilet used by someone with HIV, and insect bites. The participants were asked to respond to whether any of the following are modes of HIV transmission. The researchers calculated the final score by assigning 1 point for each correct answer and summing the values.

Social support from friends
A 4-item subscale of the total 12-item Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Powell, Farley, Werkman, & Berkoff, 1990) was used to measure social support from friends. Similar to the RSES, neither the MSPSS nor any social support scale has been validated in Namibia, but the MSPSS has been validated in multiple other southern African settings, such as South Africa and Zimbabwe, and is commonly used in Africa

by African researchers (Dambi *et al.,* 2018; Dambi *et* al., 2017; Bruwer, Emsley *et al,* 2008). Participants were asked to respond to items such as: "My friends really try to help me," "I can count on my friends when things go wrong," "I have friends with whom I can share my joys and sorrows," "I can talk about my problems with my friends." All items were scored using a 7-point Likert scale where "Very Strongly Disagree" = "1" and "Very Strongly Agree" = "7." All items were summed and then divided by 4 to construct the Social Support by Friends Score. Internal consistency was assessed using Cronbach's Alpha (α= .79).

HIV adherence
HIV adherence was measured by the Case Adherence Index questionnaire (Mannheimer et al., 2006), which is the main tool used to measure HIV adherence in Africa and the rest of the world (Morojele, Kekwaletswe *et al*, 2014). The questionnaire includes three questions with three different response scales. The first question was "How often do you feel that you have difficulty taking HIV medications on time?" and included response options: "never" (4), "rarely" (3), "most of the time" (2), and "all the time" (1). The lower the frequency, the higher the score. The second question was, "On average, how many days per week would you say that you missed at least one dose of your HIV medication?" The responses for this question were recorded on a 6-point scale ranging from every day (1) to never (6). The third question was, "When was the last time you missed at least one dose of your HIV medication?" Responses ranged from "within the past week" (1) to "never" (6). Responses were summed to calculate the total HIV Adherence Index, with higher scores indicating greater adherence to HIV medication. Internal consistency was measured using Cronbach's Alpha (α= .63).

HIV status disclosure
Disclosure of HIV status was measured as a binary variable and included the response to the question: "Have you disclosed your HIV-status to…?" Participants were provided with options like "Teacher," "Boyfriend," "Girlfriend," "Friends," "Non-Disclosure." Participants who indicated disclosing to anyone was coded as disclosure, and those who did not were coded as non-disclosure.

Depressive symptoms
Depressive symptoms were measured by the Major Depression subscale of Revised Child Anxiety and Depression Scale (Chorpita, Ebesutani & Spence, 2015). This scale has recently been chosen by The International Consortium for Health Outcomes Measurement, which includes substantial representation from African researchers and was composed primarily of researchers and lived experience experts from low- and middle-income countries, as the best validated measure internationally to measure depressive symptoms among children (Krause, Chung *et al*., 2021). The subscale consists of 10 items. Examples are "I feel sad or empty," "Nothing is much fun anymore," and "I have trouble sleeping." The participants were asked to respond on a 4-point scale ranging from "never" (0) to "always" (3). The subscale was summed, therefore, ranged from 0 to 30, with higher scores indicating higher levels of depressive symptoms (Chorpita et al., 2015). Internal consistency of the subscale was assessed using Cronbach alpha (α= .79).

Demographics and control variables
Gender and having caregivers as a primary caregiver were measured as binary variables. Age was estimated as a continuous number of years. Perceived food insecurity was also recorded as a binary variable in response to the question: "How would you rate your food security situation in your household?" There are four response options "Food secure," "Food insecure- Having insufficient food daily," "Moderate hunger – having partially insufficient food daily," and "Sever hunger - little to no food daily." Food insecurity, moderate hunger, and severe hunger were coded as food insecurity.

Data analysis

We used descriptive statistics to describe the sample characteristics, and bivariate statistics, including Pearson correlation, independent samples t-test, and ANOVA, to explore the relationships between key variables. Then, after testing for multicollinearity, we performed a series of hierarchical multivariate linear regressions to test our hypotheses, increasing the number of factors in each model. The first model included a number of demographic determinants such as gender, age, having grandparents as primary caregivers, and perceived food insecurity to explain variations in self-esteem. The second model added HIV-related factors, including HIV/AIDS transmission literacy and HIV Adherence to the first model. The third model added two relational factors, social support from friends and HIV status disclosure to the second model. Finally, the fourth model included depressive symptoms to the third model. SPSS version 26 was used to perform the analysis.

RESULTS

The total sample consisted of 188 youth living with HIV. About 63% of the sample were comprised of females, 15% percent lived with their grandparents, 22% had not disclosed their status to anybody, and more than one-third experienced food insecurity. The average age in the samples is 16 years, ranging from 10 to 21. On average, participants scored 29 (range 15-40) in the Rosenberg Self-Esteem scale. Youth scored 6 (range 0-24) on average on the RCADS Depression subscale. Participants responded correctly on average to 9 out of 11 questions on the HIV/AIDS Transmission Literacy questions. The average response to the CASE HIV Adherence scale was about 12 points, where the cut-off score for poor adherence was established at 10 points mark. The average score of social support from friends was 4.38 (range 1-7).

Bivariate analyses were conducted to test the relationship between self-esteem and the explanatory variables (Table 1). There was no gender difference in self-esteem between females and males, t (51051) = -.174, $p > .05$. Age was not found to be related to self-esteem, r (187) = .086, $p > .05$. However, it was established that those who were raised by their grandparents t (590898) =-2.587, $p<.05$; food secure, t (4210) = 2.552, $p < .05$; and disclosed their HIV status, t (74455) = 2.769, $p < .05$ are more likely to score higher on the self-esteem scale. In addition, having higher support from friends, r (187) = .253, $p < .001$; demonstrating more adherence to HIV treatment, r (187) = .236, $p < .01$; knowing more about HIV transmission literacy, r (187) = .187, $p < .05$; and having less depressive symptoms, r (187) = -.412, $p < .001$ were associated with self-esteem.

Table 1: Results of independent T-test and Pearson's correlation for the determinants and level of self-esteem

Discrete determinants				
Variables	*M of self-esteem scale*	*T-test*	*df*	*p-value*
Gender				
Females	29.39	-.174	51051	NS
Males	29.52			
Grandparents primary caregivers				
Yes	31.59	-2.587	590898	P<.01
No	29.05			
Perceived food insecurity				
Food secure	28.23	2.552	4210	P<.05
Food insecure	30.15			
HIV status disclosure				
Yes	29.86	2.277	74455	P<.01
No	27.93			

Continuous determinants		
Variables	*Pearson's r*	*p-value*
Age	.086	NS
Social support from friends	.253	P<.001
HIV adherence	.236	P<.01
HIV/AIDS transmission literacy	.187	P<.05
Depressive symptoms	-.412	P<.001

To account for multicollinearity, the relationship between the main explanatory factors were tested and found to have only weak correlations or no relationship (Table 2). It is important to note that depression symptoms were found to be associated with multiple explanatory factors, including with HIV adherence, r (187) = -.176, $p < .05$; HIV transmission literacy r (187) = -.171, $p < .05$; and social support from friends, r (187) = -.250, $p < .01$.

Table 2: Correlation matrix of main variables

	Self-esteem	Depression	HIV adherence	HIV transmission literacy	Social support from friends
Age	.086	-.007	.074	.260***	.191**
Self-esteem		-.412***	.236**	.187*	.253***
Depressive symptoms			-.176*	-.171*	-.250**
HIV adherence				.023	.139
HIV/AIDS transmission literacy					.055

* $p<.05$, ** $p<.01$, *** $p<.001$

Table 3 summarizes the hierarchical regression analysis results. In this sample, 6% of the variation in self-esteem could be explained by the socio-demographic variables in Model 1. Controlling for age and gender, perceived food insecurity negatively associated with self-esteem ($B = -2.132, p < .01$), and having grandparents as primary caregivers were found to be positive determinants of self-esteem ($B = 2.771, p < .01$). Then, HIV related factors were entered and were found to explain 14% of the variance in self-esteem together with socio-demographic characteristics in Model 2. Knowing more about HIV transmission literacy ($B = .500, p < .01$) and adhering to HIV treatment ($B = .356, p < .001$) had a positive effect on self-esteem, in addition to the socio-demographic factors. Model 3 included relational factors, such as social support from friends ($B = .575, p < .01$) and disclosure of HIV status ($B = -1.811, p < .05$). Both factors were found to be significant influencers for the self-esteem of youth living with HIV. Model 3 accounted for about 19% of the variance in self-esteem. The fourth model explained about a quarter of the variance in self-esteem due to adding depression as a mental health explanatory factor ($B = -.277, p < .001$). In addition, in the final model depression caused perceived food insecurity and social support from friends to become non-significant, indicating interactions among depression symptoms, living in poverty and having less support from friends. The final model suggests that having grandparents as primary caregivers ($B = 2.157, p < .05$), having HIV/AIDS knowledge about HIV transmission ($B = .348, p < .05$), and HIV adherence to treatment medication ($B = .261, p < .01$) can have the positive effect of self-esteem. In addition to depressive symptoms, HIV status disclosure ($B = -1.754, p < .05$) had a negative effect of self-esteem in this sample.

Table 3: Summary of hierarchical regression analysis for variables explaining variation in self-esteem

Variables	Model 1		Model 2		Model 3		Model 4	
	B^a	SE B	B	SE B	B	SE B	B	SE B
(Constant)	26.674***	3.098	20.661***	3.277	20.202***	3.214	23.465***	3.179
Gender (being male)	.323	.729	-.274	.721	-.096	.701	-.586	.684
Age	.189	.193	.021	.195	-.070	.192	-.001	.185
Perceived food insecurity	-2.132**	.739	-2.234**	.741	-1.951**	.697	-1.059	.714
Grandparents primary caregivers	2.771**	.975	2.643**	.940	2.673**	.913	2.157*	.886
HIV/AIDS transmission literacy			.500*	.210	.501*	.202	.348*	.196
HIV adherence			.356***	.102	.322**	.100	.261**	.098
Social support from friends					.575**	.220	.381	.216
HIV status non-disclosure					-1.811*	.795	-1.754*	.762
Depressive symptoms							-.277***	.074
$R^{2\,b}$	.064		.140		.190		.252	
F for change in R^2	4.177**		9.181***		6.646**		15.667***	

* $p<.05$, ** $p<.01$, *** $p<.001$

[a-] *Only unstandardized B coefficient was reported due to lack of Standardized coefficient in pooled results produced after multiple imputations*

[b-] *Mean was taken across the multiply imputed datasets to create a pooled measure*

DISCUSSION

All four of the hypotheses of this study, which examined the correlations between self-esteem and depressive systems, HIV literacy, HIV adherence, and HIV status disclosure among youth living in rural northeastern Namibia, were supported. The first hypothesis, which predicted that high levels of depressive symptoms would be associated with lower self-esteem levels, was supported which is consistent with research on adults living with HIV. The youth in our study also had high levels of depression overall, which is consistent with previous studies of Namibians living with HIV (Kalomo, 2017a; Gentz et al., 2017), and this depression was correlated with self-esteem. The second hypothesis that higher levels of HIV/AIDS transmission literacy will be associated with higher levels of self-esteem was supported. This finding is congruent with Oxley's (2001) findings that youth who participated in an AIDS educational intervention reported increased levels of self-esteem compared to their peers who did not participate in the AIDS intervention. Our findings point to the importance of providing HIV/AIDS intervention to improve knowledge of HIV to youth. Our third hypothesis, that predicted that higher levels of HIV adherence to treatment medication would be related to higher levels of self-esteem, was also supported. Generally, our finding is consistent with previous studies found that higher levels of HIV adherence was associated with higher levels of self-esteem (Villegas et al., 2013). Finally, the fourth hypothesis that higher levels of HIV non-disclosure will be associated with lower levels of self-esteem was also supported. This finding is similar to previous studies suggesting that people living with HIV/AIDS who disclose their HIV status are more likely to have higher levels of self-esteem and lower depressive symptomatology (Bachanas et al., 2001).

Limitations

There are several limitations to our study. One limitation relates to the use of international measures. While all the scales and measures we used in this study have been validated in African contexts and are widely used amongst African researchers, none were developed in Namibia or Africa. Certainly, it would be ideal to use tools that were developed by Namibians for conducting Namibian research, but there currently are not any validated Namibian tools for any of these indicators. In fact, it would be inefficient to develop scales to use in a country the size of Namibia which has only two million people. Further, as Namibia has many disparate smaller ethnic groups, doing local level validation would be particularly inefficient. The Zambezi region of this study only has a population of 90,000 people, and the citizens speak a different language and have different cultural traditions from other parts of Namibia. The development of locally validated scales does not seem like a good use of resources. Further, the use of globally validated scales that African researchers have worked hard to translate and validate in African contexts is vitally important for pointing out health inequities, and African researchers have been part of international collaborations to develop or select such common tools, including tools used in this study (Ruger & Kim, 2006). So, while we did not use Namibian-developed the scales, we instead chose to use the highest quality measures available that are also the most commonly used measures by other African researchers, which allow for our findings to be interpreted both across Africa as well as globally. There are several other limitations to our study. First, as we used purposive sampling for this study, we cannot generalize our findings beyond our sample. However, the findings can be used for the basis of further exploration. Second, as a cross-sectional study, our findings are only associations, and cannot be causal. A further study could explore the directionality of the relationships. Lastly, as our data were based on self-reports, our findings could be skewed by social desirability bias.

IMPLICATIONS FOR SOCIAL WORK PRACTICE

This study's findings have important implications for social workers in rural Namibia, as well as other areas of rural Africa. Youth living with HIV in rural Namibia experience high rates of depression, and this depression is directly related to self-esteem. There is a compelling need for adequately trained social workers who can assess the mental health needs of these youth and provide culturally appropriate interventions. Mental health services can be feasible even in environments with limited resources, and social workers are best positioned to deliver affordable interventions.

Another important implication is the need to develop more sustained community-based programs targeted specifically at increasing the self-esteem of youth. These interventions should aim to provide accurate HIV knowledge and skills that improve sexual partner communication and negotiation, relying on African indigenous knowledge and values as well as evidence from African-based social work research. This is especially critical since the findings from this study identified a strong association between HIV/AIDS transmission literacy and self-esteem. Such targeted HIV education strategies, that resonate with African youth living with HIV, have the potential to enhance their self-esteem, which will hopefully lead to better health and less risk taking among these youth.

Finally, there is a need for social workers to develop interventions that promote adherence to HIV treatment while enhancing self-esteem among youth living with HIV. African social workers, with their strong interpersonal skills and culturally relevant, decolonized practice methods, are ideally suited to engage with youth in a way that promotes treatment adherence, which will in turn, enhance self-esteem and positive health outcomes.

CONCLUSION

This study found that youth living with HIV in rural Namibia who had higher levels of HIV/AIDS transmission literacy, greater adherence to HIV treatment, a history of disclosing their HIV status to someone, and lower levels of depressive symptoms had higher self-esteem. These findings call for the development of more culturally appropriate, community-based youth-focused social work services related to these factors, which will hopefully lead to higher self-esteem and better health outcomes for youth living with HIV in rural Namibia.

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REFERENCES

Besthorn, F., Kalomo, E.N., Lightfoot, E., & Minli Liao, M. (2018): The relationship between social support and anxiety amongst children living with HIV in rural northern Namibia. *African Journal of AIDS Research 17(4):*293-300.

Bachanas, P. J., Kullgren, K. A., Schwartz, K. S., Lanier, B., McDaniel, J. S., Smith, J., & Nesheim, S. (2001). Predictors of psychological adjustment in school-age children infected with HIV. *Journal of Pediatric Psychology*, *26*(6), 343-352.

Bruwer, B., Emsley, R., Kidd, M., Lochner, C., & Seedat, S. (2008). Psychometric properties of the Multidimensional Scale of Perceived Social Support in youth. *Comprehensive psychiatry*, *49*(2), 195-201.

Chorpita, B. F., Ebesutani, C., & Spence, S. H. (2015). Revised children's anxiety and depression scale. Retrieved from https://www.dellchildrens.net/wp-content/uploads/sites/60/2019/03/RCADSUsersGuide.pdf

Cluver, L. D., Hodes, R. J., Toska, E., Kidia, K. K., Orkin, F. M., Sherr, L., & Meinck, F. (2015). 'HIV is like a tsotsi. ARVs are your guns': Associations between HIV disclosure and adherence to antiretroviral treatment among adolescents in South Africa. *AIDS, 29*(1), S57-S65.

Dambi, J. M., Tapera, L., Chiwaridzo, M., Tadyanemhandu, C., & Nhunzvi, C. (2017). Psychometric evaluation of the Shona version of the Multidimensional Scale of Perceived Social Support Scale (MSPSS–Shona) in adult informal caregivers of patients with cancer in Harare, Zimbabwe. *Malawi medical journal*, *29*(2), 89-96.

Dambi, J. M., Corten, L., Chiwaridzo, M., Jack, H., Mlambo, T., & Jelsma, J. (2018). A systematic review of the psychometric properties of the cross-cultural translations and adaptations of the Multidimensional Perceived Social Support Scale (MSPSS). *Health and quality of life outcomes*, *16*(1), 1-19.

Eller, L. S., Rivero-Mendez, M., Voss, J., Chen, W. T., Chaiphibalsarisdi, P., Iipinge, S., ... & Brion, J. M. (2014). Depressive symptoms, self-esteem, HIV symptom management self-efficacy and self-compassion in people living with HIV. *AIDS care*, *26*(7), 795-803.

Gardner, L. H., Frank, D., & Amankwaa, L. I. (1998). A comparison of sexual behavior and self-esteem in young adult females with positive and negative tests for sexually transmitted diseases. *ABNF Journal, 9*(4), 89-94.

Gentz, S. G., Calonge-Romano, I., Martinez-Arias, R., & Ruiz-Casares, M. (2017). Predictors of mental health problems in adolescents living with HIV in Namibia. *Child and Adolescent Mental Health, 22*(4), 179-185.

Gentz, S. G., Calonge-Romano, I., Martinez-Arias, R., Zeng, C., & Ruiz-Casares, M. (2018). Mental health among adolescents living with HIV in Namibia: The role of poverty, orphanhood and social support. *AIDS Care, 30*(2), 83-91.

Govender, K., Masebo, W. G. B., Nyamaruze, P., Cowden, R. G., Schunter, T. S. B., & Bains, A. (2018). HIV prevention in adolescents and young people in the eastern and southern African region: A review of key challenges impeding actions for an effective response. *The Open AIDS Journal, 12*, 53-67.

Joint United Nations Programme on HIV/AIDS (UNAIDS). (2014). Gap Report 2014. People left behind: Children and pregnant women living with HIV. Retrieved July 2019 from https://www.unaids.org/sites/default/files/media/images/gap_report_popn_09_childrenpregnantwomenlwh_2014july-sept.pdf

Kaharuza, F. M., Bunnell, R., Moss, S., Purcell, D. W., Bikaako-Kajura, W., Wamai, N., ... & Mermin, J. (2006). Depression and CD4 cell count among persons with HIV infection in Uganda. *AIDS and Behavior*, *10*(1), 105-111.

Kalomo, E. N. (2017a): Associations between HIV-related stigma, self- esteem, social support, and depressive symptoms in Namibia. *Aging & Mental Health*.

Kalomo, E. N, Minli Liao, Besthorn, F., Shilunga, A. P. K., & Mbapaha , C. (2017b) To tell or not to tell: Dimensions of disclosure to children with HIV in the Zambezi region of Northern Namibia. *Journal of HIV/AIDS & Social Services, 16,* (3), 250-268.

Karim, Q. A., Baxter, C., & Birx, D. (2017). Prevention of HIV in adolescent girls and young women: Key to an AIDS-free generation. *Journal of Acquired Immune Deficiency Syndrome, 75*(1), S17-S25.

Kidia, K. K., Mupambireyi, Z., Cluver, L., Ndhlovu, C. E., Borok, M., & Ferrand, R. A. (2014). HIV status disclosure to perinatally-infected adolescents in Zimbabwe: A qualitative study of adolescent and healthcare worker perspectives. *PloS one*, *9*(1), e87322.

Kunapareddy, C. J., Nyandikoi, W., Inui, T., Ayaya, S., Marrero, D.G., & Vreeman, R. (2017). A qualitative assessment of barriers to antiretroviral therapy adherence among adolescents in western Kenya. *Journal of HIV/AIDS Social Services, 13*(4), 383-401.

Krause, K. R., Chung, S., Adewuya, A. O., Albano, A. M., Babins-Wagner, R., Birkinshaw, L., ... & Wolpert, M. (2021). International consensus on a standard set of outcome measures for child and youth anxiety,

depression, obsessive-compulsive disorder, and post-traumatic stress disorder. *The Lancet Psychiatry*, 8(1), 76-86.

Makhubela, M., & Mashegoane, S. (2017). Psychological validation of the Rosenberg Self-Esteem Scale (RSES) in South Africa: Method effects and dimensionality in black African and white university students. *Journal of Psychology in Africa*, 27(3), 277-281.

Manhas, C. (2014). Self-esteem and quality of life of people living with HIV/AIDS. *Journal of Health Psychology*, 19(11), 1471-1479.

Mannheimer, S., Mukherjee, R., Hirschhorn, L., Dougherty, J., Celano, S., Ciccarone, D., Graham, K., Mantell, J., Mundy, L., Eldred, L., Botsko, M., & Finkelstein, R. (2006). The CASE adherence index: A novel method for measuring adherence to antiretroviral therapy. *AIDS Care*, 18(7), 853–861.

Mo, P. K. H., Lau, J. T. F., Yu, X., & Gu. (2015). A model of associative stigma on depression and anxiety among children of HIV-infected parents in China. *AIDS and Behavior, 19*(1), 50-59.

Monahan, P. O., Shacham, E., Reece, M., Kroenke, K., Ong'Or, W. O., Omollo, O., ... & Ojwang, C. (2009). Validity/reliability of PHQ-9 and PHQ-2 depression scales among adults living with HIV/AIDS in western Kenya. *Journal of general internal medicine*, 24(2), 189.

Morojele, N. K., Kekwaletswe, C. T., & Nkosi, S. (2014). Associations between alcohol use, other psychosocial factors, structural factors and antiretroviral therapy (ART) adherence among South African ART recipients. *AIDS and Behavior*, 18(3), 519-524.

Mwansa, K., & Osei-Hwedie, K. (1994). Empowerment and social work education and practice in Africa. *Journal of Social Development in Africa*, 9(2), 71-86.

Namibia Ministry of Health and Social Services [MoHSS] and ICF International. (2014). The Demographic and Health Survey 2013. Windhoek, Namibia: MoHSS and ICF International.

Namibia Statistics Agency [NSA]. (2013/14). NSA Releases Annual Report 2013/14. Retrieved April 2019 from https://nsa.org.na/post/nsa-releases-annual-report-2013-14-43-86

Okoror, T., Belue, R., & Zungu, N. (2014). HIV positive women's perceptions of stigma in health settings in Western Cape, South Africa. *Healthcare for Women International, 35*, 27-49.

Okwumabua, J. O., Wong, S. P., Duryea, E. J., Okwumabua, T. M., & Howell, S. (1999). Building self-esteem through social skills training and cultural awareness: A community-based approach of preventing violence among African American youth. *Journal of Primary Prevention, 20*(1), 61-74.

Oxley, G. M. (2001). HIV/AIDS knowledge and self-esteem among adolescents. *Clinical Nursing Research, 10*(2), 214-224.

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University Press.

Ruger, J. P., & Kim, H. J. (2006). Global health inequalities: an international comparison. *Journal of Epidemiology & Community Health*, 60(11), 928-936.

Schmitt, D. P., & Allik, J. (2005). Simultaneous administration of the Rosenberg Self-Esteem Scale in 53 nations: exploring the universal and culture-specific features of global self-esteem. *Journal of personality and social psychology*, 89(4), 623.

United Nations Children's Fund, [UNICEF]. (2017). For every child, end AIDS: Seventh stocktaking report.

Van Dyk, A. (2000). HIV care and counseling (4th ed.). Cape Town South Africa: Pearson Education.

Villegas, N., Cianelli, R., Gonzalez-Guarda, R., Kaelber, L., Ferrer, L., & Peragallo, N. (2013). Predictors of self-efficacy for HIV prevention among Hispanic women in South Florida. *Journal of the Association of Nurses in AIDS Care*, 24(1), 27-37.

Wilson, A., Yendork, J. S., & Somhlaba, N. Z. (2017). Psychometric properties of multidimensional scale of perceived social support among Ghanaian adolescents. *Child Indicators Research*, 10(1), 101-115.

Westaway, M. S., Jordaan, E. R., & Tsai, J. (2015). Investigating the psychometric properties of the Rosenberg self-esteem scale for south African residents of greater Pretoria. *Evaluation & the health professions*, 38(2), 181-199.

Zimet, G., Powell, S., Farley, G., Werkman, S., & Berkoff, K. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, 55(3–4), 610–617.