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## Associations Between Substance Use, Sexual Violence, Mental Distress, and Sexual HIV Risk Behaviors Among Adolescent Girls and Young Women in Lesotho

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### Abstract

Adolescent girls and young women (AGYW) are disproportionately burdened by new HIV infections in eastern and southern Africa. Data on co-occurrence of behavioral risk factors and associations with sexual HIV risk behaviors can inform layered and targeted HIV prevention efforts. Using nationally representative data of AGYW aged 13–24 years from the 2018 Lesotho Violence Against Children and Youth Survey, we categorized the population into distinct adversity groups comprised of different patterns of sexual violence exposure, substance use, and moderate/severe mental distress. We estimated associations of adversity groups with infrequent condom use and past-year multiple sexual partners. We observed significant associations between some groups and infrequent condom use and multiple sexual partners. Interventions to prevent sexual violence and substance use, in particular, may help reduce sexual HIV risk behaviors and thus HIV prevalence among this population in Lesotho.

### Keywords

adolescent girls; young women; Lesotho; mental health; sexual HIV risk behaviors; sexual violence; substance use

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## INTRODUCTION

Adolescent girls and young women (AGYW) are disproportionately burdened by new HIV infections in eastern and southern Africa (Birdthistle et al., 2019). In 2021, women and girls accounted for 63% of new HIV infections across the region, with new HIV infections three times higher among AGYW compared to adolescent boys and young men (UNAIDS, 2022). The small, mountainous country of Lesotho, located in the southern horn of Africa, is home to one of the largest generalized HIV epidemics in the world, and HIV prevalence is high among AGYW. In 2020, HIV prevalence among AGYW aged 15–24 years was 8.5% (Lesotho Ministry of Health, 2022). Exposure to adversities such as sexual violence, substance use, and poor mental health have been shown to be associated with increased risk of new HIV infections among this population (Goin et al., 2020; Kalichman et al., 2007; Karim & Baxter, 2016).

Sexual violence is widespread across the diverse southern African countries, with an estimated 17.4% of women experiencing non-partner sexual violence in the region (Abrahams et al., 2014). Sexual violence is a key risk factor for HIV among AGYW (Stockman et al., 2013; UNAIDS, 2022), mainly because of its associations with sexual circumstances that increase the risk of HIV (e.g., condomless sex, multiple sex partners, sex under the influence of drugs or alcohol, or lack of agency in sexual encounters; Dunkle & Decker, 2013; Stockman et al., 2013). For example, in Lesotho, AGYW who have experienced any lifetime sexual violence are 70% more likely to have multiple sexual partners and are 40% more likely to engage in infrequent condom use compared to those who have not experienced sexual violence (Picchetti et al., 2022).

Alcohol and drug use similarly demonstrates strong associations with increased HIV risk behaviors in southern Africa (Bonner et al., 2022; Kalichman et al., 2007). In one study among women in South Africa, among those engaged in drug use and heavy drinking (defined as seven or more drinks per day), 34% said their alcohol and drug use was the cause of unprotected sexual encounters (Wechsberg et al., 2012). In another study among AGYW aged 15–24 in Malawi, heavy alcohol use was associated with HIV infection in adjusted models, with 24% of HIV-positive AGYW reporting heavy alcohol use compared to only 4% of HIV-negative AGYW (Price et al., 2018).

In southern Africa, AGYW are also disproportionately burdened by adverse mental health outcomes such as depression and anxiety (Jörns-Presentati et al., 2021), which may in turn be associated with sexual behaviors that increase the risk of HIV (Lundberg et al., 2011). A study among AGYW seeking family planning services in Kenya found that moderate-to-severe depression was associated with a higher number of lifetime sexual partners, engaging in transactional sex, use of alcohol, and forced sex in the past 6 months (Larsen et al., 2020). Mental distress may also influence risk perception, lead to suboptimal decision-making, or inhibit the ability to negotiate with partners. Youth in Lesotho often have limited access to mental health services (OngezwaZibi, 2024), which may further compound the influence of mental health conditions on sexual HIV risk behaviors.

The high incidence of HIV infections among AGYW in Lesotho is attributed not just to unique, individual determinants and biological differences but also to the layered vulnerabilities that AGYW encounter throughout their lives. Sexual violence, substance use, and poor mental health often overlap with one another, particularly in settings where they are highly prevalent. For example, among AGYW, sexual violence is associated with increased levels of anxiety and depression (Kuringe et al., 2019; Mathur et al., 2018). Survivors of sexual violence may turn to alcohol and drugs to mitigate the psychological consequences of violence, in turn putting them at greater risk of associated HIV risk behaviors (Dunkle & Decker, 2013). Adverse mental health and substance use are often comorbid among young people (Saban & Flisher, 2010). Poor mental health can lead to risky substance use behaviors among adolescents, and those risky behaviors, such as binge-drinking or illicit drug use, can increase the odds of experiencing sexual violence and other sexual HIV risk factors (Karim, 2016). Research on the combined influence of these adversities on sexual HIV risk behaviors among AGYW in the southern Africa region is limited, particularly with nationally representative data of AGYW. Evidence for whether various co-occurrences of sexual violence, substance use, and adverse mental health may be associated with sexual HIV risk behaviors among AGYW in high-prevalence HIV settings in the region is needed to inform layered and tailored HIV prevention interventions.

In this article, we assess whether various combinations of sexual violence, substance use, and mental distress are associated with sexual HIV risk behaviors among HIV-negative AGYW in Lesotho, using nationally representative data of AGYW from the Violence Against Children and Youth Survey (VACS). We hypothesize that sexual violence, substance use, and mental distress will independently, and together, increase the odds of sexual HIV risk behaviors among Lesotho HIV-negative AGYW.

## METHODS

### DATA

We used data from the 2018 Lesotho VACS. The VACS is a nationally representative household survey of violence against children and youth aged 13–24 and has been conducted in more than 25 low- and middle-income countries (Chiang et al., 2016). The survey collects data on prevalence, risk factors, and consequences of emotional, physical, and sexual violence against children and youth in order to develop targeted programs and policies to prevent and respond to violence and related health issues. The survey applies a multistage cluster-randomized survey design using separate enumeration areas (EAs) for males and females. Household surveys are administered to the household head or other adult. Individual surveys are administered to eligible youth aged 13–24. Male and female youths are interviewed by interviewers of the same sex. Guardians provide parental permission. Youth are provided with consent forms in the appropriate local language. The VACS protocol adheres to global recommendations on ethics and safety in research on violence. The survey includes robust ethics and safety measures, including intensive training of field interviewers, ethics oversight, and a tiered referral system to ensure that youth at risk of or experiencing violence are linked to appropriate local services (Centers for

Disease Control and Prevention [CDC], 2017; Nguyen et al., 2019). VACS data are publicly available at [www.togetherforgirls.org](http://www.togetherforgirls.org).

The 2018 Lesotho VACS was led by the Ministry of Social Development and ICAP at Columbia University, with technical support and funding from the U.S. Centers for Disease Control and Prevention, through the President's Emergency Plan for AIDS Relief (PEPFAR) program (Ministry of Social Development of Lesotho et al., 2020). The Lesotho VACS protocol was independently reviewed and approved by the Research and Ethics Committee at the Lesotho Ministry of Health, the Columbia University Medical Center Institutional Review Board, and the CDC Institutional Review Board. The Lesotho National 2016 Census served as a sampling frame for the Lesotho VACS. The Lesotho VACS applied the standard VACS three-stage random sampling design. In the first stage, 240 EAs were drawn from the 2016 census sample frame of 2,600 EAs based on probability proportional to size. In the second stage, 40 households were randomly selected from each EA, using the household listing of all eligible households with that EA. Households were screened as eligible if at least one 13–24-year-old was a household member. In the third stage, a single eligible participant aged 13–24 was selected from the household member list. Further sampling details can be found in the 2020 Lesotho VACS report (Ministry of Social Development of Lesotho et al., 2020). Data were collected electronically using netbooks with CSPro software between June and September 2018. Trained interviewers completed face-to-face interviews in private and confidential locations. For purposes of this analysis, we used only the female data set and restricted the analysis to only HIV-negative AGYW, an at-risk and priority population for HIV prevention efforts ( $n = 6,667$ ), which was 93.89% of the full female data set ( $N = 7,101$ ). Both sexually active AGYW and those who were not sexually active or who had not had sex in the past 12 months were retained in the sample to ensure adequate variance in exposure variables. As such, results should be interpreted conservatively. The household, individual, and overall female response rates were 97.8%, 98.3%, and 96.2%, respectively.

## MEASURES

**Demographics.** Two demographic covariates were included to adjust for potential confounding. A single continuous variable captured age ranging from 13 to 24. Schooling was measured dichotomously as either completed or currently attending less than primary or primary school or completed or currently attending secondary school or higher.

**Adversity Experiences.** A dichotomous measure of lifetime sexual violence included exposure to any one of four measures of sexual violence: (a) nonconsensual sexual touching (“Anyone ever touched you in a sexual way without your permission, but did not try and force you to have sex”); (b) attempted forced sex by either a partner or nonpartner (“Anyone ever tried to make you have sex against your will but did not succeed”); (c) physically forced sex (“Anyone ever physically forced you to have sex, and did succeed”); and (d) pressured sex (“Ever pressured you in a nonphysical way to have sex against your will, and did succeed”). Mental distress was measured using the K6 scale (Kessler et al., 2002; Prochaska et al., 2012). Respondents were asked whether they had felt nervous, hopeless, restless, worthless, so sad that nothing could cheer them up, or that everything was an effort

in the past 30 days. Scores ranged from 0 to 24, with scores above a cutoff of 5 signaling moderate/severe mental distress (Kessler et al., 2002; Prochaska et al., 2012). A single dichotomous substance use variable captured whether participants had engaged in any binge drinking and/or drug use in the past 30 days.

To assess differences in HIV sexual risk behaviors by exposure to single or multiple adversities, we generated seven unique adversity groups for each AGYW who experienced (a) *only* sexual violence, (b) *only* moderate/severe mental distress, (c) *only* substance use, (d) sexual violence and moderate/severe mental distress (but no substance use), (e) moderate/severe mental distress and substance use (but no sexual violence), (f) sexual violence and substance use (but no mental distress), and (g) all three adversities: sexual violence, moderate/severe mental distress, and substance use.

**Sexual HIV Risk Behaviors.** We examined two sexual HIV risk behavioral outcomes: infrequent condom use and multiple sexual partners in the past 12 months. Infrequent condom use was coded as 1 if the respondent indicated that they never or sometimes used condoms in the past 12 months among unmarried sexually active youth and married youth with more than one sexual partner. Married participants with only one sexual partner (irrespective of their reported condom use) and youth who had not had sex in the past 12 months were coded as 0. Youth who had sex with more than one partner in the past 12 months were coded as 1 (having multiple sexual partners). Youth who had sex with only one partner, or did not have sex in the past 12 months, were coded as 0.

## DATA ANALYSIS

We used StataSE18 to estimate all descriptive statistics. We used the Mplus 8.8 (Muthén & Muthén, 1998–2017) to fit two logistic regression models predicting the likelihood of reporting low condom use and multiple sex partners. Each outcome was regressed on covariates (participants' age and education level, centered on the grand mean of the sample) and dummy variables representing adversity exposure groups. All analyses accounted for the complex sampling design of VACS, accounting for cluster (EA) and strata of each participant. VACS applies a three-step weighting process to obtain national estimates: computation of base weights for each individual, adjustment for differential nonresponse, and post-stratification calibration adjustment of individual weights to account for known population totals. These final individual weights were applied to all analyses, resulting in nationally representative estimates. Further details on VACS weighting procedures for the Lesotho VACS can be found in the 2020 Lesotho VACS report (Ministry of Social Development of Lesotho et al., 2020). Missing data were handled via full information maximum likelihood estimation (FIML).

## RESULTS

### DESCRIPTIVES

Table 1 provides weighted descriptive statistics for HIV-negative AGYW. The mean age was 18.10 (95% CI [17.98, 18.22]), and the majority of AGYW had attended or were currently attending secondary school or higher (73.82%; 95% CI [23.45, 29.10]). Almost one in five

AGYW had ever experienced sexual violence (18.74%; 95% CI [17.00, 20.61]). One in four AGYW had experienced moderate/severe mental distress in the past 30 days (25.95%; 95% CI [23.80, 28.24]). Among AGYW, 5.27% (95% CI [4.45, 6.25]) had engaged in binge-drinking and/or drug use in the past 30 days. In total, 12.39% (95% CI [11.19, 13.72]) were infrequent condom users in the past 12 months, and 4.66% (95% CI 3.99, 5.43]) had multiple sexual partners in the past 12 months.

## ADVERSITY GROUPS

Table 1 also provides the prevalence of each possible adversity group. Almost one in ten AGYW (9.81%; 95% CI [8.73, 11.01]) were in the sexual violence only group, meaning they had experienced only sexual violence but no other measured adversity (i.e., no moderate/severe mental distress and no substance use). Close to one in five AGYW (17.02%; 95% CI [15.33, 18.86]) and 2.77% (95% CI [2.20, 3.49]) were in the moderate/severe mental distress only and substance use only groups, respectively.

In the multiple adversity groups (i.e., groups of AGYW with two or more co-occurring adversities), a total of 7.31% (95% CI [6.39, 8.35]) had experienced sexual violence and moderate/severe mental distress only; 0.84% (95% CI [0.53, 1.32]) had experienced sexual violence and substance use only; and 0.85% (95% CI [0.60, 1.21]) had experienced moderate/severe mental distress and substance use only. Less than 1% (0.77%; 95% CI [0.56, 1.07]) experienced all three adversity types.

## ADVERSITY GROUP ASSOCIATIONS WITH SEXUAL HIV RISK BEHAVIORS

Sexual HIV risk behaviors were prevalent in each of the adversity groups (Table 2). Infrequent condom use in the past 12 months ranged from 10.38% among AGYW who had experienced only mental distress to 41.99% among AGYW who had experienced both mental distress and substance use in the past 30 days. Multiple sex partners in the past 12 months ranged from 4.23% among AGYW who had experienced only mental distress to 26.97% among those who had experienced sexual violence and past 30-day substance use.

Table 3 provides parameter (beta) estimates of sexual HIV risk behaviors for all adversity groups, adjusting for demographic covariates, in addition to three derived statistics: adjusted odds of HIV sexual risk behaviors for all adversity groups (Table 3), adjusted odds ratios relative to the group experiencing no adversities (i.e., no sexual violence, mental distress, or substance use) (Table 4), and odds ratio differences (i.e., difference of odds ratios for combined adversities relative to each of the three single-adversity groups; Table 4) to better understand the differences in odds of sexual HIV risk behaviors by group membership (Altman & Bland, 2003).<sup>1</sup>

**Infrequent Condom Use.** All adversity groups, except those that experienced only mental distress and only sexual violence and substance use, were associated with infrequent condom use among AGYW in Lesotho after adjusting for age and schooling (Table 3).

<sup>1</sup>These derived values were specified using post hoc model commands in Mplus, thereby obtaining correct standard errors, an approach for comparing estimates from different populations.

Table 4 provides odds ratio statistics for these associations. AGYW who reported experiencing only sexual violence but not mental distress or substance use had significantly higher odds of engaging in infrequent condom use compared to AGYW who experienced no adversity ( $aOR_{SV} = 1.49, p < .001$ ; Table 4). The additional burden of mental distress, substance use, or both mental distress and substance use did not result in significantly higher relative odds ratios over and above the odds posed by sexual violence alone ( $aOR$  difference = 0.14, 0.49, and 0.48, respectively, all *ns*).

AGYW who experienced only mental distress were not significantly more likely to engage in infrequent condom use than AGYW who experienced no adversity in adjusted models ( $aOR_{MD} = 1.13, p = .146$ ; Table 4). However, compared to those AGYW who experienced only mental distress, AGYW had significantly higher relative odds of engaging in infrequent condom use if they had also experienced sexual violence ( $aOR$  difference = 0.50,  $p < .005$ ) or substance use ( $aOR$  difference = 1.39,  $p < .030$ ) in addition to mental distress.

AGYW who experienced only substance use but not mental distress or sexual violence were more likely to engage in infrequent condom use than AGYW who experienced no adversity ( $aOR_{SUB} = 2.03, p < .001$ ; Table 4). There were no significant increases in odds associated with the additional burden of mental distress, sexual violence, or both mental distress and sexual violence ( $aOR$  difference = 0.49,  $-0.05$ , and  $-0.06$ , respectively, all *ns*).

**Multiple Sex Partners.** AGYW who reported experiencing only sexual violence had a significantly higher odds of having multiple sex partners compared to AGYW who experienced no adversities ( $aOR_{SV} = 1.47, p < .001$ ; Table 4). We did not observe any significantly higher odds ratios for co-occurrence with mental distress, substance use, or both mental distress and substance use ( $aOR$  difference =  $-0.03$ ,  $1.31$ , and  $0.72$ , respectively, both *ns*).

AGYW who experienced only mental distress were not significantly more likely to have multiple sex partners compared to AGYW who experienced no adversities ( $aOR_{MD} = 1.16, ns$ ). However, the additional experience of both sexual violence and substance use together (but not separately) alongside mental distress ( $aOR$  difference =  $1.03, p = .038$ ) did significantly increase the odds of having multiple sex partners compared to those with only mental distress.

AGYW who experienced only substance use were more likely than AGYW who experienced no adversities to have multiple sex partners ( $aOR = 2.08, p = .009$ ). The additional burden of sexual violence, mental distress, or both was not associated with significantly increased odds of having multiple sex partners ( $aOR$  difference =  $0.71$ ,  $0.23$ , and  $0.11$ , respectively, all *ns*) compared to those AGYW who experienced substance use only.

## DISCUSSION

We have sought to examine unique and co-occurring associations of sexual violence, substance use, and mental distress with two sexual HIV risk behaviors: (a) infrequent condom use and (b) multiple sex partners in the past 12 months among HIV-negative AGYW. We observed that experiencing *only* substance use and *only* sexual violence were

each individually associated with sexual HIV risk behaviors among this group in adjusted models. These findings from a nationally representative survey of AGYW corroborate regional literature showing the centrality of substance use and sexual violence to HIV risk among AGYW (Kalichman et al., 2007; UNAIDS, 2022). Implementation of sexual violence prevention and substance use risk mitigation efforts may be important in order to continue declines in HIV prevalence among AGYW in Lesotho. Through PEPFAR, Lesotho currently implements the third edition of the Stepping Stones sexual violence prevention curriculum, which specifically targets men, community leaders, and young people to address harmful norms that perpetuate sexual violence (Medical Research Council South Africa, 2010). Interventions to address substance use are needed, and there are trials in Lesotho underway to evaluate program effectiveness in this area (Belus et al., 2024).

In contrast to our hypotheses, in adjusted analyses, we did not observe significantly increased odds of sexual HIV risk behavior among those who experienced mental distress only. These null results vary from other regional studies that have found associations between adverse mental health and sexual HIV risk behaviors among AGYW in this region (Goin et al., 2020; Larsen et al., 2020). There are several possible explanations. First, these discrepancies may be in part due to differences in how mental health was measured, for example, the use of scales that capture different underlying constructs, or which additional covariates are used to adjust for potential confounders. In addition, while Andersen et al. (2011) found that the K6 had moderate discriminating ability to detect depression and anxiety disorders among the general population, these results were specific to adults aged 18 and older. Further examination of the validity of the K6 among youth populations in low and middle income countries (LMICs) is needed. Second, other studies among youth in southern Africa have found that externalizing (e.g., harmful substance use)—rather than internalizing (e.g., depression or anxiety)—mental health problems are more strongly associated with HIV risk behaviors (Meinck et al., 2019), which aligns with these results, because the K6 scale captures internalizing types of mental distress. Finally, other studies finding associations between mental health and HIV risk behaviors generally have drawn from sample-specific populations—for example, AGYW attending health clinics or those enrolled in clinical trials—in contrast to nationally representative population estimates such as those presented here. The place and recruitment of survey samples may influence any observed associations between mental health and sexual HIV risk behaviors.

Also, in contrast to our hypotheses, we did not observe significantly higher odds ratios among those with combined adversities compared to those with single adversity exposure in relation to either HIV risk behavior. For example, the combination of sexual violence and substance use together did not confer greater odds of engaging in sexual HIV risk behaviors, above and beyond the odds of each individual adversity alone, although individual adversity alone and combined adversity exposures were both significantly associated with sexual HIV risk behaviors. Our risk behavior measures may not have been sufficiently granular to capture relationships between the outcome and layered adversity exposures. We also only examined two sexual HIV risk behaviors. Further exploration into these variations, as well as other sexual HIV risk behaviors, may be warranted. We did observe significant differences in odds of sexual HIV risk behaviors among youth who experienced mental distress and the other adversities (i.e., sexual violence and substance use). However, these

significant differences may be driven by the strength of association between sexual violence and substance use on the examined sexual HIV risk factors rather than the combinations with mental distress, or the differences could be a result of unmeasured interactions.

While results do not suggest that additional burden of multiple adversities confers *greater* risk to AGYW compared to single-adversity exposure, the persistent positive association between multiple-adversity groups and HIV sexual risk behaviors themselves underscores the need for continued investment in comprehensive and layered HIV prevention programming and policies in Lesotho that address multiple HIV risk factors concurrently. For example, integration of trauma-informed mental health services into sexual violence prevention and response efforts may be beneficial to reduce the HIV risk related to concurrent adversities of sexual violence and mental distress. Substance use and abuse programming may benefit from integration of sexual violence prevention training and awareness-raising, as well as the concurrent provision of mental health services in order to appropriately serve those who experience all three adversities. We did find that the burden of mental distress remains high among AGYW in Lesotho: In this nationally representative survey, one in four AGYW had experienced moderate/severe mental distress in the past 30 days. Our study results underscore the importance of targeted interventions to improve the mental health and well-being of these youth. To date, Lesotho has made investments to promote the screening and management of mental health conditions, with the introduction of mental health nurses at HIV service facilities and prioritization of screening for anxiety and depression for all people living with HIV. However, there are also minimal mental health services available to the general population, which remains a critical area for effort, particularly given the prevalence of mental distress among AGYW in Lesotho. This lack of services may also reflect and result in limited awareness of mental health conditions and what options exist to address them, creating further barriers to access.

This study has several limitations. First, the Lesotho VACS is a cross-sectional survey, and causal relationships cannot be established. While the observed associations are still meaningful, we are not able to make conclusions about the temporal direction of this association. Second, we used a lifetime measure of sexual violence, and thus the directionality of the relationship between lifetime sexual violence and HIV risk behaviors cannot be determined. Furthermore, sexual violence is coded as experiencing any single experience of four types of sexual violence. Due to the low prevalence of some types of sexual violence, we were unable to examine differential associations with outcomes by type of sexual violence. Third, our measure of substance use does not include data on quantity or frequency of drug use, or whether drug use occurred at time of sexual intercourse, which inhibits our ability to draw conclusions about the direct relationships between different types of drug use and HIV sexual risk behaviors. Finally, the VACS includes self-reports of sensitive topics. Reluctance to disclose or fear of stigma or repercussions may have inhibited reporting, although all possible efforts were taken to mitigate this possibility, including extensive training of interviewers and field staff, robust measures to ensure privacy, confidentiality and rapport with participants, and best practices in asking sensitive questions via surveys.

## CONCLUSION

Overall, our results underscore the importance of layered programming to prevent and reduce sexual violence and substance use to reduce the HIV burden among AGYW in Lesotho. Continued investment in AGYW mental health, as a health outcome in its own right, may also be an important avenue to pursue in order to improve youths' lives.

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## Data availability.

The Lesotho Violence Against Children and Youth Survey data are publicly available at [www.togetherforgirls.org](http://www.togetherforgirls.org).

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**TABLE 1.**

Demographic Characteristics, Adversity Exposures, and Sexual HIV Risk Behaviors Among HIV-Negative Adolescent Girls and Young Women Aged 13–24, Lesotho Violence Against Children and Youth Survey 2018

| Variable                                                                                                                 | <i>n</i> | Weighted %/mean | 95% CI         |
|--------------------------------------------------------------------------------------------------------------------------|----------|-----------------|----------------|
| Demographic characteristics                                                                                              |          |                 |                |
| Age                                                                                                                      | 6,667    | 18.10           | [17.98, 18.22] |
| Schooling                                                                                                                |          |                 |                |
| Primary or lower                                                                                                         | 6,654    | 26.18           | [23.45, 29.10] |
| Secondary or higher                                                                                                      | 6,654    | 73.82           | [70.90, 76.55] |
| Ever married/cohabited                                                                                                   | 6,661    | 22.26           | [20.33, 24.32] |
| Food insecure                                                                                                            | 6,582    | 65.30           | [63.06, 67.48] |
| Adversity group                                                                                                          |          |                 |                |
| Experienced sexual violence, lifetime                                                                                    | 6,662    | 18.74           | [17.00, 20.61] |
| Moderate/severe mental distress, past 30 days                                                                            | 6,667    | 25.95           | [23.80, 28.24] |
| Substance use, past 30 days                                                                                              | 6,529    | 5.27            | [4.45, 6.25]   |
| Experienced only sexual violence, lifetime                                                                               | 6,662    | 9.81            | [8.73, 11.01]  |
| Experienced only moderate/severe mental distress, past 30 days                                                           | 6,667    | 17.02           | [15.33, 18.86] |
| Experienced only substance use, past 30 days                                                                             | 6,529    | 2.77            | [2.20, 3.49]   |
| Experienced sexual violence (lifetime) and moderate/severe mental distress (past 30 days) only                           | 6,667    | 7.31            | [6.39, 8.35]   |
| Experienced sexual violence (lifetime) and substance use (past 30 days) only                                             | 6,643    | 0.84            | [0.53, 1.32]   |
| Experienced moderate/severe mental distress (past 30 days) and substance use (past 30 days) only                         | 6,606    | 0.85            | [0.60, 1.21]   |
| Experienced sexual violence (lifetime), moderate/severe mental distress (past 30 days), and substance use (past 30 days) | 6,667    | 0.77            | [0.56, 1.07]   |
| Sexual HIV risk behaviors                                                                                                |          |                 |                |
| Infrequent condom use                                                                                                    | 6,337    | 12.39           | [11.19, 13.72] |
| Multiple sex partners in past 12 months                                                                                  | 6,631    | 4.66            | [3.99, 5.43]   |

*Note.* CI = confidence interval.

**TABLE 2.**

Sexual HIV Risk Behaviors by Adversity Groups Among HIV-Negative Adolescent Girls and Young Women Aged 13–24, Lesotho Violence Against Children and Youth Survey 2018 ( $n = 6,667$ )

| Adversity Group                                                                                                          | <i>n</i> | Infrequent condom use |                | Multiple sex partners |                |
|--------------------------------------------------------------------------------------------------------------------------|----------|-----------------------|----------------|-----------------------|----------------|
|                                                                                                                          |          | Weighted %            | 95% CI         | Weighted %            | 95% CI         |
| Experienced <i>only</i> sexual violence, lifetime                                                                        | 579      | 17.43                 | [13.72, 21.89] | 7.58                  | [5.68, 10.04]  |
| Experienced <i>only</i> moderate/severe mental distress, past 30 days                                                    | 1,168    | 10.38                 | [8.39, 12.78]  | 4.23                  | [3.03, 5.88]   |
| Experienced <i>only</i> substance use, past 30 days                                                                      | 157      | 33.18                 | [25.23, 42.23] | 16.94                 | [9.66, 28.03]  |
| Experienced sexual violence (lifetime) and moderate/severe mental distress (past 30 days) only                           | 443      | 21.65                 | [16.80, 27.44] | 7.46                  | [5.25, 10.49]  |
| Experienced sexual violence (lifetime) and substance use (past 30 days) only                                             | 43       | 36.15                 | [18.95, 57.84] | 26.97                 | [13.43, 46.78] |
| Experienced moderate/severe mental distress (past 30 days) and substance use (past 30 days) only                         | 51       | 41.99                 | [24.96, 61.17] | 18.95                 | [8.74, 36.32]  |
| Experienced sexual violence (lifetime), moderate/severe mental distress (past 30 days), and substance use (past 30 days) | 52       | 32.39                 | [19.98, 47.90] | 19.25                 | [10.34, 33.00] |

*Note.* CI = confidence interval.

**TABLE 3.**

Associations Between Adversity Groups and Sexual HIV Risk Behaviors, and Odds of Sexual HIV Risk Behaviors by Adversity Group, Adjusted by Demographic Covariates, Among HIV-Negative Adolescent Girls and Young Women Aged 13–24, Lesotho Violence Against Children and Youth Survey 2018 ( $n = 6,480$ )

| Variable                                                                                | Infrequent Condom Use |           |          |      | Multiple Sex Partners |           |          |      |
|-----------------------------------------------------------------------------------------|-----------------------|-----------|----------|------|-----------------------|-----------|----------|------|
|                                                                                         | <i>B</i>              | <i>SE</i> | <i>p</i> | Odds | <i>B</i>              | <i>SE</i> | <i>p</i> | Odds |
| Adversity Group                                                                         |                       |           |          |      |                       |           |          |      |
| Experienced only sexual violence                                                        | 0.40                  | 0.09      | < .001   | 0.35 | 0.39                  | 0.10      | < .001   | 0.19 |
| Experienced only moderate/severe mental distress                                        | 0.12                  | 0.08      | .123     | 0.27 | 0.15                  | 0.12      | .155     | 0.15 |
| Experienced only substance use                                                          | 0.71                  | 0.12      | < .001   | 0.48 | 0.73                  | 0.20      | < .001   | 0.27 |
| Experienced sexual violence and moderate/severe mental distress only (no substance use) | 0.49                  | 0.11      | < .001   | 0.39 | 0.37                  | 0.11      | .001     | 0.19 |
| Experienced moderate/severe mental distress and substance use only (no sexual violence) | 0.92                  | 0.25      | < .001   | 0.60 | 0.84                  | 0.26      | .001     | 0.31 |
| Experienced sexual violence and substance use only (no mental distress)                 | 0.68                  | 0.31      | .025     | 0.47 | 1.03                  | 0.30      | .001     | 0.37 |
| Experienced sexual violence, moderate/severe mental distress, and substance use         | 0.68                  | 0.23      | < .001   | 0.47 | 0.79                  | 0.23      | .001     | 0.29 |
| Covariate                                                                               |                       |           |          |      |                       |           |          |      |
| Age                                                                                     | 0.12                  | 0.01      | < .001   | —    | 0.11                  | 0.02      | < .001   | —    |
| Education                                                                               | 0.00                  | 0.07      | .983     | —    | 0.04                  | 0.10      | .646     | —    |

**TABLE 4.**

Adjusted Odds Ratios and Odds Ratio Differences Between Adversity Profiles on Infrequent Condom Use and Multiple Sex Partners in the Past 12 Months Among HIV-Negative Adolescent Girls and Young Women Aged 13–24, Lesotho Violence Against Children and Youth Survey 2018 ( $n = 6,480$ )

| Infrequent Condom Use     |      |      |          |                          |      |          |                          |      |          |                        |      |          |
|---------------------------|------|------|----------|--------------------------|------|----------|--------------------------|------|----------|------------------------|------|----------|
| Adversity Group           | aOR  | SE   | <i>p</i> | vs. Sexual Violence only |      |          | vs. Mental Distress only |      |          | vs. Substance Use only |      |          |
|                           |      |      |          | aOR <sub>diff</sub>      | SE   | <i>p</i> | aOR <sub>diff</sub>      | SE   | <i>p</i> | aOR <sub>diff</sub>    | SE   | <i>p</i> |
| No adversity              | ref  | ref  | ref      | —                        | —    | —        | —                        | —    | —        | —                      | —    | —        |
| Sexual violence (SV) only | 1.49 | 0.13 | .000     | —                        | —    | —        | —                        | —    | —        | —                      | —    | —        |
| Mental distress (MD) only | 1.13 | 0.09 | .146     | —                        | —    | —        | —                        | —    | —        | —                      | —    | —        |
| Substance use (SUB) only  | 2.03 | 0.25 | .000     | —                        | —    | —        | —                        | —    | —        | —                      | —    | —        |
| SV + MD                   | 1.62 | 0.18 | .000     | 0.14                     | 0.21 | .518     | 0.50                     | 0.18 | .005     | —                      | —    | —        |
| SUB + MD                  | 2.52 | 0.64 | .017     | —                        | —    | —        | 1.39                     | 0.64 | .030     | 0.49                   | 0.64 | .449     |
| SV + SUB                  | 1.98 | 0.61 | .105     | 0.49                     | 0.60 | .412     | —                        | —    | —        | −0.05                  | 0.61 | .937     |
| SV + MD + SUB             | 1.97 | 0.44 | .029     | 0.48                     | 0.45 | .288     | 0.84                     | 0.45 | .061     | 0.06                   | 0.44 | .887     |
| Multiple Sexual Partners  |      |      |          |                          |      |          |                          |      |          |                        |      |          |
| Adversity Group           | aOR  | SE   | <i>p</i> | vs. Sexual Violence only |      |          | vs. Mental Distress only |      |          | vs. Substance Use only |      |          |
|                           |      |      |          | aOR <sub>diff</sub>      | SE   | <i>p</i> | aOR <sub>diff</sub>      | SE   | <i>p</i> | aOR <sub>diff</sub>    | SE   | <i>p</i> |
| No adversity              | ref  | ref  | ref      | —                        | —    | —        | —                        | —    | —        | —                      | —    | —        |
| Sexual violence (SV) only | 1.47 | 0.14 | .001     | —                        | —    | —        | —                        | —    | —        | —                      | —    | —        |
| Mental distress (MD) only | 1.16 | 0.12 | .187     | —                        | —    | —        | —                        | —    | —        | —                      | —    | —        |
| Substance use (SUB) only  | 2.08 | 0.41 | .009     | —                        | —    | —        | —                        | —    | —        | —                      | —    | —        |
| SV + MD                   | 1.45 | 0.16 | .005     | −0.03                    | 0.17 | .877     | 0.28                     | 0.18 | .109     | —                      | —    | —        |
| SUB + MD                  | 2.32 | 0.61 | .030     | —                        | —    | —        | 1.15                     | 0.59 | .051     | 0.23                   | 0.73 | .747     |
| SV + SUB                  | 2.79 | 0.85 | .035     | 1.31                     | 0.83 | .115     | —                        | —    | —        | 0.71                   | 0.83 | .386     |
| SV + MD + SUB             | 2.20 | 0.50 | .016     | 0.72                     | 0.52 | .163     | 1.03                     | 0.50 | .038     | 0.11                   | 0.64 | .858     |

*Note.* Odds ratios and odds ratio differences adjusted for age and schooling.