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Social Support and Violence-prone Relationships as Predictors of Disclosure of HIV Status Among Newly Diagnosed HIV-positive South Africans

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Abstract

Despite the salience of social support and violence as potential outcomes of disclosure, how pre-existing social support and relationship violence among people living with HIV shapes and influences HIV status disclosure has received limited attention. Following the Disclosure Process Model, this study investigated pre-disclosure support and violence-prone relationships as predictors of disclosure using data from a prospective study of 459 newly diagnosed South African women and men. Most (88%) disclosed their status to at least one person by their 8-month interview. Level of social support was unrelated to disclosure to a partner. However, those with

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Compliance with Ethical Standards

Conflict of interest

The authors have declared that no competing interests exist.

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 its later amendments or comparable ethical standards.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

higher levels of support had higher odds of disclosing to family and to others. Women in violence-prone relationships were more likely to report disclosure to a partner than were those not in such relationships, counter to expectations. The findings suggest that the same mechanisms may not explain processes of disclosure across all relationship types.

Keywords

HIV disclosure; Social support; Violence-prone relationships; PLWH

Introduction/Background

According to 2017 statistics from UNAIDS, 19.4 million people were living with HIV (PLWH) in Eastern and Southern Africa in 2016, representing 43% of the total new HIV infections worldwide [1]. Access to treatment, adherence to antiretrovirals (ARVs), and social support contribute to improved physical and emotional well-being for PLWH. However, access to HIV-specific social support requires disclosure of HIV status, which is an ongoing process involving evaluation of risks, benefits, and potential stigmatization as well as consideration of to whom one should disclose, given that disclosing changes one's identity and relationships [2].

Although the majority of PLWH disclose their status to someone in their network, motivations for disclosure and likelihood of disclosure differ by demographic characteristics as well as by relationship type [2]. Qualitative studies in South Africa and Uganda found that disclosure to friends and family was often motivated by a desire for social support whereas disclosure to partners was pursued to prevent transmission or encourage HIV testing [3, 4].

Although the decision to disclose HIV status can facilitate access to HIV care and mobilize existing support networks [5–7], disclosure in non-supportive relationships or environments might lead to stigmatization, invective, and even violence [8]. Thus, PLWH must constantly assess the benefits and costs of disclosing their HIV status to family, sexual partner(s), friends and other members of their community. A qualitative study in Durban, South Africa, found that gender dynamics influenced intentions to disclose HIV status to sexual partners. Men reported fearing the loss of a relationship, whereas women frequently feared loss of social or economic support present in their relationship, and feared potential violence as a result of disclosure [9].

The Disclosure Process Model (DPM) developed by Chaudoir and Fisher (2010) provides a theoretical framework for understanding disclosure motivations and defining predictors as well as outcomes of disclosure. The DPM dichotomizes motivations for disclosure and non-disclosure into approach and avoidance goals. With approach goals, an individual may disclose his or her status to acquire positive reactions such as stronger relationships and support. Conversely, with avoidance goals, an individual anticipates negative outcomes from disclosing in a relationship, such as judgment, discrimination, or violence, and subsequently chooses to conceal his or her status in those relationships. Thus, factors influencing disclosure are important predictors of well-being among PLWH, given that disclosure may

influence outcomes such as adherence to ARVs, mental health, sexual risk behavior, community awareness, and HIV testing [10].

As theorized in the DPM, social support has been studied as an outcome of disclosure and as a mediator between disclosure and specific physical or mental health outcomes [3, 7]. The DPM does not theorize explicitly about the role of pre-disclosure social support. However, if disclosure is pursued to elicit social support, it is likely that pre-disclosure social support would inform an individual's decision to disclose and would shape expectations about post-disclosure support and outcomes. Indeed, there is substantial research and theory indicating that more trusting and supportive relationships are associated with higher rates of self-disclosure. Within the field of mental health services, willingness to disclose personal experiences to help others has been shown to be dependent upon feelings of safety [11]. In the context of HIV disclosure, a review among adolescents found that those who disclosed were likely to already have social support [12]. Thus, it is likely that PLWH will be less likely to disclose their status in non-supportive or unsafe relationships.

To explore this dynamic further, we focused on intimate partner violence (IPV) as a predictor of disclosure. IPV against women—defined as any physical, sexual, or emotional behavior that causes harm in an intimate relationship—has a number of observed deleterious effects on women, including post-traumatic stress disorder, increased substance abuse, self-harm, unintended pregnancy, and even homicide as well as a number of documented physical and emotional effects on children [13–15]. By contrast, social support indicates a form of caring that enhances quality of life and provides protection against adverse life events. We would expect that individuals in violence-prone relationships would have avoidance goals and therefore be less likely to disclose, given that we know violence is sometimes an outcome of disclosure.

Most of the previous literature on IPV among PHWH has explored IPV as an outcome of disclosure. A study in Zimbabwe found that 40.5% of HIV-positive pregnant women in their sample experienced abuse from partners following disclosure of their status [16]. However, a recent cross-sectional study among pregnant and post-partum women in Zambia found a dose- response relationship whereby their odds of disclosure were significantly reduced for each violent event experienced [17]. To our knowledge there has not been a similar study among a broader population of women. Thus, similar to social support, we theorized that pre-disclosure IPV would shape disclosure motivations and goals.

Unlike most previous analyses that have been consistent with the DPM theory of social support as an outcome of disclosure, this study explored the impact of social support and violence-prone relationships on whether PLWH disclosed their status and to whom, using data from a prospective cohort study. An additional study aim was to describe participants' perceptions of their partners' reactions to disclosure. Thus, this study is intended to be an extension of the DPM by understanding the social context that shapes the development of approach and avoidance goals.

Methods

Study Design and Data Source

The “Pathways to Engagement in HIV Care for Newly-Diagnosed South Africans” (“Pathways to Care”) study was conducted in Durban, South Africa, as a collaboration among investigators at the HIV Center for Clinical and Behavioral Studies at Columbia University in New York, the Medical Research Council, HIV Prevention Research Unit in Durban, South Africa, and Ibis Reproductive Health in Cambridge Massachusetts and Johannesburg South Africa. This was an 8-month prospective cohort study following newly HIV-diagnosed women and men recruited from three primary healthcare clinics conducted between 2010 and 2013. Data were collected to identify multi-level facilitators of and barriers to linkage and retention in care. Another study goal was to understand the experiences of newly-diagnosed individuals over time in key domains, including mental health, social support, quality of life, and sexual and reproductive health.

Eligibility criteria for participants included: (1) age 18 years or older; (2) attended the clinic for HIV testing for themselves; (3) spoke English or *isiZulu*; (4) lived in the target community and not planning to leave the area in the next year; (5) not pregnant; (6) not previously told they were HIV + ; and (7) found to be HIV+ on the day of recruitment. Exclusion criteria included: (1) gross evident cognitive impairment; (2) attending testing through the ANC clinic; (3) if illiterate, unwilling to have a witness; (4) unwilling to give contact information; and (5) unwilling to give study personnel access to HIV test results. Details of recruitment and study enrollment are described elsewhere [18]. There were 459 women and men recruited from primary health clinics who met the eligibility criteria and were enrolled into the study (58.5% acceptance among those eligible). A brief screening questionnaire was completed on the day of, but prior to HIV testing, and full structured assessments were conducted within 30 days of diagnosis (baseline) and at two follow-up periods—four (Follow-up 1) and 8 months (Follow-up 2) after diagnosis. All procedures were approved in full by our respective institutional research ethics boards.

Measures

The outcome for these analyses was self-reported disclosure of HIV status at any of the three data collection points. At the baseline interview, participants were asked if they had disclosed their HIV status to anyone, and if so, their relationship to those individuals. These questions were asked again in the 4 and 8-month follow-up interviews. In addition to disclosure to anyone, disclosure variables were created for three relationship types, which were not mutually exclusive: (1) partner(s), (2) parents or siblings, and (3) any other relationships. Participants were included in the analysis of disclosure to a partner if they reported having a partner at any of the three interviews. All of these variables were dichotomized to reflect disclosure by the follow-up 2 interview.

Social support was the primary predictor variable in the first models. The social support variable was constructed from five items assessing perceptions of availability of social support, developed from prior work in this area [19, 20]. These included if the participant believed that there were individuals in his/her life whom he/she could turn to if needed: (1)

to talk about a personal problem, (2) to stay in bed for several weeks, (3) for advice making a decision, (4) for help taking care of children, or (5) for assistance accessing health care. These variables had response ranges from 1 to 5 (1 = “definitely not” to 5 = “definitely yes”). A scale was constructed from these five items with a Cronbach’s alpha of 0.93, indicating high internal reliability. Participants who provided valid responses for at least four of the five items were included, with the mean value of the other four items used to replace the missing data. The theoretical range of the scale was from 5 to 25, where higher numbers indicated stronger social support. The mean was 17.9 (SD = 5.7), and 22.4% of the participants had a score of 25 on the variable. Because the distribution of responses among all participants was skewed toward high social support, the scale was transformed to a four-level ordinal variable based on the distribution of scores among all participants.

The predictor variable for violence in relationships was constructed from six items from an instrument designed to measure gender norms in young South African women [21]. Only women in relationships were asked these questions. A participant was asked if: (1) she would be in trouble if her partner came home and she was not there, (2) she has been forced to have sex with her partner, (3) her partner would beat her if he thought she was with someone else, (4) she is sometimes forced to do things she does not want to do, (5) her partner would beat her if she went somewhere without telling him, and (6) if her partner ever gets angry in such a way that he hits her. Response options ranged from 1 to 4 (1 = “strongly disagree” to 4 = “strongly agree”). Cronbach’s alpha for the measure was 0.78, and the theoretical range was 6 to 24 where higher numbers indicated a more violence-prone relationship. The mean was 12.6 (SD = 3.4). This measure was used as a continuous variable in the analyses. Finally, participants who reported disclosing their status to a partner were asked a series of non-mutually exclusive questions about their partner’s reaction to their disclosure, such as if their partner comforted them or became sad.

Data Analysis

We described participants’ characteristics overall and by whether they had disclosed to anyone by follow-up 2, and assessed differences in these distributions with a Chi squared test. For each variable describing partners’ reactions to disclosure, descriptive statistics were reported overall and by gender, and Chi squared analyses were conducted to assess the significance of differences by gender.

We ran logistic regression models adjusted for clinic site and relevant covariates looking at the association between social support with each of the four disclosure outcomes (i.e., disclosed to anyone, disclosed to a partner, to a family member, or to someone else). If participants did not return for follow-up 2 but reported disclosure at their follow-up 1 interview, they were included in the analysis as having disclosed; thus, sample sizes differed between models. In addition, we ran another logistic regression model assessing the clinic- and covariate-adjusted association between violence-prone relationship score and disclosure to a partner. This model was conducted only among the 236 female participants with partners (as the violence questions were only asked of partnered women).

We assessed for confounding of the hypothesized relationships by conducting bivariate analyses between potentially confounding variables and both the disclosure outcomes and

the social support or violence-prone relationships predictors. Variables evaluated included age, gender, having attended an HIV support group, SES as measured by employment and educational attainment, HIV symptoms prior to testing, living with a partner, and having an HIV-positive partner. Confounders that were significantly associated in bivariate analyses with both the outcome and predictor were added individually to clinic adjusted models, and variables that altered the association between the exposure variable and a disclosure outcome by 10% or more were included in the final adjusted multivariable logistic regressions.

Sensitivity analyses were conducted by excluding those who reported disclosure at the baseline interview, as temporal order between the predictors and outcome could not be ascertained for these individuals. All analyses were conducted using SPSS version 23.0 (IBM Corp, 2015).

Results

Description of the Population and Disclosure

Four-month interviews were completed by 378 (82%) and 8-month interviews were completed by 432 (94.1%) of the 459 participants enrolled. Overall, 443 (95.6%) had at least one follow-up interview. The socio-demographic characteristics of the cohort are shown in Table 1 overall and by disclosure status by follow-up 2. The mean age was 30.7, and 68.6% of the cohort was female. Approximately half of participants (49.5%) had received a 9th–11th grade education, and more than a quarter (26.6%) completed 12th grade or received a certificate or degree. More than two-thirds (69.8%) reported that they were unemployed. Nearly 90% (89.2%) of the women were in a relationship, but only a minority of those (25.7%) was living with her partner. Of the participants who reported having a sexual partner at any of the three interviews, 55.2% disclosed their HIV status to their partner (N = 398). Of the 432 with a baseline and follow-up 2 interview, 57.5% disclosed to their immediate family (parents or siblings) (N = 422), and 50.5% disclosed to a friend or other person (N = 420).

Reactions to Disclosure

Among participants (male and female) who disclosed their status to a partner during the study, almost all reported that their partner comforted them (95.3%). Other common responses included a partner suggesting that the participant see a doctor (72.2%), the partner deciding to get tested (71.8%), and the partner becoming sad (68.7%). Reports of a partner's responses to disclosure varied significantly by gender; more men than women reported that their partner decided to get tested following their disclosure (82.1% versus 66%, $\chi^2 = 6.929$, $p = 0.008$) and that their partner became sad (66.7% versus 53.3%, $\chi^2 = 3.933$, $p = 0.047$). Nearly half of all men reported that their partner gave them special food or medicine (52.4%), whereas only a small minority of women reported their partners did so (6.7%, $\chi^2 = 63.390$, $p < 0.001$). In total, 14.5% of participants who disclosed their status to a partner reported a negative reaction (partner became angry, refused to have sex, took another partner, left home, forced them to leave home, gossiped to others, beat them) (Table 2).

Logistic Regression Model Results

Overall, in the model adjusted for clinic, individuals with social support scores in the second quartile had an odds of disclosure to anyone that was 5.7 times that of those with scores in the lowest quartile (95%CI [2.3–14.2], $p < 0.001$) (Table 3). Those with social support scores in the third quartile (OR = 5.2 (95%CI [1.8–15.3]), $p = 0.003$), and the highest quartile (OR = 3.1 (95%CI [1.4–6.8]), $p = 0.006$) also had significantly higher odds of disclosure to anyone, although the pattern was not suggestive of a dose response. The odds of disclosure among the three higher levels of social support were not significantly different from each other after changing the reference groups. None of the variables examined met criteria for confounding and therefore the final model remained adjusted only for clinic.

There was no significant association between reported level of social support and disclosure to a sexual partner in a clinic-adjusted analysis or a model additionally adjusted for confounders, which included gender, educational attainment, and reported partner HIV status (Table 3). There was, however, an association between social support and disclosure to family members and to those in other relationships (not partners or family members). Specifically, compared to the lowest quartile of support, those with higher support had significantly higher odds of disclosure to family in the clinic-adjusted model (second quartile support OR = 3.4 (95%CI [1.7–6.8]), $p = 0.001$; third quartile OR 3.5 (95%CI [1.6–7.7]), $p = 0.002$, and fourth quartile OR 2.9 (95%CI [1.4–5.8]), $p = 0.003$). None of the covariates examined met our criteria for confounding; therefore, the clinic-adjusted model was the final model. We also changed the reference groups and found that the odds of disclosure among the three higher levels of social support were not significantly different from each other.

Considering disclosure to other people (not partners or family members), gender met the criteria for confounding, and after adjustment, participants with social support score in the second quartile had significantly greater odds of disclosure to others compared to those with the lowest level of social support (aOR: 2.2 (95%CI [1.1 – 4.4]), $p = 0.028$). Again, those with the two higher levels of social support had greater odds of disclosure to non-family or partners compared to those in the lowest level, but the differences were not significantly different from each other.

Violence-prone Relationships

Women who reported having a partner at any of the three interviews were included in the model ($n = 236$). In the clinic-adjusted model, for every one-unit increase in scores on the violence-prone relationships scale, the odds of disclosure to a partner increased by 10% although this was not significantly significant (Table 4). The final model was adjusted for education and partner HIV status in addition to clinic (Table 4). For each one-unit increase in scores on the violence-prone relationships scale, the adjusted odds of disclosure to a partner increased by approximately 10% (aOR: 1.1, (95%CI: [1.0–1.2])), and this relationship was statistically significant ($p = 0.034$).

Sensitivity Analyses

The five regression models were rerun removing individuals who reported disclosure at the baseline interview. This resulted in the exclusion of 264 individuals from the social support model measuring disclosure to anyone, 151 from disclosure to partners, 124 from disclosure to immediate family, and 88 from disclosure to other relationships. In addition, 102 women were excluded from the violence-prone relationships analysis. The exclusion of these participants did not substantially change the magnitude nor significance of the associations (data not shown).

Discussion

To our knowledge, this is the first study to assess social support and violence-prone relationships as predictors of HIV status disclosure in a prospective cohort study. The majority of participants reported disclosure (88%), and more than half reported disclosing to someone in each relationship type (partner, immediate family, other relationship type) within the first 8 months of diagnosis. Although overall rates of disclosure were somewhat lower than is reported in some studies [5, 22], it is known that disclosure increases with time since diagnosis [6, 23], and our whole sample was newly diagnosed. Similar to our findings, Simbayi et al. (2007) reported that 84.9% of participants disclosed to someone by 6 months following diagnosis.

The DPM posits that HIV-specific social support is a mediator between a disclosure event and positive outcomes such as health behaviors, psychological well-being, strong interpersonal relationships, and reductions in community stigma [10]. Thus, we hypothesized that pre-disclosure social support would predict disclosure, and the likelihood of disclosure would increase with greater perceived social support. Our findings for the association between general social support and disclosure were mixed. We found associations between higher social support and disclosure to anyone, as well as disclosure specifically to family members and other people (non-partner and non-family). However, there was no significant association between higher social support and disclosure to a partner. For disclosure overall and specifically to family members, all levels of social support were significantly associated with greater odds of disclosure compared to the lowest quartile, but the pattern did not fit that of a dose response. The odds of disclosure were not significantly different from each other above the lowest level of social support, suggesting that individuals must perceive social support above a minimal level to incentivize disclosure, but that there is a threshold effect, such that additional support does not lead to more disclosure. The results for social support and disclosure to other relationships were counterintuitive. Whereas those with the second level of social support had significantly greater odds of disclosure compared to those with the lowest level, those with the two highest levels did not differ from those with the lowest level.

We also assessed the association between violence-prone relationships and disclosure to a partner among women with a sexual partner. Although disclosure to a sexual partner may be motivated by a desire to promote partner testing or avoid transmission to a partner [4]—mechanisms unique in a sexual relationship—we expected that the relationship between social support and disclosure would exist in the opposite direction from the relationship

between violence-prone relationships and disclosure to sexual partners. Our findings were significant, but in the opposite direction from what we had hypothesized.

In contrast to our findings of no relationship between social support and disclosure to partners, we found that individuals who reported more violence-prone relationships were more likely to disclose their HIV status to a partner, perhaps out of fear of repercussions from withholding this information. These findings did not support the hypothesis that women in violence-prone relationships would develop avoidance goals and be less likely to disclose their status to avoid future violence, suggesting that perhaps the DPM does not provide an adequate framework for disclosure in violence-prone relationships. Although we hypothesized that women in violence-prone relationships might fear disclosure, perhaps the fear of non-disclosure is a stronger motivation. Intimate partner violence is often characterized by an invasion of personal choices and autonomy, isolation, and control [14]. Therefore, women in such relationships may choose to disclose in an effort to avoid repercussions from partners finding out through means other than self-disclosure. In addition, women in violent relationships may experience challenges maintaining privacy due to intimidation, threats, or control over where they go and with whom they speak. In these situations, women may not have the choice of disclosure.

This finding merits further research, and qualitative studies exploring the motivations behind disclosure among HIV-positive women in violent relationships would be particularly salient in elucidating this association. While these findings suggest that PLWH who are in violent-prone relationships may be more likely to disclose their HIV status, disclosure in these situations will likely not facilitate increased support and access to resources. As discussed previously, IPV against women has a number of negative effects on mental and physical health, and previous studies have found self-disclosure of status may manifest in expressions of IPV [15, 24]. These findings should affirm the need for continued investment in community and facility-level support systems for PLWH who experience violence in their relationships.

Our findings capture differences in perceived partners' reactions to disclosure between male and female participants. Regardless of gender, the three most commonly reported reactions were that a partner comforted the participant, decided to get tested, and/or became sad. Significantly more men than women reported that their partners decided to get tested, became sad, or gave them special medicine. The difference in the latter reaction was particularly stark, with 52.4% of men reporting that their partner gave them special food or medicine compared to 6.7% of females. This may perhaps reflect women's roles as cooks or those who manage food rather than a difference in reaction to diagnosis. However, these gender differences could be explored in greater depth using qualitative methods. In addition, a deeper understanding of PLWHs' expectations regarding partner reactions may explain further disclosure motivations.

Limitations

Our study has some limitations that should be noted. The items used to construct the social support scale referenced general social support and were not relationship-specific, so we

were unable to parse the sources of social support. The violence-prone relationships scale used items assessing both experienced and hypothetical violence; thus, it was an imperfect measure of IPV. While our data enabled us to limit the outcome of disclosure to a partner to individuals who reported a sexual partner, if an individual's primary partner changed over the duration of the study, the violence-prone relationships scale may not have applied to the same partner. Moreover, we did not have data on the size of participants' families or nature and density of their social networks. Presumably, individuals with larger families and social networks would have more opportunities to disclose their status.

A potential bias within our study design was that an eligibility criterion was willingness to give access to HIV test results, a disclosure in itself. However, of over 2900 people who underwent screening, only four were excluded for this reason. Therefore, we do not believe that this biased our results. However, responses to disclosure may have been biased by social desirability if participants had received social messaging encouraging disclosure. Finally, these findings may not be generalizable to other populations as expectations about disclosure and forms of social support may be culturally-specific.

Conclusion

This study was the first to our knowledge to explore social support and violence-prone relationships as predictors of HIV-status disclosure among recently diagnosed HIV-positive South Africans. Most (88%) disclosed their status to at least one person by their 8-month interview, and level of social support was unrelated to disclosure to a partner. However, those with higher levels of support had higher odds of disclosing to family and to others. Women in violence-prone relationships were more likely to report disclosure to a partner than were those not in such relationships, counter to expectations. The findings suggest that the same mechanisms may not explain processes of disclosure across all relationship types. Qualitative research could help further elucidate the constructs that drive disclosure motivations among these populations.

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Distribution of baseline characteristics of 424 newly-diagnosed South African men and women who returned for a follow-up 2 interview by HIV disclosure status

Table 1

	<u>Total</u>		<u>Disclosed to anyone (N = 372)</u>		<u>Did not disclose to anyone (N = 52)</u>		Significance test across disclosure status (test statistic(df); p value)	
	Mean	sd	Mean	sd	Mean	sd		
Social support scale	17.9	5.7	18	5.8	17.3	6.9	0.713(422); 0.48	
Children living with respondent	1.4	1.3	1.37	1.3	1.3	1.2	0.02(422); 0.99	
Age in years	30.7	7.7	30.7	7.9	30.4	6.8	0.26(422); 0.79	
	n	%	n	%	n	%	X ²	
Age								
24 or less	94	22.2	83	22.3	11	21.2	1.04 (1); 0.9	
25–28	89	21	79	21.2	10	19.2		
29–31	73	17.2	63	16.9	10	19.2		
32–36	81	19.1	69	18.5	12	23.1		
37 or greater	87	20.5	78	21	9	17.3		
Gender								
Male	133	31.4	122	32.8	11	21.2	2.87(1); 0.09	
Female	291	68.6	250	67.2	41	78.8		
Education								
8th or less	101	23.8	90	24.2	11	21.2	5.54(1); 0.14	
9th–11th	210	49.5	179	48.1	31	59.6		
12th or matriculated	67	15.8	64	17.2	3	5.8		
12 plus certificate/degree	46	10.8	39	10.5	7	13.5		
Relationship status								
Not married or in a relationship	46	10.8	42	11.3	4	7.7	0.62(1); 0.73	
Married or in a relationship, Not living together	281	66.3	245	65.9	36	69.2		
Married or in a relationship, living together	97	22.9	85	22.8	12	23.1		
Employed								
Unemployed for any reason	296	69.8	260	69.9	36	69.2	0.01(1); 0.92	
Employed in any capacity	128	30.2	112	30.1	16	30.8		

	<u>Total</u>		<u>Disclosed to anyone (N = 372)</u>		<u>Did not disclose to anyone (N = 52)</u>		Significance test across disclosure status (test statistic(df); p value)
	Mean	sd	Mean	sd	Mean	sd	
Disclosure to							t test
Partner (of those with a partner)	234	55.2					
Family	244	57.5					
Other	214	50.5					

Table 2

Reactions of sexual partners to disclosure of HIV status by participants' gender

When you disclosed to your partner did they...	Percent of respondents who disclosed to a partner at any time point reporting each behavior (N = 234)	Percent of men who disclosed to a partner at any time point reporting each behavior (N = 84)	Percent of women who disclosed to a partner at any time point reporting each behavior (N = 150)	X ² , p value
Comfort you	95.3	96.4	94.7	0.373(1); 0.75 *
Suggest you see a doctor	72.2	70.2	73	0.257(1); 0.612
Decide to get tested	71.8	82.1	66	6.929(1); 0.008
Become sad	58.1	66.7	53.3	3.933(1); 0.047
Give you special food/medicine	23.1	52.4	6.7	63.390(1); <0.001
Become angry	7.3	6	8	0.335(1); 0.563
Refuse to have sex	5.1	7.1	4	1.093(1); 0.358 *
Take another partner	3	1.2	4	1.465(1); 0.426 *
Move out of the house	3	2.4	3.3	0.168(1); 1 *
Make you leave the house	1.7	1.2	2	0.210(1); 1 *
Gossip to others	1.3	1.2	1.3	0.009(1); 1 *
Beat you	0.4	0	0.7	0.562(1); 1 *

Bold values indicate statistical significance at $p < 0.05$

* Fisher's exact test

Table 3

Clinic-adjusted and confounder-adjusted logistic regression analyses for the association between social support and disclosure (Model 1 and Model 1a)

	Model 1: disclosure to anyone (N = 424)		Model 1a: disclosure to partner (N = 398) ^a	
	% disclosed (total = 87.7%)	Clinic-adjusted OR[95% CI], p value	% disclosed (total = 58.8%)	Clinic-adjusted OR [95% CI], p value
Social support				
5–10	69.6	[Ref]	50.0	[Ref]
11–15	93.1	5.7[2.3–14.2]; < 0.001	64.7	1.7 [0.8–3.5]; 0.139
16–20	91.2	5.2[1.8–15.3]; 0.003	60.6	1.8 [0.8–3.9]; 0.168
21–25	86.7	3.1[1.4–6.8]; 0.006	55.2	1.3 [0.7–2.6]; 0.438

Bold values indicate statistical significance at $p < 0.05$

^a Additionally adjusted for gender, education, and partner HIV status

Table 4

Clinic-adjusted and confounder-adjusted logistic regression analyses for the association between social support and disclosure (Model 1b and Model 1c), and clinic-adjusted and confounder-adjusted logistic regression analyses for the association between violence-prone relationships and disclosure (model 2)

	Model 1b: disclosure to family (N = 422)		Model 1c: disclosure to other (N = 420) ^a		Model 2: disclosure to partner (N = 236) ^b	
	% disclosed (total = 57.8%)	Clinic-adjusted OR [95% CI], p value	% disclosed (total = 51%)	Clinic-adjusted OR[95%CI], p value	Adjusted OR [95% CI], p value	Adjusted OR [95% CI], p value
Social support						
5–10	33.3	[Ref]	42.2	[Ref]	[Ref]	
11–15	63.4	3.4[1.7–6.8]; 0.001	61.5	2.1[1.0–4.1]; 0.037	2.2[1.1–4.4]; 0.028	
16–20	61.8	3.5[1.6–7.7]; 0.002	46.3	1.3[0.6–2.8]; 0.498	1.3[0.6–2.9]; 0.485	
21–25	57.9	2.9[1.4–5.8]; 0.003	46.1	1.2[0.6–2.5]; 0.518	1.3[0.7–2.6]; 0.427	
IPV scale					1.1[0.991–1.168]; 0.082	1.1[1.007–1.195]; 0.034

Bold values indicate statistical significance at $p < 0.05$

^a Additionally adjusted for gender

^b Additionally adjusted for educational attainment