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HIV Risk Among Displaced Adolescent Girls in Ethiopia: the Role of Gender Attitudes and Self-Esteem

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Abstract

Adolescent girls in sub-Saharan Africa have been deemed one of the most critical populations to address in the campaign for an HIV-free generation. Experiences of intimate partner violence (IPV), harmful gender norms, diminished personal agency, and age-disparate sex have been identified as factors in the increasing rate of new infections among this population. Using baseline data from a cluster-randomized controlled trial in three refugee camps in Benishangul-Gumuz Regional State in Ethiopia, our study quantitatively examined the associations between HIV risk factors, attitudes on gender inequality, IPV acceptability, and self-esteem for female adolescent refugees primarily from Sudan and South Sudan ($n = 919$). In multivariate models, adjusting for age and education, results showed girls who were more accepting of gender inequitable norms and IPV had greater odds of ever experiencing forced (OR 1.40, CI 1.15–1.70; OR 1.66, CI 1.42–1.94) or transactional sex (OR 1.28, CI 1.05–1.55; OR 1.59, CI 1.37–1.85) compared to girls who demonstrated less approval. Higher self-esteem was associated with increased odds of condom use (OR 1.13, CI 1.02–1.24) as well as decreased odds of adolescent marriage (OR 0.93, CI 0.90–0.95), age-disparate sex (OR 0.90, CI 0.86–0.94), and transactional sex (OR 0.96, CI 0.93–0.99). The findings suggest acceptance of inequitable gender norms (including those that perpetuate violence against women) and low self-esteem to be associated with common HIV risk factors among refugee adolescents living in Ethiopia. Greater attention towards the intersections of gender equality and self-valuation is needed when seeking to understand HIV risk among refugee adolescent girls in sub-Saharan Africa.

Keywords Refugees · Adolescent marriage · Age-disparate sex · Transactional sex · Condom use

Sub-Saharan Africa (SSA) accounts for over 70% of the total global disease burden of HIV (UNAIDS 2016). In conflict settings, HIV prevalence among displaced persons may decrease due to community isolation, reduced sexual networks, or a reduction of sexual activities due to stress and trauma (Mills et al. 2006; Spiegel 2004). On the other hand, situations of conflict and protracted crisis are also characterized by factors that heighten vulnerability to HIV for women and girls,

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including the weakening of medical and public health infrastructure, widespread sexual violence, and strained community cohesion (Mills et al. 2006; Spiegel 2004). Family fragmentation coupled with economic insecurity can compel girls to engage in transactional sex or early marriage to secure basic needs or obtain physical protection (Hankins et al. 2002; Spiegel 2004). Existing gender inequalities that lower women's social status are further exacerbated in conflict and post-conflict settings.

The perpetuation of gender inequality, including societal norms that reinforce the submission of females, limits self-efficacy in HIV prevention and is a major force driving increased HIV risk for young women and adolescent girls (Gupta et al. 2008; UNAIDS 2016; Shannon et al. 2012). Globally, females between the ages of 15 and 24 are at disproportionately higher risk of acquiring HIV than any other gender and age cohort (UNAIDS 2016). In SSA, this subgroup comprises 17% of the adult population but accounts for 25% of new HIV infections (UNAIDS 2016).

At the same time, adolescent females suffer more from self-blame and low self-esteem compared to male peers (Rosenfield and Mouzon 2013). Gender norms that endorse inequity between the sexes can be viewed as partially responsible for the higher incidence of internalizing mental health disorders, including anxiety and depression, among women (WHO n.d.). The Social Institutions and Gender Index of the Organization for Economic Cooperation & Development (OECD) gives Sudan, one of the main country contexts from which our study sample fled, a low ranking—citing institutionalized gender inequality, including discriminatory family codes, a lack of legal provisions to protect women from violence, and limitations for females in asset holdings and financial services (2016). The Theory of Gender and Power, particularly as it has been applied to HIV, asserts this broader structural context to be explanatory when understanding risks for women (Wingood and DiClemente 2000). In other words, societal perceptions on the status of women, within and beyond the household, can influence a female's ability to negotiate protected sex (Shannon et al. 2012). In humanitarian settings, such constraints are often compounded by economic insecurity, armed conflict, and mass displacement.

Many published studies (and the interventions they inform) focus on reducing the likelihood of HIV infection through increased sexual and reproductive health (SRH) messaging and improved access to testing and counseling, lacking substantial reference to the prevailing gender norms and associated psychological outcomes, such as self-esteem (Casey 2015; Gupta et al. 2008). It is of critical importance to explore the psychosocial predictors of HIV risk through a structural lens, examining gender norms that foster inequity and self-devaluation, to consider the restrictions such perceptions place on decision-making and the efficacy of HIV prevention measures.

Previous studies have found that gender ideologies that accept intimate partner violence and deem power imbalance normative in intimate relationships were more likely to be associated with lack of condom use; however, analyses were limited to adult women (Mpondo et al. 2015; Tsai and Subramanian 2012). Discourse on adolescent HIV risk and gender inequitable attitudes has been examined qualitatively, yet quantitative relationships are understudied. Further, the literature on HIV risk among females in SSA has largely been dominated by the experiences of women and girls in South Africa and Kenya, with a dearth of information on refugee populations, who, at times, have paradoxically demonstrated better outcomes in HIV incidence than host communities (Spiegel et al. 2007), yet also bear the additional burden of conflict-related vulnerabilities.

Likewise, the literature on self-esteem and HIV among adolescent girls in SSA is primarily situated within a South African context (Bhana et al. 2016; Wild et al. 2004). Studies that do consider psychosocial well-being as a preventative factor typically focus on externalizing behaviors, such as alcohol and substance abuse (Breuer et al. 2011; Woolf-King and Maisto 2011) rather than the internalized aspects more often experienced by females. While some empirical evidence on the correlation between mental health and HIV risk behavior in low-resource settings exists (Agardh et al. 2012; Puffer et al. 2011), more data is needed to better quantify this relationship and understand the influence of prevailing gender norms.

This paper examines whether attitudes on gender inequality, perceptions on the acceptability of IPV, and self-esteem (as measured by respondent's subjective valuation of her own self-worth) are associated with HIV risk factors for refugee adolescent females residing in Benishangul-Gumuz, Ethiopia. By extending the evidence based on female HIV risk in SSA to a displaced adolescent population, we offer critical insight on determinants of risk for this marginalized cohort and discuss implications for intervention design.

Methods

Study Design

This secondary analysis used baseline data collected between May and October 2015 from the Creating Opportunities through Mentorship, Parental Involvement, and Safe Spaces (COMPASS) program, carried out in the Democratic Republic of Congo, Pakistan, and Ethiopia to establish foundations for healthy female transitions into adulthood in humanitarian crises, implemented by the International Rescue Committee (IRC). Our study analyzed baseline data from COMPASS participants in the three implementing camps in Benishangul-Gumuz Region, Ethiopia. These camps included

Sherkole, Tongo, and Bambasi and primarily serve refugees from neighboring Sudan and South Sudan. The IRC introduced the COMPASS program through social worker home visits and existing activities at IRC-run Women and Girl Wellness Centers. Interested adolescents and their caregivers were invited to register for the program. Inclusion criteria for adolescents were as follows: (1) 13 to 19 years of age; (2) female; and (3) verbal proficiency in Funj, Regarig, Ingessana Kulelek, or Maban. Caregiver consent, adolescent consent (for participants 18 and 19 years of age), and adolescent assent (for participants under 18) were obtained prior to completing the confidential survey. Given the non-written nature of the languages, information about the study was delivered via tablets. Participants listened to audio recordings on headphones, and consent/assent was then registered when participants touched the screen where indicated. Enumerators were able to answer any questions if needed. Audio Computer-Assisted Self-Interview (ACASI) software was used to allow participants to privately answer sensitive questions.

In accordance with the World Health Organization's research guidelines on violence against women (World Health Organization (WHO) 2001), all research staff completed training on research ethics and signed confidentiality agreements while also receiving training on basic concepts of gender-based violence. At the end of the interview, respondents were provided information about where and how to receive additional services, and referrals were made to service providers as needed. All components of the research were reviewed and approved by Columbia University's Human Subjects Protection committee, IRB Protocol AAAP6855, IRC IRB Protocol WPE 1.00.003, and by the Administration for Refugee and Returnee Affairs in Ethiopia. Full details on the study protocol and intervention have been published previously (Falb et al. 2016).

Setting

Ethiopia hosts 743,732 refugees fleeing protracted conflicts in nearby countries as of August 2016, predominately from Sudan, South Sudan, Somalia, and Eritrea (UNHCR 2016). Assosa, the capital city of the region of Benishangul-Gumuz in western Ethiopia, is currently home to an estimated 51,602 refugees from Sudan and South Sudan (UNHCR 2016). While there is a lack of information on HIV risk among this population, studies among women in South Sudan have shown high levels of exposure to interpersonal violence, with 65% of women and girls experiencing physical and/or sexual abuse in their lifetime (GWI, IRC, CARE, Forcier 2017).

Measures

The outcome of analysis for this paper is HIV risk, with variables selected based on prior literature assessing risk factors for adolescent girls in SSA (Raj and Boehmer 2013; Schaefer et al. 2017; Stöckl et al. 2013: Wamoyi et al. 2016). These variables were dichotomized and include Married or Living with a Man as if Married, hereafter referred to as "adolescent marriage" (code 0 = no, code 1 = yes), Age-Disparate Sex (code 0 = if partner under age 30, code 1 = if partner age 30+), Early Sexual Debut (code 0 = 14+, code 1 = 13 or under), Condom Use at Last Willing Sexual Encounter (code 0 = no, code 1 = yes), Ever Experienced Forced Sex (code 0 = no, code 1 = yes), and Ever Engaged in Transactional Sex (code 0 = no, code 1 = yes). Two control variables were included in the model—Age in Years as a continuous variable and Ever Enrolled in School (code 0 = no, code 1 = yes).

Three independent variables were selected to understand their relationship with HIV risk factors—Attitudes on Gender Inequality, Perceptions on the Acceptability of Intimate Partner Violence (IPV), and Self-Esteem. Attitudes on Gender Inequality were assessed through the Equity subsection of the Gender Relationship Scale and inquired on beliefs such as whether males and females should share household chores or if males should have the final word about decisions in the home. Perceptions on the acceptability of IPV were measured dichotomously (yes/no) on each of the five items derived from UNICEF's Multiple Indicator Cluster Survey (MICS) module and assessed if respondents thought it was okay for a husband to beat or hit his wife in various scenarios including—if she refused sex, burned his food, or went out without telling him. Both Gender Inequality and IPV Acceptability composite variables had a range of 0–5, where 0 indicated full disagreement and 5 indicated full agreement with an unequal power balance between the sexes and IPV acceptability, respectively. Both scales demonstrated reliability coefficients of 0.66 at baseline. Self-Esteem measures were derived from the Rosenberg Self-Esteem Scale, a 4-point Likert scale tested in varying cultural contexts (Schmitt and Allik 2005). Respondents rated their perceptions on items such as, "I feel that I am a failure" or "I feel that I have much to be proud of." Responses on 10 items were averaged to determine overall scoring with higher scores indicated higher self-esteem. Chronbach's alpha for this scale was 0.86 at baseline, demonstrating sufficient reliability. All independent variables were treated as ordinal. Each scale was pre-tested through cognitive interviewing with 50 adolescent girls within the three camps. Respondents in the pilot test provided critical information on question construction and contextual relevance. Comments collected during the pre-test phase were then provided to the IRC to refine the tools in advance of baseline data collection.

Analysis

Data was analyzed using Stata Version 13.1 (StataCorp, College Station, TX, USA). Independent associations

between HIV risk factors and measures of gender norms and self-esteem were examined using binary logistic regression. Following the test of individual predictors, we examined relationships using a multivariate logistic regression, at the 5% level of significance. Given past theory on adolescent development (Brooks-Gunn and Furstenberg Jr 1989; Steinberg 2008) and empirical evidence on educational attainment and HIV risk (Hargreaves et al. 2008; De Walque 2002), we included age and education as control variables within the model. In the examination of condom use, we also controlled for marriage given evidence that suggests condom use to be more likely in unmarried rather than married partners in the region (Anglewicz and Clark 2013; Teklu and Davey 2016). For the logistic regression, Wald's tests were used to determine the significance level of individual predictors in the model. Where indicated by skip patterns in the questionnaire, regression analyses were conducted using complete case analysis whereby adolescents with missing data were dropped from the model, using a sub-set of the study sample. To account for clustering, the final model was secondarily analyzed with camp residence as a co-variate.

Results

Descriptive Characteristics

Baseline data were collected on 919 female adolescents (Table 1). Of the 919 respondents, 52% ($n = 479$) were aged 13–14, 36% ($n = 328$) were 15–16, and 12% were 17–19 years old. Girls ever enrolled in school represented 69% ($n = 637$) of the sample. Approximately 32% ($n = 299$) of the sample were married or living with a man, and 13% ($n = 121$) had a sexual partner age 30 or above (Table 1). Just under 10% of the total sample reported age of sexual debut to be 13 or younger ($n = 91$), while 6.3% ($n = 58$) disclosed that their partner used a condom in their most recent willing sexual experience. Nearly 15% of respondents ($n = 136$) had experienced forced sex with a comparable amount ($n = 143$) having engaged in some form of transactional sex (i.e., been provided money, food, or gifts in exchange for sex).

Attitudes on Gender Inequality and HIV Risk

Higher scores on the gender relations scale indicated greater acceptability of gender inequitable attitudes. The mean score for the study sample was 2.1 (SD 1.2) out of 5. In bivariate analyses, higher gender inequitable attitudes were significantly associated with a decreased likelihood of adolescent marriage (OR 0.74, CI 0.66–0.84), increased odds of using a condom at last willing sex (OR 2.04, CI 1.46–2.87), ever experienced forced sex (OR 1.67, CI 1.43–1.96), and ever engaged in transactional sex (OR 1.45, CI 1.25–1.69) (Table 2). Gender inequitable attitudes were also associated with higher odds of early sexual debut (OR 1.28, CI 0.97–1.69); however, these findings fell just outside the threshold for statistical significance. Bivariate analysis found no observable relationship between scores on the gender relations scale and odds of having an age-disparate sexual relationship. In multivariate analysis, controlling for age and education, greater gender inequitable attitudes continued to be associated with ever experiencing forced sex and ever engaging in transactional sex (Table 3).

IPV Acceptability and HIV Risk

Respondents with higher scores on the IPV attitudes scale represented higher levels of acceptance towards IPV. The mean score for the study sample was 1.7 (SD 1.5) out of 5. Bivariate analysis demonstrated statistically significant associations between greater IPV acceptability and a decreased likelihood of adolescent marriage (OR 0.81, CI 0.74–0.90), age-disparate sex (OR 0.81, 0.70–0.97), and increased odds of condom use at last willing sex (OR 2.16, CI 1.61–2.90), forced sex (OR 1.79, CI 1.57–2.04), and transactional sex (OR 1.53, CI 1.36–1.73) (Table 2). No observable relationships were found between IPV attitudes and odds of early sexual debut. Associations between greater acceptability of IPV and condom use as well as higher odds of forced sex and transactional sex remained statistically significant in the multivariate model. Greater acceptability of IPV was also associated with early sexual debut; however, this finding was just beyond the threshold of statistical significance in the multivariate model (Table 3).

Self-Esteem and HIV Risk

The mean score for self-esteem among the study population was 29.1 (SD 8.3) out of 40, with higher scores representing higher self-esteem. Greater self-worth was significantly associated with decreased odds of both adolescent marriage (OR 0.91, CI 0.89–0.93) and age-disparate sexual relationships (OR 0.90, CI 0.87–0.94), as well as increased odds of condom use (OR 1.12, CI 1.06–1.18) in bivariate analysis. Surprisingly, we found participants with higher self-esteem to have slightly higher odds of ever experiencing forced sex (OR 1.03, CI 1.01–1.06) (Table 2); however, these findings were no longer significant in the multivariate analysis. The multivariate model maintained statistically significant relationships between higher self-esteem and decreased odds of adolescent marriage and age-disparate sex, as well as increased odds of condom use. Decreased odds of engaging in transactional sex were also significantly associated with higher self-esteem in the multivariate model (OR 0.96, CI 0.93–0.99) (Table 3).

Table 1 Descriptive characteristics of enrolled adolescents at baseline ($N = 919$)

Demographic characteristics	*n* (%)
Age	
13–14	479 (52.1)
15–16	328 (35.7)
17–19	112 (12.2)
Ever attended school	
Yes	637 (69.3)
No	253 (27.5)
Missing	29 (3.2)
Ever had sexual intercourse (willingly or unwillingly)	
Yes	1186 (20.2)
No	640 (69.6)
Don't know	86 (9.4)
Missing	7 (0.8)
HIV risk factors	
Married or living with a man as if married	
Yes	299 (32.5)
No	527 (57.3)
Missing*	93 (10.1)
Age-disparate sex (age of husband or sexual partner if applicable)	
10–29	146 (15.9)
30–50+	121 (13.1)
Not applicable—skip pattern from married	620 (67.5)
Missing	32 (3.5)
Age of sexual debut (consensual)	
13 or young	91 (9.9)
14 or older	45 (4.9)
Never had sex willingly	43 (4.7)
Not applicable—skip pattern from ever experienced sexual intercourse	727 (79.1)
Missing	13 (1.4)
Condom use in most recent willing sexual experience	
Yes	58 (6.3)
No	81 (8.8)
Not applicable—skip pattern from ever experienced sexual intercourse and willing sex	769(83.7)
Missing	10 (1.2)
Ever experienced forced sex	
Yes	136 (14.8)
No	673 (73.2)
Missing	110 (12.0)
Transactional sex—been given money, food, or gifts in exchange for sex?	
Yes	143 (15.6)
No	689 (74.9)
Missing	87 (9.5)
Attitudes on gender inequality, IPV acceptability, and self-esteem	Mean (SD)
Gender relations scale (max 5)	2.1 (1.2)
IPV attitudes scale (max 5)	1.7 (1.5)
Self-esteem scale (max 40)	29.1 (8.3)

* On all HIV risk factors, "missing" includes "don't knows" and non-response

Table 2 Estimates of independent relationships between attitudes on gender inequality, IPV acceptability, self-esteem, and HIV risk

	OR	OR 95% CI	*P* value	OR	OR 95% CI	*P* value	OR	OR 95% CI	*P* value
	Married or living with man ($n = 826$)			Age-disparate sex ($n = 267$)			Early sexual debut ($n = 136$)		
Attitudes on gender inequality	**0.74**	**0.66–0.84**	**0.00***	0.86	0.70–1.05	0.14	1.28	0.97–1.69	0.08
IPV acceptability	**0.81**	**0.74–0.90**	**0.00***	**0.81**	**0.70–0.97**	**0.02***	**1.38**	**1.09–1.73**	**0.01***
Self-esteem	**0.91**	**0.89–0.93**	**0.00***	**0.90**	**0.87–0.94**	**0.00***	1.03	0.99–1.08	0.17
	Condom use at last willing sex ($n = 139$)			Forced sex ($n = 809$)			Transactional sex ($n = 832$)		
Attitudes on gender inequality	**2.04**	**1.46–2.87**	**0.00***	**1.67**	**1.43–1.96**	**0.00***	**1.45**	**1.25–1.69**	**0.00***
IPV acceptability	**2.16**	**1.61–2.90**	**0.00***	**1.79**	**1.57–2.04**	**0.00***	**1.53**	**1.36–1.73**	**0.00***
Self-esteem	**1.12**	**1.06–1.18**	**0.00***	**1.03**	**1.01–1.06**	**0.00***	0.99	0.97–1.02	0.60

* Significance at $P < 0.05$ noted in bold with *

Discussion

Addressing the unique barriers faced by adolescent girls has become a key priority for decreasing the incidence of new HIV infections in SSA (Dellar et al. 2015). While SRH messaging has been a critical component of HIV prevention efforts in the region (Kennedy et al. 2010), the rate of new infections for adolescent girls remains high comparative to other demographics, suggesting that underlying factors may be affecting the sustainability of outcomes. This study examined the association between attitudes on gender inequality, acceptability of IPV, and self-esteem on various measures of HIV risk. To the best of our knowledge, this is the first study seeking to understand these relationships for adolescent girls in SSA, living within a refugee context.

In adjusted models, girls with higher levels of self-esteem had lower odds of being in an adolescent marriage or engaging in age-disparate sex. These findings complement the literature from eastern and southern Africa that respectively recognize early marriage to be associated with lower levels of personal agency (Erulkar 2013) and intergenerational sex as a perceived means of affirming one's worth (Leclerc-Madlala 2008). Our correlation would suggest that multisectoral efforts to address HIV risk among adolescent girls should consider integrating program components on self-esteem. As societal valuation of worth often influences one's sense of self, both individual perceptions and institutionalized norms should be considered. Investments in education can elevate the collective status of girls, potentially mitigating HIV risk. Indeed, our study found that girls who had ever attended school had lower odds of adolescent marriage. School-based sports programs, carried out in both camp and non-camp settings, have also been popularized for improving self-esteem among girls, demonstrating positive, though time-limited, outcomes on HIV preventative behaviors (Kaufman et al. 2013). Engagement of adolescent girls in school, sport, and other interventions to promote self-esteem may yield greater benefits the earlier they are initiated, particular in fragile states and displacement contexts. While just beyond statistical significance, our study found younger girls to have greater odds of adolescent marriage. This result is supported by empirical findings in humanitarian settings that generally demonstrate an increase in adolescent marriages in contexts of conflict with several studies identifying greater risk for younger girls (Neal et al. 2016).

Surprisingly, higher odds of condom use were found among girls who reported acceptance of IPV, in contrast with existing evidence on gender norms and HIV risk on the continent (Mpondo et al. 2015; Tsai and Subramanian 2012). However, as with sexual debut, the sample size for this variable was relatively small, limited to girls who reported ever having consensual sex, suggesting caution when interpreting the findings. Nevertheless, there may be rationale for the contradiction with existing literature. While prior studies examined gender norms and HIV risk for adult women, our research was exclusively focused on adolescents in a setting of protracted displacement, characteristics which may yield differing results. Furthermore, because access to condoms in humanitarian settings can be limited and inconsistent (Casey et al. 2015), the characteristics of the sexual partner may be of importance. As girls with higher acceptance of IPV also had greater odds of ever having engaged in transactional sex, it is conceivable their sexual partners, who have the ability to provide material goods in exchange for sex, may also have better access to and experience with condoms. Lastly, the ability of adolescent girls to negotiate condom use was not examined in this study. Even in perceived consensual relationships, power imbalances between males and females, particularly in age-disparate or economically motivated relationships, would influence whether or not the respondents' sexual partner wore a condom. Further research is needed to understand girls' ability to negotiate condom use, both within and outside of marital relationships, and how self-esteem and gender norms influence these negotiations.

Consistent with the literature on gender norms and sexual violence within SSA (Scott et al. 2013; Shannon et al. 2012), our findings indicate inequitable gender norms and acceptance of IPV to be associated with increased odds of adolescent girls ever experiencing forced sex, a phenomenon common for this

Table 3 Relationship between attitudes on gender inequality, IPV acceptability, self-esteem, and HIV risk, adjusted[a]

	OR	OR 95% CI	*P* value
Married or living with man ($n = 826$)			
Age	0.91	0.82–1.10	0.08
Education	**0.41**	**0.29–0.57**	**0.00***
Attitudes on gender inequality	0.97	0.83–1.12	0.64
IPV acceptability	0.94	0.84–1.06	0.31
Self-esteem	**0.93**	**0.90–0.95**	**0.00***
Age-disparate sex ($n = 267$)			
Age	0.94	0.79–1.14	0.56
Education	0.96	0.57–1.63	0.88
Attitudes on gender inequality	1.16	0.90–1.50	0.26
IPV acceptability	0.89	0.72–1.11	0.30
Self-esteem	**0.90**	**0.86–0.94**	**0.00***
Early sexual debut ($n = 136$)			
Age	**0.70**	**0.53–0.93**	**0.01***
Education	0.97	0.40–2.35	0.95
Attitudes on gender inequality	1.16	0.80–1.67	0.44
IPV acceptability	1.35	0.99–1.83	0.06
Self-esteem	0.98	0.92–1.04	0.56
Condom use at last willing sex ($n = 139$)			
Age	0.92	0.64–1.33	0.67
Education	0.37	0.12–1.16	0.09
Married or living with man	0.40	0.14–1.19	0.10
Attitudes on gender inequality	1.44	0.90–2.29	0.13
IPV acceptability	**1.55**	**1.06–2.26**	**0.02***
Self-esteem	**1.13**	**1.02–1.24**	**0.02***
Forced sex ($n = 809$)			
Age	**0.85**	**0.73–0.99**	**0.03***
Education	0.82	0.52–1.29	0.39
Attitudes on gender inequality	**1.40**	**1.15–1.70**	**0.00***
IPV acceptability	**1.66**	**1.42–1.94**	**0.00***
Self-esteem	0.98	0.95–1.01	0.16
Transactional sex ($n = 832$)			
Age	**0.67**	**0.57–0.79**	**0.00***
Education	**0.45**	**0.29–0.68**	**0.00***
Attitudes on gender inequality	**1.28**	**1.05–1.55**	**0.01***
IPV acceptability	**1.59**	**1.37–1.85**	**0.00***
Self-esteem	**0.96**	**0.93–0.99**	**0.01***

*Significance at $P < 0.05$ noted in bold with *

[a] To account for clustering, the adjusted model was secondarily run with camp residence as a co-variate with no significant changes to the results

population that the number of respondents who indicated they had ever had force sex was high relative to the number who indicated ever having sexual intercourse. These findings reinforce the notion that such gender ideologies create an environment where sexual violence against women and girls is normalized. Given previous studies that have shown forced sex to be correlated with increased HIV incidence (Pettifor et al. 2004; Stockman et al. 2013), there is a need for practitioners to understand how gender norms, including beliefs on IPV, influence HIV prevention strategies. It is feasible that adolescent girls who subscribe to gender hierarchies and believe IPV to be justified are more likely to be part of an extended family or peer group that hold the same beliefs, enhancing her risk of victimization within her community. At the same time, information on the pathways through which these constructs relate remains in question. Does internalization of gender hierarchies and rationalization of violence make an adolescent girl more likely to accept her own victimization? Further study of such pathways is warranted as is the inclusion of gender transformative work in HIV prevention to improve rights recognition among adolescent girls and the intentional engagement of men and boys in the advancement of gender equity.

Most striking is the influence of gender inequality, acceptance of IPV, and low self-esteem on odds of having ever engaged in transactional sex. Considered a key vulnerability for adolescent girls due to its exposure to other risk factors, transactional sex has been linked to higher HIV incidence for young women in SSA (Jewkes et al. 2012). Intergenerational relationships, which often involve material transactions, can be understood as a means of enhancing self-worth and social status (Leclerc-Madlala 2008), complementing our finding that links the practice with low self-esteem. At the same time, literature acknowledges the economic imperative of transactional sex (Hankins et al. 2002; Stoebenau et al. 2016) including in humanitarian contexts (Maclin et al. 2015). This economic deprivation paradigm reinforces the notion of female dependency upon men and supports our finding that girls who embraced a gender hierarchy and accepted IPV, were more likely to engage in sex with men to meet basic needs. Theoretical examinations from South Africa contrast the above and propose transactional sex to be a direct illustration of women's agency and ability to exploit a patriarchal system to their own benefit (Leclerc-Madlala 2003). Our findings within the refugee context do not support this theory, as adolescent girls who were younger and never attended school had greater odds of engaging in transactional sex, illustrating their comparative vulnerability. Results such as these have prompted advocates for girls to move towards terminology such as "transactional sexual exploitation" or "exploitative transactional sex" when discussing the practice among minors, particularly those in exchanges that are age-disparate and in contexts of conflict or severe economic insecurity. To reduce the practice, practitioners should consider comprehensive interventions that seek to transform societal gender norms while improving access to quality education and enhancing the self-worth of adolescent girls during the transition to adulthood. Such realizations have spurred initiatives in lower- and middle-income countries and can be adapted

for humanitarian settings. Similarly, economic initiatives, such as cash transfers and increased access to income generating activities, have shown promise elsewhere in the region to reduce transactional sex among adolescent girls (Cluver et al. 2013), suggesting that similar efforts in camp settings may also yield positive returns.

Limitations

Due to the nature of the analysis, relationships identified should be viewed as correlational and not causal. Associations between variables may have bi-directional influences and should not be considered definitive when constructing causal pathway models. Secondly, our findings were limited to self-reported measures of sexual experiences, which can be prone to bias and of less accuracy than biomarker data. The study's use of ACASI sought to decrease this bias supported by literature on adolescents' self-report on sexual behavior in the region (Mensch and Hewett 2007). Nevertheless, descriptive data analysis presented discrepancies between the number of girls who indicated they were married and those who were sexually active. This inconsistency may be due to greater comfort in divulging marital status as opposed to sexual activity, signaling that challenges yet remain in collecting sensitive data despite use of ACASI. Alternatively, country-of-origin marital customs, characterized by elaborate negotiations and exchanges of bridewealth, may be explanatory. Resource limitations faced by refugees can force suitors to provide monetary benefits and livestock transfers to a bride's family in installments, delaying formal acceptance of the marriage (Grabska 2012). In such cases, respondents who were betrothed to men may have indicated they were married while also noting they were not yet sexually active.

Review of the findings should also consider that the sample size for three of the six questions inquiring on HIV risk factors elicited low response rates relative to the overall sample size due to skip patterns within the questionnaire. Further, as with most surveys on HIV risk, inquiries made a distinction between willing and coerced sex. In settings where normative beliefs about gender ascribe inferiority to females, the lines between consensual and coerced, particularly for adolescents who are in varying stages of cognitive development, can be blurred and may affect participant response.

Lastly, our study solely examined quantitative associations between gender norms, IPV acceptability, and self-esteem on HIV risk. Future studies should integrate qualitative components to provide context to the experiences and decision making processes undertaken by female adolescent refugees. In particular, qualitative inquiries can illuminate how adolescent refugees in collectivist cultures conceptualize self-esteem, if/how it conflicts with communal notions of identity, and how these perceptions influence sexual behaviors.

Conclusions

Practitioners that aim to reduce HIV risk among adolescent girls in SSA, particularly among displaced populations, should consider the influence of socially constructed gender norms and self-esteem on program effectiveness. Findings suggest that programs seeking to promote self-esteem among adolescents have the potential to reduce a range of HIV risk factors, such as adolescent marriage and age-disparate, unprotected, and transactional sex. Our findings also support gender transformative programing that seeks to promote gender equality and the shared control of resources and decision-making, as a promising mechanism for addressing the social structures that increase HIV risk among adolescent girls in humanitarian contexts.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and it slater amendments or comparable ethical standards.

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