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Prevalence and Risk Factors of Women's Past-Year Physical IPV Perpetration and Victimization in Tanzania

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Abstract

Recent studies of intimate partner violence (IPV) in high-resource countries suggest that men and women may perpetrate similar rates of violence against their partners, yet the prevalence and etiology of female-perpetrated IPV, especially in comparison to IPV victimization among females, remains largely understudied in low-resource, high-prevalence countries, particularly in sub-Saharan Africa. Using multivariate logistic regression models, the current study examines the prevalence of and risk factors associated with past 12-month experiences of isolated physical IPV perpetration (i.e., violence perpetrated against an intimate partner not in self-defense) and physical IPV victimization among a nationally representative sample of women of reproductive age (15–49 years) from Tanzania who completed the Tanzanian Demographic and Health Survey Domestic Violence Module (n=5,372). Approximately 1.5% reported perpetrating violence in the past 12 months, whereas 35% reported victimization in the same time period. Risk factors of past 12-month IPV perpetration included past 12-month IPV victimization, making cash or in-kind earnings, having autonomy in decision-making, and acceptance of justifications for wife beating. Women much younger than their partners had lower odds of IPV perpetration. Risk factors of past 12-month IPV victimization included past 12-month IPV perpetration, educational attainment, having children, partner's alcohol consumption, partner's decision-making, acceptance of

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justifications for wife beating, and exposure to parental IPV. Making cash or in-kind earnings was the only protective factor against victimization. Findings suggest that female IPV perpetration and victimization may result from a combination of factors including power differentials between partners and attitudes about the acceptability of using violence. Future research directions and implications for policy and prevention efforts to reduce IPV in Tanzania are discussed.

Introduction

Intimate partner violence (IPV) is a serious public health concern in Tanzania (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006; Kapiga et al., 2017; Kazaura, Ezekiel, & Chitama, 2016; MoHCDGEC, MoH, NBS, & ICF, 2016; Peterman, Bleck, & Palermo, 2015; Vyas, Jansen, Heise, & Mbwambo, 2015). In the World Health Organization (WHO) Multicountry Study on Women's Health and Domestic Violence, urban and rural sites in Tanzania reported some of the highest rates of women's IPV victimization across the 10 countries included in the study (Garcia-Moreno et al., 2006). Specifically, 55.9% of women in the rural settings (Mbeya District) and 41.3% in the urban setting (Dar es Salaam) reported ever experiencing physical or sexual violence from an intimate partner. In recent national studies, 44% of Tanzanian women ages 15 to 49 reported having experienced some form of violence (i.e., physical, sexual, or emotional) during their lifetime, and 50% of ever-married women reported experiencing some form of violence (MoHCDGEC, MoH, NBS, & ICF, 2016).

To date, most of the international research on IPV has focused on female victimization by male perpetrators, however current researchers have begun to examine the role of females as perpetrators of physical violence in intimate relationships (Dardis, Dixon, Edwards, & Turchick, 2015). This shift is most prominent in the literature on teen dating violence in North America, where researchers have documented gender symmetry in rates of IPV between partners in heterosexual relationships (Straus, 2006; Whitaker, Haileyesus, Swahn, & Saltzman, 2007). Gender symmetry occurs where both partners perpetrate violence in a given relationship (not necessarily within each violent episode). Studies supporting gender symmetry suggest that rates of physical violence perpetration by young women are equal to or, in some cases, greater than perpetration by young men (Archer, 2000; Coker et al. 2002; Foshee, 1996; Halpern, Oslak, Young, Martin, & Kupper, 2001; O'Keefe, 1997; Straus, 2006; Whitaker et al., 2007). However, others contend such findings reflect methodological limitations including the use of non-probability samples (Hamby, 2014) or act-based measurement scales that fail to fully capture the context of IPV (Langhinrichsen-Rohling, 2010). Contrary to studies demonstrating gender symmetry, results from several nationally representative studies indicate that women are significantly less likely to perpetrate IPV than men (Catalano, 2012; Tjaden and Thoennes 2000). In addition, some evidence suggests that men are more likely to perpetrate more serious forms of IPV, including sexual violence, that result in worse physical injuries than violence perpetrated by women (Archer, 2000; Allen, Swan, & Raghavan, 2009; Swan, Gambone, Caldwell, Sullivan, & Snow, 2008; Tjaden & Thoennes, 2000). Results such as these have generated a great deal of debate within IPV circles. Indeed, whether gender symmetry in IPV exists has been a hotly contested issue

within the U.S., and has sparked a considerable amount of controversy in the international community as well (Reed, Raj, Miller, & Silverman, 2010).

Whereas male perpetration of violence against females is traditionally understood as a gendered phenomenon based on unequal power dynamics between men and women (Heise, 1998), female perpetration (and male victimization) of IPV and gender symmetry are most commonly explained using a social learning perspective (Bandura, 1973), which posits that individuals learn aggressive behaviors through social modeling. Social learning theory emphasizes the importance of observational learning, including the observation of behaviors and the consequences of those behaviors. In intimate relationships, observation of current and former intimate partners or witnessing parental IPV could lead individuals to view violence as an acceptable and effective communication or negotiation strategy (Gray & Foshee, 1997). Thus, researchers have argued that female-perpetrated violence, where it is not a result of self-defense, is a probable result of having been exposed to violence, and through a process of observational learning, being more accepting of the use of violence and perhaps being more likely to report to violent behavior. Additionally, women's perpetration of IPV is also thought to be a result of poor conflict management in relationships and reflective of gender-nonspecific unhealthy relationship behavior (Stuart, Moore, Hellmuth, Ramsey, & Kahler, 2006; Reed, 2008). Yet, the possible mechanisms underlying female-perpetrated IPV remain understudied outside the context of dating violence research and are virtually unexplored outside of North American milieus. More research is needed to understand the etiology of female-perpetrated IPV both within and outside the context of gender symmetry.

Few studies have examined prevalence and risk factors of female IPV perpetration and male victimization in low-resource, high-prevalence settings. IPV research in sub-Saharan Africa, for example, has generally focused on women's IPV victimization. This is an important gap because evidence-based interventions are needed in these low-resource, high-prevalence settings that effectively target determinants of IPV. In one analysis using nationally representative data of married and cohabitating couples from Ghana and Uganda, Kishor and Bradley (2012) found that occurrences of spousal violence were relatively common among both women and men. However, women were significantly more likely than men to report experiencing all forms of IPV (physical, sexual, and emotional) while men were significantly more likely to report perpetrating physical violence. Only 6–7% of women reported perpetrating physical violence against a spouse (not in self-defense), and over half of these women also report experiencing it, suggesting that they were in mutually violent marriages. Further, the violence experienced by women was more frequent, more severe, and more likely to result in injuries than the violence that men experienced from their wives. The authors therefore concluded that there was no evidence of gender symmetry.

Kishor and Bradley (2012) found that after examining associations between multiple factors at the individual, dyadic, and larger society levels, witnessing parental IPV and spousal alcohol consumption were the only covariates consistently associated with increased odds of spousal violence perpetration or victimization for both sexes and in both countries. Other indicators of power dynamics between a husband and wife, for example who makes most decisions on household purchases or visits to the wife's family, were only consistently

associated with men's perpetration; none were associated with women's IPV perpetration in either Ghana or Uganda. Two sociodemographic factors, however, emerged as significant in odds of perpetration models among women in this study: women in Ghana with a primary education or higher (compared to women with no education), and women with no children (compared to women with 1–2 children), had higher odds of perpetrating violence. However, Kazaura and colleagues (2016), who similarly found that approximately 7% of their sample of Tanzanian women report perpetrating physical violence against their partner, did not find any sociodemographic risk factors of perpetration.

Another analysis, by Mulawa and colleagues (2016), examined prevalence of and risk factors associated with victimization and perpetration of partner violence among young men and women from social networks known as "camps" in Dar es Salaam, Tanzania. In the study sample, similar proportions of men and women reported any form of IPV victimization within the last 12 months (34.8% of men and 35.8% of women). However, men were more likely than women to report perpetrating any form of IPV (27.6% vs. 14.6%, respectively). The study also found that while the majority of female perpetrators reported perpetrating only psychological IPV, only one-third of all male perpetrators reported only perpetrating psychological IPV. There were high rates of co-occurrence of IPV victimization and perpetration with 69.7% of male perpetrators and 81.8% of female perpetrators also reporting victimization during the last year. Lastly, the study found that younger women (compared to older women) and women who experienced violence as a child were more likely to perpetrate physical violence. Results from Kishor and Bradley (2012) and Mulawa et al. (2016) potentially propose a social learning process of violence to explain women's IPV perpetration, as childhood violence exposure was associated with increased of odds of IPV perpetration among women in both studies. To better inform intervention efforts for households in low resource, high prevalence settings, more research is needed that identifies other potential risk factors and explores the potential mechanisms by which violence perpetration is learned.

These nascent studies provide some evidence for the existence and risk factors of female IPV perpetration in low resource, high prevalence settings. The purpose of the current study is to build upon existing research by examining the prevalence of and risk factors for past 12-month isolated physical IPV perpetration (i.e. physical IPV perpetrated not in self-defense) and physical IPV victimization among a nationally representative sample of women of reproductive age (15–49 years) in Tanzania. We describe rates of women's IPV experiences in Tanzania and examine risk and protective factors that have been previously identified in the literature, including sociodemographic characteristics, couple/spouse characteristics, women's status and gender attitudes, and previous exposure to family violence. We hypothesize that indicators of higher socioeconomic status (e.g., respondent education level, number of children, household wealth index) will be associated with decreased risk of IPV perpetration and IPV victimization. We also hypothesize that power differentials between partners (in both cases where a husband or wife has more power than the partner, and as evidenced by household decision-making ability, age difference between partners, and making earnings) will be associated with increased risk of IPV perpetration and IPV victimization. Lastly, we hypothesize that indicators of the social learning of violence (e.g., previous family violence, acceptance of any justification for wife beating,

partners' alcohol consumption) will be associated with increased risk of both IPV perpetration and victimization.

Methods

Study Sample

The current study is a secondary data analysis of the 2010 Tanzania Demographic and Health Survey (TDHS), a nationally representative survey utilizing a two-stage clustered sampling design to collect data on a wide range of health and social outcomes. In total, 9,623 households were surveyed and 10,139 women between ages 15–49 were interviewed in the TDHS. An in-person domestic violence module (questionnaire), including survey items on IPV victimization and isolated IPV perpetration, was administered to only one randomly-selected woman per household, using the Kish grid selection method (Kish, 1949), to ensure privacy in sharing sensitive information and in accordance with the WHO ethical guidelines on the conduct of IPV research (WHO, 2001). The questionnaire assesses IPV experiences among women in a current relationship with a male partner using items from a modified Conflict Tactics Scale (CTS; Strauss, 1990), which has been previously validated (MacQuarrie, Winter, & Kishor, 2013) and used to explore IPV in Tanzania and several other low-resource, high prevalence settings (e.g., Abramsky et al., 2011; Kishor & Bradley, 2012; MacQuarrie, Winter, & Kishor, 2013; Palermo, Bleck, & Peterman, 2014). Our analytic sample consisted of women who participated in the TDHS the domestic violence module and reported having a current intimate male partner/spouse (married or cohabiting) (n=6,310), and had complete data on IPV (n=5,372; 15% of sample reported 'missing' on physical violence perpetration or victimization variables).[1]

Measures

Isolated physical IPV perpetration—We assessed past 12-month isolated physical IPV perpetration against an intimate partner with a single item. Women were asked: "Have you ever hit, slapped, kicked, or done anything else to physically hurt your (last) husband/partner at times when he was not already beating or physically hurting you?" The latter part of the question ensured that women reported isolated perpetration, and not perpetration as a means of self-defense. Participants answering in the affirmative were asked how often this took place in the past 12 months. Physical IPV perpetration was coded as 0 for never and 1 if she reported perpetrating IPV one or more times. This measure of isolated perpetration has been used previously in studies on the factors associated with female experiences of IPV perpetration (e.g. Kishor & Bradley, 2012; Speizer, 2010).

Physical IPV victimization—Women were asked a series of seven items on whether their husband/partner did any of a range of physically violent acts, from pushing, shaking and slapping, to threatening or attacking with a gun or knife, and the frequency at which this

[1]Compared to women with complete data, women who were 'missing' on physical violence perpetration and victimization survey items were more likely to be aged 15-19 years old (57.2% vs. 5.6%, p<0.001), with no children (68.7% vs. 5.8%, p<0.001), living in the highest wealth quintile (32.9% vs. 19.4%, p<0.001), and more likely to have a secondary education (36.4% vs. 7.4%, p<0.001). Women missing on IPV items were also more likely to perceive their partner to be drunk often (27.7% vs. 13.8%, p<0.001), and more likely to be 14+ years younger than their partners (90.5% vs. 23.8%, p<0.001), compared to women with complete data on IPV.

occurred in the past 12 months. Participants were coded as 1 if she reported any item on the list at least once in the past 12 months and coded as 0 if she did not report any of them in the past 12 months.

Sociodemographic characteristics—Sociodemographic characteristics included age in years, education, independent earnings, number of children, and wealth quintile. Age was categorized into the following three groups: 15–19, 20–24, 25–29 (referent), 30–34, and 35 or older. Education was categorized as no education (referent), completed primary education, and completed secondary education or higher. Earnings were examined as a binary variable of having reported any cash or in-kind earnings in the past 12 months versus no cash or in-kind earnings in the past 12 months. Number of children was coded categorically as 0 (referent), 1–2, 3–4, or 5 or more children. Finally, wealth quintiles were based on family ownership of different assets and living conditions, provided in DHS datasets for each country (DHS, 2013).

Couple/spouse characteristics—Characteristics of the couple or spouse included age difference between partners in years, and partner's amount of alcohol consumption. Age difference was categorized as the following: participant of same age or older as partner (referent), participant 1–4 years younger, 5–9 years younger, 10–14 years younger, or 15 or more years younger than partner. Perceptions of partner's alcohol consumption was coded as partner is not a drinker (referent), drinks but is never drunk, is sometimes drunk, and is often drunk.

Indicators of women's status and gender roles—Two variables assessed gender attitudes and women's gender roles: decision-making on visits to the wife's family and acceptance of any justifications for "wife beating." Participation in decision-making assesses which partner has the final say on making visits to the wife's family or relatives, coded as mainly the husband decides, mainly the wife decides, husband and wife jointly decide (referent), or someone else decides. Justifications for wife beating was constructed from affirmative responses to one or more of five different hypothetical scenarios where a husband was justified in hitting or beating his wife, including if she goes out without telling him, she neglects the children, she argues with him, she refuses to have sex with him, or if she burns the food. Justifications for wife beating were coded as 1 if the participant agreed with at least one justification for wife beating and 0 if the participant did not agree with any of the five justifications for beating.

Previous exposure to violence—Parental was assessed by a single item of whether the participant's father had ever beat her mother (coded as 1=yes and 0=no). Lastly, previous exposure to violence encompassed both past 12-month IPV victimization and past 12-month IPV isolated perpetration.

Analytic Strategy

Bivariate cross-tabulations and Pearson's chi-squared tests were used to compare differences in all study characteristics by IPV experience. Two sequential multivariate logistic regression models were then fit to examine potential risk factors associated with odds of past

12-month isolated IPV perpetration and odds of past 12-month IPV victimization, separately. For both outcomes, Model 1 estimated the crudes odds of past 12-month IPV without adjusting for any study characteristics. Model 2 estimated the odds of past 12-month IPV and adjusted for sociodemographic characteristics, couple/spouse characteristics, indicators of women's status and gender roles, and exposure to parental IPV as described above; all variables were into the model entered simultaneously. For past 12-month IPV perpetration, Model 3 additionally adjusted for past 12-month IPV victimization. For past 12-month IPV victimization, Model 3 additionally adjusted for past 12-month isolated IPV perpetration. We viewed this analysis as descriptive and conducted all tests at a 5% significance level with no adjustment for multiple comparisons. All analyses were computed in STATA version 14.0 and employed sampling weights to adjust for participation in the TDHS domestic violence module and to yield national population estimates.

Results

Prevalence of IPV

Overall, approximately 1.5% (n=94) of women reported perpetrating isolated physical IPV against their intimate partners in the past 12-months and approximately 35% (n=1,628) reported being victims of IPV in the past 12-months (Table 1). There were high rates of co-occurrence of IPV victimization and isolated IPV perpetration. A majority (84%) of women reporting past 12-month isolated IPV perpetration also reported being victims of IPV within the same time period. Of those who reported being a victim within the past 12 months, 7% also reported perpetrating physical IPV that was not in self-defense within that time period.

Sample characteristics

Table 2 provides the percentage distributions of sociodemographic, couple/spouse, women's status, and previous violence exposure characteristics by past 12-month IPV perpetration and victimization status. Compared to those reporting no IPV perpetration, a greater proportion of women reporting isolated IPV perpetration made independent earnings (48.8% vs. 66.0%, p=0.011), reported being the same age as their partners or older (5.9% vs. 15.4%, p=0.012), perceived their partners to be drunk often (13.6% vs. 27.4%, p=0.013), made most decisions regarding visits to family (8.4% vs. 24.3%,p<0.001), accepted any justification for wife beating (54.9% vs. 77.0%, p<0.001), and were exposed to parental IPV (40.6% vs. 55.5%, p=0.03). Compared to those reporting no IPV victimization, a greater proportion of women reporting IPV victimization had perceptions of a partner who was often drunk (6.5% vs. 27.5%, p<0.001), had a partner who made most decisions on family visits (46.9% vs. 55.7%, p<0.001), personally accepted any justification for wife beating (49.1% vs. 66.5%, p <0.001), and was exposed to parental IPV (32.4% vs. 57.0%, p<0.001). Making independent earnings was less common among women reporting IPV victimization (43.3% vs. 52.2% among women reporting no victimization, p<0.001).

Risk factors of IPV perpetration

Table 3 presents crude associations (Model 1) and risk factors for past 12-month isolated IPV perpetration adjusting for sociodemographic, couple/spouse, women's status, and exposure to parental IPV indicators (Model 2), and additionally controlling for past 12-

month IPV victimization (Model 3). The odds of perpetrating isolated physical IPV against an intimate partner were significantly higher for women who experienced IPV victimization in the past 12 months (M3; adjusted odds ratio [aOR]: 8.20; 95% confidence interval [CI]: 3.02, 22.28). In addition, women who made independent earnings had three times the odds of perpetrating violence against their partners compared to women who did not (M3; aOR: 3.34; 95% CI: 1.75, 6.37). On decision-making for visits to the wife's family, compared to partners who jointly decide, women who made most decisions had three times the odds of IPV perpetration (M3; aOR: 3.22; 95% CI: 1.24, 8.38). Acceptance of at least one justification for wife beating was also associated with increased odds of perpetrating violence in the past 12-months (M3; aOR: 2.53; 95% CI: 1.24, 5.14).

Women 5–9 years younger (M3; aOR: 0.25; 95% CI: 0.09, 0.64) or 15+ years younger (M3; 0.20; 95% CI: 0.05, 0.77) than their partners had reduced odds of perpetration, compared to participants the same age or older than their partners. Women who perceived their partners to be drunk often had much higher odds of IPV perpetration than women who believed their partners did not drink (M2; aOR: 3.00; 95% CI: 1.56, 5.77), however this association was attenuated and no longer significant after controlling for past 12-month IPV victimization (M3; aOR: 1.41; 95% CI: 0.67, 2.99). Lastly, exposure to parental IPV was associated with increased odds of IPV perpetration in crude models (M1; OR: 1,86; 95% CI: 1.05, 3.17), but was no longer significant after adjusting for other risk factors in subsequent models.

Risk factors of IPV victimization

Table 4 presents risk factors for past 12-month IPV victimization. In models adjusting for all risk factors, the odds of experiencing IPV victimization in the past 12-months were significantly higher for women who have perpetrated violence in the past 12 months (M3; aOR: 7.45; 95% CI: 2.59, 21.4). The odds of experiencing IPV victimization in the past 12-months among women with a secondary education were almost two times the odds among women with no education (M3; aOR: 1.83; 95% CI: 1.04, 3.22). Contrastingly, making independent earnings was protective against past 12-month IPV victimization. Odds of past 12-month experience of IPV victimization was approximately 30% lower among women with cash or in-kind earnings compared to women with no earnings (M3; aOR: 0.69; 95% CI: 0.55, 0.87). Having any number of children was associated with increased odds of victimization compared to women with no children (M3; aOR 2.54–2.70).

Previous exposure to parental IPV increased the odds of past 12-month IPV victimization compared to participants who did not report parental IPV exposure (M3; aOR: 2.48; 95% CI: 2.00, 3.07). Women who perceived their partners to be sometimes or often drunk had much higher odds of IPV victimization (approximately 2–7 times higher) than women who believed their partners did not drink (M3; aOR: 2.25; 95% CI: 1.77, 2.88 and aOR: 6.88; 95% CI: 5.80, 9.87, respectively).

The two indicators of women's status and gender roles were also associated with increased odds of IPV victimization. Women in households where the husband mainly made decisions on visits to the wife's family had increased odds of past 12-month IPV victimization compared to women in households where the husband and wife made joint decisions (M3; aOR: 1.51; 95% CI: 1.21, 1.90). Similarly, women who were mainly responsible for making

decisions were more likely to be victimized (M2; aOR: 1.58; 95% CI: 1.01, 2.47), however this association was attenuated and no longer statistically significant after adding past 12-month perpetration to the model. Lastly, acceptance of at least one justification for wife beating was also associated with increased odds of victimization (M3; aOR: 1.78; 95% CI: 1.42, 2.23).

Discussion

This study presents the prevalence of and risk factors for past 12-month isolated physical IPV perpetration (reports of IPV perpetration that were not in self-defense) and past 12-month IPV victimization among a nationally representative sample of women of reproductive age from Tanzania. Consistent with previous research (Kishor & Bradley, 2012; Kazaura et al., 2016; Mulawa et al., 2016), our findings indicate that approximately one-third of Tanzanian women report being a victim of physical IPV in the past-year. Our study found slightly lower rates of physical IPV perpetration compared to these studies, likely due to the difference in measures used to assess physical IPV perpetration. Of those who endorsed being a perpetrator of violence in the past year, a large majority (84%) were also victims of IPV in the past year; on the other hand, of those who endorsed being a victim, only 7% report being a perpetrator in the past year. This pattern of findings suggests that most acts of isolated IPV *perpetrated* by women, while not enacted in self-defense, are still occurring in the context of mutually violent relationships. On the other hand, most women who *experience* IPV in their relationships do not also perpetrate IPV that is not in self-defense.

In summary, risk factors of past 12-month IPV perpetration included past 12-month IPV victimization, making cash or in-kind earnings, having autonomy in decision-making, and acceptance of justifications for wife beating. Women much younger than their partners had lower odds of IPV perpetration. Risk factors of past 12-month IPV victimization included past 12-month IPV perpetration, higher educational attainment, having children, partner's alcohol consumption, partner's decision-making, acceptance of justifications for wife beating, and exposure to parental IPV. Making cash or in-kind earnings was the only protective factor against victimization.

Consistent with previous work on IPV in sub-Saharan Africa (Bonnes et al., 2016; McCloskey, Boonzaier, Steinbrenner, & Hunter, 2016; Vyas et al., 2015; Vyas et al., 2016), our results propose that power differentials between partners may play an important role in Tanzanian women's experiences of IPV. For example, making independent earnings increased the likelihood of past 12-month IPV perpetration, but also decreased the likelihood of being a victim of IPV. Likewise, being the main decision-maker in the family was identified as a risk factor for past 12-month isolated IPV perpetration; however, risk of past 12-month IPV victimization increased when this decision-making power was mainly controlled by her partner. Thus, we found that having less power in relationships was associated with greater risk of IPV victimization among women. Interestingly, we also found that women may be more likely to perpetrate IPV (that is not in self-defense) when they have greater power in their relationship. Since perpetrating IPV may lead to additional conflict and future IPV victimization for both men and women, developing interventions that

promote equitable decision-making and build healthy power dynamics within relationships while simultaneously improving conflict resolution and negotiation skills is warranted. These findings should also be taken into consideration in prevention efforts that utilize women's economic empowerment (e.g., Vyas & Watts, 2009) or autonomy in decision-making (e.g., Ellsberg et al., 2015) as a means of promoting health as there may be some iatrogenic effects.

We also find several significant associations that support social learning perspectives on the etiology of IPV perpetration (Bandura, 1973). Consistent with prior research (e.g., Gray & Foshee, 1997), our results indicate that acceptance of justifications for wife beating was a significant risk factor of past 12-month female IPV victimization. Surprisingly, acceptance of justification for wife-beating was also associated with greater likelihood of female *perpetration* of isolated IPV. We surmise that acceptance of justification for wife beating may indicate a greater tolerance for violence or that violence is viewed as more normative for these women. As a result, they are more likely to also use violence against their partners. In addition, we found that exposure to parental IPV (by the father against mother) was associated with greater likelihood of past 12-month female IPV victimization but not IPV perpetration (in multivariate models). The lack of a significant association with IPV perpetration after adjusting for other characteristics and potential risk factors may be due to the fact that only a small percentage of women reported isolated perpetration, or that our measure of parental IPV is unidirectional (i.e. we examine violence perpetrated by the father against the mother, but not violence perpetrated by the mother against the father). It is possible that women who were exposed to this form of violence in the home are no more or less likely to perpetrate violence due to the incongruence between their gender and the gender of the parent perpetrating violence. Because the TDHS does not measure violence perpetrated by the participants' mothers against their fathers, we were unable to empirically test this hypothesis.

Our findings are generally consistent with previous examinations of mutual violence in developing settings, but some key differences do emerge. Kishor and Bradley (2012) found that partner alcohol consumption was associated with increased odds of perpetration and victimization for both men and women and in Ghana and Uganda. The current study found that partner alcohol consumption was associated with victimization as well, but the association with past 12-month isolated IPV perpetration attenuated to non-significance after adjusting for past-12 month IPV victimization. Thus, partner alcohol consumption may be a unique risk factor of victimization only, and associations with isolated IPV perpetration may be due to the high degree of co-occurrence between perpetration and victimization. We did not measure female IPV perpetrated in self-defense, thus we were not able to examine whether women who reported higher levels of perceived partner alcohol consumption were more likely to perpetrate IPV in self-defense. This is important because partners who regularly abuse alcohol may elevate the level of conflict and create a home environment conducive to violence. It is essential for intervention efforts to address heavy alcohol use among men and women as IPV perpetration and victimization are both more likely to occur in such environments.

Our findings also differ from Mulawa and colleagues (2016) in that we found no evidence of an association between younger age and past 12-month IPV perpetration. However, Mulawa et al. examined physical violence perpetration not excluding instances of perpetration when women were being beaten, whereas the current study examined isolated physical IPV, potentially resulting in inconsistent findings. In addition, Mulawa et al. (2016) used a sample of mostly unmarried, non-cohabiting partners in one Tanzanian region; by contrast, the findings presented in this study draw from a nationally representative sample of Tanzanian women, majority of whom were married.

The study is characterized by a number of strengths, including the use of a large, nationally representative dataset, comparisons of both past 12-month isolated IPV perpetration and IPV victimization, and examination of risk factors across multiple domains. In addition, the final IPV perpetration model adjusted for previous victimization to ensure that risk factors examined were associated with female IPV perpetration above and beyond their association with IPV victimization; likewise, we controlled for perpetration in our final victimization model to assess unique risk factors associated with victimization.

Certain limitations, however, warrant caution in interpreting the current study findings. First, the study is cross-sectional, and therefore temporality cannot be established. Temporality may be inferred for some of the individual level risk factors examined, such as the woman's age, education level and area of residence, but it is entirely possible that experiences of IPV may precede other characteristics, including employment status, perceptions of partner's alcohol use, and attitudes about the acceptability of wife beating. Longitudinal studies are warranted to confirm these findings with prospective data and to further explore mediation pathways underpinning any causal relationships identified between risk factors and experiences of IPV. Second, because the TDHS only interviewed women aged 15 to 49, our findings are limited to this age group only. Girls under the age of 15 and women over the age of 49 may experience additional age-specific vulnerabilities to violence and abuse. In fact, previous researchers have found that nearly half of young people in Tanzania are sexually active by age 16 and that earlier sexual debut is associated with increased risk of violence (Wubs, Aarø, Kaaya, Onya, & Matthews, 2015). Since these young women were excluded from this sample, more research is needed to better understand the prevalence and etiology of IPV among these groups.

Third, some measurement limitations should also be taken into consideration in interpreting our results. For example, we do not investigate prevalence for or risk factors for emotional or sexual violence, which may display a different pattern of results compared to physical violence. Although items that measure sexual and emotional IPV victimization were available, the perpetration measure only assessed physical IPV perpetration. Thus, we limited our analysis to physical IPV victimization in order to maintain comparability between models for victimization and perpetration. Furthermore, in this dataset, violence perpetration by women was addressed with only one item that examined use of isolated physical IPV against an intimate partner (i.e. IPV perpetrated outside of self-defense). Thus, our measure of past 12-month IPV perpetration was likely to have been more restrictive than other measures of women's IPV perpetration. For example, although the measure does differentiate against self-defense from physical violence, it does not take into account the

presence of other forms of violence (e.g., sexual, psychological). One might be physically defending themselves against sexual or psychological abuse.

Additionally, the IPV victimization measures did not ask women to exclude times when they were perpetrating IPV. Further, experiences of IPV victimization and perpetration are sensitive topics that might be underreported; however, the use of computer-assisted interviewing technology in the TDHS should reduce some of these concerns. We also only had data on partner-level characteristics as reported by the women. For example, when examining the effect of partner's alcohol consumption, we were restricted to women's perceptions of partner's alcohol consumption, which may not accurately reflect actual levels of partner drinking.

Fourth, unlike in Ghana and Uganda, the DHS in Tanzania does not collect data on men's experiences of IPV so we could not compare rates of IPV perpetration and victimization by gender. Without dyadic information on IPV experiences, we are unable to truly determine if gender symmetry exists. As described earlier, Kishor and Bradley (2012) found that women had significantly higher odds of experiencing violence and lower odds of perpetrating violence compared with men, even after controlling for additional risk. Future work should test whether similar patterns in IPV rates by gender exist in Tanzania as well. Finally, although the study sample is nationally representative, only 1.5% of the sample reported past 12-month perpetration of IPV, resulting in large adjusted odds ratios with wide confidence intervals. Our study may therefore lack the power to detect some relationships.

Our findings point to a number of important directions for future research. First and foremost, additional studies are needed to better understand the context in which female violence perpetration occurs, particularly the frequency, severity or intent of those violent acts. Our results suggest that violence in intimate relationships in Tanzania may be a largely gendered experience. While we were only able to assess women's isolated IPV perpetration, and could not compare with men's IPV perpetration, we found very little evidence of female violence perpetration or gender symmetry in IPV. Our findings also highlight the importance of better understanding the context in which female-perpetrated violence might occur. Factors significantly associated with female physical violence perpetration included factors related to power and status within a relationship such as earnings or decision-making power as well as factors suggesting a social learning framework such as acceptance of any justification for wife beating. Future studies should consider examining potential synergies between power/status and social learning to refine our understanding of why, and under what conditions women may perpetrate violence against their partners.

Additional work is also needed to better understand the prevalence and conditions in which mutual violence occurs in intimate relationships. The presence of mutual violence has been linked with higher frequency and severity of violence (Billingham, 1987; Capaldi, Kim, & Shortt, 2007; Gray & Foshee, 1997; Whitaker et al., 2007) and intergenerational transmission of violence in the household (Cochran, Sellers, Wiesbrock, & Palacios, 2011; Kerley, Xu, Sirisunyaluck, & Alley, 2010). It is therefore important to characterize the prevalence of bidirectional violence and better understand its risk factors in a variety of populations. While our study was able to examine and compare risk factors of IPV

victimization and perpetration among Tanzanian women, we did not identify risk factors specifically for women who reported both outcomes. However, in this dataset 84% of perpetrators also reported being victims of IPV within the last 12 months. This level of overlap suggests that risk factors for both outcomes would significantly mirror risk factors of perpetration-only. Nonetheless, future studies should explore mutual aggression not only in individual-level data, but should also consider examining these relationships using dyadic couple data which would provide greater insights on the dynamics leading to mutual violence perpetration. Lastly, it is important to acknowledge the fact that most of these relationships are assumed to be heterosexual partnerships. Future studies are needed that capture whether participants are in same- versus opposite-sex partnerships, and whether rates and risk factors for mutual violence differ for these two groups.

The current study is among the first to examine risk factors for female IPV perpetration in a nationally representative sample from Tanzania, and addresses gaps in the literature on risk factors for women's perpetration of isolated physical IPV in developing countries. Importantly, our findings lay the groundwork for further exploration in risk factors for female IPV perpetration. No single theoretical perspective fully explains our findings. Our results suggest that female IPV perpetration is associated with a combination of factors including power differentials between partners and attitudes about acceptability of using violence, as well experiences with IPV victimization. Such findings may have important implications for policy and prevention efforts seeking to reduce IPV in Tanzania and beyond.

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Table 1

Interpersonal violence (IPV) prevalence and background characteristics of women aged 15-49 in the analysis sample (n=5,372): Tanzania Demographic and Health Survey (TDHS), 2010.

Characteristic	n	(%)
Interpersonal violence experience		
Past 12-month IPV perpetration	94	(1.5)
Past 12-month IPV victimization	1,628	(34.7)
Perpetrated IPV and experienced victimization in past 12 months	82	(1.5)
Perpetrated IPV and did not experience victimization in past 12 months	12	(0.2)
Experienced victimization and not did perpetrate IPV in past 12 months	1,546	(33.5)
Neither perpetrated IPV nor experienced victimization in past 12 months	3,732	(65.1)
Sociodemographic characteristics		
Age		
15–19	229	(5.6)
20–24	960	(19.2)
25–29	1,158	(20.6)
30–34	1,029	(17.7)
35+	1,996	(37.0)
Education		
No education	1,263	(22.8)
Primary school education	3,446	(69.8)
Secondary education or more	663	(7.4)
Cash or in kind earnings [a]	2,319	(49.1)
Number of children ever born		
0	298	(5.8)
1–2	1,685	(33.7)
3–4	1,545	(28.2)
5+	1,844	(32.4)
Wealth index		
Lowest	1,059	(18.9)
Second	1,070	(20.2)
Middle	1,094	(20.7)
Fourth	1,176	(20.8)
Highest	973	(19.4)
Couple/spouse characteristics		
Partner age difference		
Participant of same age or older	368	(6.0)
Participant 1–4 years younger	1,410	(27.4)
Participant 5–9 years younger	1,635	(30.3)
Participant 10–14 years younger	727	(12.5)
Participant 15+ years younger	1,232	(23.8)
Partner's alcohol consumption[b]		

Characteristic	n	(%)
Does not drink	3605	(61.9)
Drinks but is never drunk	140	(2.8)
Sometimes drunk	968	(21.5)
Often drunk	647	(13.8)
Women's status and gender roles		
Decision-making on visits to wife's family[c]		
Husband and wife jointly decide	1,864	(40.6)
Mainly wife decides	413	(8.4)
Mainly husband decides	2,386	(49.8)
Someone else decides	26	(1.0)
Acceptance of one or more justifications for wife beating[d]		
Yes	2,661	(55.2)
Exposure to parental IPV[e]	1,758	(40.8)

Percentages represent column percentages, and are weighted to reflect the 2010 Tanzanian Demographic and Health Survey (TDHS) sampling design and participation in the TDHS domestic violence module.

[a]Excludes participants with missing information on earnings (n=819).

[b]Excludes participants with missing information on partner's alcohol consumption (n=12).

[c]Excludes participants with missing information on decision-making (n=641).

[d]Excludes participants with missing information on acceptance of wife beating (n= 62).

[e]Excludes participants with missing information on exposure to parental IPV (n=394).

Table 2

Weighted frequency distributions of analysis sample according to background characteristics, by interpersonal violence (IPV) experience (n=5,372): Tanzania Demographic and Health Survey (TDHS), 2010.

Characteristic	Past 12-month IPV perpetration					Past 12-month IPV victimization				
	No		Yes		p[a]	No		Yes		p[a]
Sociodemographic characteristics	**n**	**(%)**	**n**	**(%)**		**n**	**(%)**	**n**	**(%)**	
Age										
15–19	225	(5.6)	4	(6.9)		170	(6.1)	59	(4.8)	
20–24	940	(19.1)	20	(23.3)		679	(19.7)	281	(18.3)	
25–29	1,140	(20.7)	18	(18.5)		784	(19.8)	374	(22.3)	
30–34	1,009	(17.6)	20	(23.2)		695	(16.7)	334	(19.6)	
35+	1,964	(37.0)	32	(28.2)		378	(37.8)	580	(35.2)	
Education										
No education	1,247	(22.8)	16	(20.2)		918	(23.2)	345	(22.1)	
Primary school education	3,386	(69.8)	60	(70.6)		2,261	(68.6)	1,185	(72.1)	
Secondary education or more	645	(7.4)	18	(9.2)		565	(8.3)	98	(5.8)	
Cash or in kind earnings [b]	2,262	(48.8)	57	(66.0)	**	1,693	(52.2)	626	(43.3)	***
Number of children ever born										
0	292	(5.8)	6	(4.2)	*	246	(7.2)	52	(3.1)	***
1–2	1,644	(33.4)	41	(52.1)		1,181	(33.8)	504	(33.4)	
3–4	1,519	(28.3)	26	(22.9)		1,045	(27.5)	500	(29.5)	
5+	1,823	(32.5)	21	(20.9)		1,272	(31.5)	572	(34.0)	
Wealth index										
Lowest	1,039	(18.8)	20	(25.6)		660	(17.4)	399	(21.8)	
Second	1,053	(20.4)	17	(16.0)		749	(21.4)	321	(18.0)	
Middle	1,082	(20.9)	12	(11.5)		742	(20.2)	352	(21.8)	***
Fourth	1,153	(20.8)	23	(22.0)		825	(19.6)	351	(23.1)	
Highest	951	(19.3)	22	(24.9)		768	(21.6)	205	(15.4)	
Couple/spouse characteristics										
Partner age difference										

Characteristic	Past 12-month IPV perpetration					Past 12-month IPV victimization				
	No		Yes		p[a]	No		Yes		p[a]
Sociodemographic characteristics	**n**	**(%)**	**n**	**(%)**		**n**	**(%)**	**n**	**(%)**	
Participant of same age or older	353	(5.9)	15	(15.4)		247	(5.7)	121	(6.6)	
Participant 1–4 years younger	1,384	(27.3)	26	(30.3)		961	(27.4)	449	(27.2)	
Participant 5–9 years younger	1,614	(30.5)	21	(20.0)	*	1,165	(32.0)	470	(27.3)	***
Participant 10–14 years younger	710	(12.4)	17	(17.7)		545	(13.6)	182	(10.5)	
Participant 15+ years younger	1,217	(23.9)	15	(16.6)		826	(21.3)	406	(28.5)	
Partner's alcohol consumption [b]										
Does not drink	3,552	(62.0)	53	(55.1)	*	2,889	(70.9)	716	(44.7)	***
Drinks but is never drunk	140	(2.9)	–			110	(3.5)	30	(1.6)	
Sometimes drunk	955	(21.6)	13	(17.5)		551	(19.1)	417	(26.2)	
Often drunk	619	(13.6)	28	(27.4)		190	(6.5)	457	(27.5)	
Women's status and gender roles										
Decision-making on visits to wife's family [b]										
Husband and wife jointly decide	1,864	(40.9)	24	(27.1)	***	1,409	(44.6)	479	(32.6)	***
Mainly wife decides	413	(8.4)	18	(24.3)		282	(7.6)	149	(10.6)	
Mainly husband decides	2,342	(49.8)	44	(47.3)		1,648	(46.9)	738	(55.7)	
Someone else decides	25	(1.0)	–			18	(1.0)	8	(1.1)	
Acceptance of one or more justifications for wife beating [b]	2,601	(54.9)	60	(77.0)	**	1,603	(49.1)	1,058	(66.5)	**
Exposure to parental IPV [b]	1,716	(40.6)	42	(55.5)	*	915	(32.4)	843	(57.0)	***

[a] p-values indicate Person's chi-square test of significance of overall association between characteristic and IPV experience.

*** p<0.001;

** p<0.01;

* p<0.05.

Percentages represent column percentages, and are weighted to reflect the 2010 Tanzanian Demographic and Health Survey sampling design and account for nonresponse. Some proportion estimates are not shown due to small cell sizes.

[b] Excludes participants with missing information.

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Table 3

Crude and adjusted odds ratios (and 95% confidence intervals) of past 12-month physical interpersonal violence (IPV) perpetration among women aged 15–49: Tanzanian Demographic and Health Survey (TDHS), 2010.

Characteristic (Referent)	Model 1 [a]			Model 2 [a]			Model 3 [a]		
	OR	95% CI	*p*	aOR	95% CI	*p*	aOR	95% CI	*p*
Sociodemographic characteristics									
Age (ref: 25–29)									
15–19	1.37	(0.29, 6.49)		1.19	(0.26, 5.51)		1.11	(0.19, 6.39)	
20–24	1.36	(0.56, 3.29)		0.45	(0.16, 1.27)		0.40	(0.13, 1.25)	
30–34	1.47	(0.62, 3.49)		1.53	(0.63, 3.71)		1.67	(0.65, 4.26)	
35+	0.85	(0.38, 1.91)		1.19	(0.26, 5.51)		1.11	(0.19, 6.39)	
Education (ref: No education)									
Primary school education	1.14	(0.56, 2.32)		0.78	(0.33, 1.86)		0.65	(0.26, 1.60)	
Secondary education or more	1.41	(0.51, 3.88)		1.24	(0.32, 4.89)		0.87	(0.23, 3.33)	
Cash or in-kind earnings [b]	2.03	(1.67, 3.53)	*	2.93	(1.49, 5.76)	**	3.34	(1.75, 6.37)	***
Number of children ever born (ref: 0)									
1–2	2.16	(0.63, 7.44)		4.92	(0.67, 36.1)		2.95	(0.35, 24.7)	
3–4	1.23	(0.31, 4.10)		1.38	(0.18, 10.8)		0.74	(0.09, 6.37)	
5+	0.89	(0.25, 3.15)		1.48	(0.18, 12.4)		0.81	(0.09, 7.50)	
Wealth index (ref: Lowest)									
Second	0.58	(0.28, 1.21)		0.43	(0.19, 0.97)	*	0.48	(0.21, 1.09)	
Middle	0.40	(0.14, 1.19)		0.49	(0.16, 1.50)		0.48	(0.16, 1.49)	
Fourth	0.78	(0.38, 1.61)		0.66	(0.31, 1.39)		0.67	(0.31, 1.44)	
Highest	0.95	(0.48, 1.85)		0.52	(0.19, 1.45)		0.51	(0.17, 1.51)	
Couple/spouse characteristics									
Partner age difference (ref: Participant of same age or older)									
Participant 1–4 years younger	0.42	(0.19, 0.94)	*	0.40	(0.17, 0.97)	*	0.42	(0.17, 1.04)	
Participant 5–9 years younger	0.25	(0.11, 0.56)	***	0.22	(0.09, 0.57)	***	0.25	(0.09, 0.64)	**
Participant 10–14 years younger	0.55	(0.23, 1.31)		0.68	(0.27, 1.69)		0.93	(0.35, 2.42)	
Participant 15+ years younger	0.27	(0.11, 0.66)	**	0.20	(0.06, 0.64)	**	0.20	(0.05, 0.77)	*
Partner's alcohol consumption (ref: Does not drink) [b]									

Characteristic (Referent)	Model 1 [a]			Model 2 [a]			Model 3 [a]		
	OR	95% CI	*p*	aOR	95% CI	*p*	aOR	95% CI	*p*
Drinks but is never drunk	–	–		–	–		–	–	
Sometimes drunk	0.91	(0.44, 1.90)		0.89	(0.38, 2.10)		0.62	(0.27, 1.43)	
Often drunk	2.27	(1.32, 3.91)	**	3.00	(1.56, 5.77)	***	1.41	(0.67, 2.99)	
Women's status and gender roles									
Decision-making on visits to wife's family (ref: Husband and wife jointly decide) [b]									
Mainly wife decides	4.39	(1.99, 9.66)	***	3.48	(1.42, 8.53)	**	3.22	(1.24, 8.38)	*
Mainly husband decides	1.44	(0.76, 2.70)		1.28	(0.62, 2.62)		1.08	(0.51, 2.30)	
Someone else decides	2.08	(0.25, 17.5)		4.24	(0.32, 56.0)		3.43	(0.17, 67.9)	
Acceptance of one or more justifications for wife beating [b]	2.76	(1.57, 4.86)	***	3.08	(1.55, 6.13)	**	2.53	(1.24, 5.14)	*
Exposure to parental IPV [b]	1.82	(1.05, 3.17)	*	1.46	(0.79, 2.71)		1.06	(0.56, 2.03)	
Past 12-month IPV victimization	10.1	(3.99, 25.4)	***				8.20	(3.02, 22.28)	***

*** p<0.001,

** p<0.01,

* p<0.05, OR=odds ratio, aOR=adjusted odds ratio

Some odds ratios are not reported due to small sample sizes.

[a] Model 1 presents crude odds ratios of past 12-month perpetration (relative to not experiencing IPV perpetration in the past 12 months) for each study characteristic individually. Model 2 presents odds ratios of past 12-month IPV perpetration (relative to not experiencing IPV perpetration in the past 12 months), simultaneously adjusted for all variables listed in the corresponding column. Model 3 further adjusts for past 12-month isolated IPV victimization.

[b] Excludes participants with missing information.

Table 4

Crude and adjusted odds ratios (and 95% confidence intervals) of past 12-month physical interpersonal violence (IPV) victimization among women aged 15–49: Tanzanian Demographic and Health Survey (TDHS), 2010.

Characteristic (Referent)	Model 1[a]			Model 2[a]			Model 3[a]		
	OR	95% CI	*p*	aOR	95% CI	*p*	aOR	95% CI	*p*
Sociodemographic characteristics									
Age (ref: 25–29)									
15–19	0.70	(0.48, 1.02)		1.05	(0.58, 1.93)		1.04	(0.55, 1.96)	
20–24	0.83	(0.66, 1.02)		0.99	(0.70, 1.41)		1.02	(0.71, 1.46)	
30–34	1.04	(0.83, 1.30)		0.90	(0.66, 1.22)		0.89	(0.65, 1.22)	
35+	0.83	(0.67, 1.02)		0.76	(0.56, 1.04)		0.77	(0.56, 1.05)	
Education (ref: No education)									
Primary school education	1.10	(0.88, 1.37)		1.24	(0.95, 1.61)		1.25	(0.96, 1.64)	
Secondary education or more	0.73	(0.49, 1.09)		1.82	(1.04, 3.19)	*	1.83	(1.04, 3.22)	*
Cash or in-kind earnings [b]	0.70	(0.58, 0.85)	***	0.72	(0.57, 0.90)	**	0.69	(0.55, 0.87)	**
Number of children ever born (ref: 0)									
1–2	2.27	(1.58, 3.26)	***	2.66	(1.39, 5.10)	**	2.54	(1.32, 4.90)	**
3–4	2.45	(1.65, 3.65)	***	2.94	(1.44, 6.01)	**	2.94	(1.43, 6.03)	**
5+	2.47	(1.68, 3.66)	***	2.70	(1.25, 5.83)	*	2.70	(1.24, 5.88)	*
Wealth index (ref: Lowest)									
Second	0.67	(0.51, 0.87)	**	0.73	(0.53, 0.99)	*	0.74	(0.54, 1.01)	
Middle	0.86	(0.68, 1.10)		0.94	(0.68, 1.30)		0.96	(0.69, 1.33)	
Fourth	0.94	(0.72, 1.21)		1.06	(0.77, 1.47)		1.07	(0.77, 1.49)	
Highest	0.57	(0.42, 0.77)	***	0.91	(0.59, 1.40)		0.93	(0.60, 1.44)	
Couple/spouse characteristics									
Partner age difference (ref: Participant of same age or older)									
Participant 1–4 years younger	0.85	(0.61, 1.19)		0.84	(0.56, 1.26)		0.88	(0.59, 1.32)	
Participant 5–9 years younger	0.74	(0.53, 1.01)		0.77	(0.51, 1.15)		0.81	(0.54, 1.22)	
Participant 10–14 years younger	0.66	(0.47, 0.94)	*	0.64	(0.41, 1.00)		0.65	(0.41, 1.03)	
Participant 15+ years younger	1.15	(0.84, 1.59)		0.79	(0.51, 1.24)		0.84	(0.54, 1.31)	
Partner's alcohol consumption (ref: Does not drink) [b]									

Characteristic (Referent)	Model 1[a]			Model 2[a]			Model 3[a]		
	OR	95% CI	*p*	aOR	95% CI	*p*	aOR	95% CI	*p*
Drinks but is never drunk	0.71	(0.46, 1.09)		0.76	(0.44, 1.33)		0.79	(0.46, 1.38)	
Sometimes drunk	2.18	(1.77, 2.69)	***	2.24	(1.76, 2.85)	***	2.25	(1.77, 2.88)	***
Often drunk	6.71	(5.21, 8.67)	***	6.97	(4.89, 9.95)	***	6.88	(4.80, 9.87)	***
Women's status and gender roles									
Decision-making on visits to wife's family (ref: Husband and wife jointly decide) [b]									
Mainly wife decides	1.90	(1.40, 2.58)	***	1.58	(1.01, 2.47)	*	1.48	(0.94, 2.34)	
Mainly husband decides	1.62	(1.36, 1.94)	***	1.53	(1.23, 1.90)	***	1.51	(1.21, 1.90)	***
Someone else decides	1.53	(0.59, 3.99)		1.61	(0.62, 4.15)		1.55	(0.57, 4.18)	
Acceptance of one or more justifications for wife beating[b]	2.06	(1.73, 2.44)	***	1.82	(1.45, 2.28)	***	1.78	(1.42, 2.23)	***
Exposure to parental IPV[b]	2.76	(2.29, 3.34)	***	2.47	(2.00, 3.06)	***	2.48	(2.00, 3.07)	***
Past 12-month IPV perpetration	10.1	(3.99, 25.7)	***				7.45	(2.59, 21.4)	***

*** p<0.001,

** p<0.01,

* p<0.001, OR=odds ratio, aOR=adjusted odds ratio

Some odds ratios are not reported due to small sample sizes.

[a] Model 1 presents crude odds ratios of past 12-month victimization (relative to not experiencing IPV victimization in the past 12 months) for each study characteristic individually. Model 2 presents odds ratios of past 12-month IPV victimization (relative to not experiencing IPV victimization in the past 12 months), simultaneously adjusted for all variables listed in the corresponding column. Model 3 further adjusts for past 12-month isolated IPV perpetration.

[b] Excludes participants with missing information.