A MIXED METHODS STUDY OF INTIMATE PARTNER VIOLENCE AMONG MEN IN DAR ES SALAAM, TANZANIA

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ABSTRACT

Marta Isabella Mulawa: A Mixed Methods Study of Intimate Partner Violence Among Men in Dar es Salaam, Tanzania
(Under the direction of Suzanne Maman)

Background: Despite theoretical rationale and empirical evidence that suggests peer network gender norms may influence men’s perpetration of intimate partner violence (IPV), no studies have examined this association in sub-Saharan Africa. Grounded in social learning theory, social influence theory, and the theory of gender and power, the aims of this dissertation were to assess the degree to which peer network gender norms are associated with men’s perpetration of IPV, test whether the social cohesion of peer networks moderates this relationship, and to qualitatively explore whether and how peer networks influence men’s perpetration of IPV.

Methods: I conducted two studies using quantitative and qualitative data from an ongoing HIV and IPV prevention trial, Vijana Vijiweni II, in Dar es Salaam, Tanzania. In the first study, I used multilevel logistic regression to analyze baseline data from sexually active men (n = 1,103) nested within 59 peer networks enrolled in the parent trial. In the second study, I collected qualitative in-depth interviews (n = 40) with a sub-sample of 20 men who reported perpetrating IPV in the first study and analyzed the data by generating narrative summaries and conducting thematic and interpretative coding.

Results: Men in peer networks with increasing levels of inequitable peer network gender norms had over twice the odds of perpetrating physical IPV within the last year (OR = 2.33, p = .04), controlling for demographic characteristics and individual-level attitudes towards gender
roles. Peer network social cohesion significantly moderated the positive association between inequitable peer network gender norms and IPV perpetration such that the relationships grew stronger as cohesion increased. In the qualitative interviews, we saw no evidence that men self-selected into peer networks with certain characteristics. Rather, men described several mechanisms through which their peer networks influenced IPV perpetration behavior, including (1) men’s internalization of peer network norms, (2) men feeling pressure to conform to peer network norms, and (3) the direct involvement of peer networks in shaping couple power dynamics.

**Conclusions:** Taken together, these findings suggest that peer network gender norms influence men’s perpetration of intimate partner violence and should be targeted in future gender-transformative interventions.
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AOR</td>
<td>Adjusted odds ratio</td>
</tr>
<tr>
<td>CAB</td>
<td>Community advisory board</td>
</tr>
<tr>
<td>CI</td>
<td>Confidence interval</td>
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<tr>
<td>DHS</td>
<td>Demographic and Health Surveys</td>
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<tr>
<td>GEM</td>
<td>Gender Equitable Men</td>
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<tr>
<td>HIV</td>
<td>Human immunodeficiency virus</td>
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<tr>
<td>ICC</td>
<td>Intra-class correlation</td>
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<tr>
<td>IPV</td>
<td>Intimate partner violence</td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
</tr>
<tr>
<td>MUHAS</td>
<td>Muhimbili University of Health and Allied Sciences</td>
</tr>
<tr>
<td>NBS</td>
<td>National Bureau of Statistics</td>
</tr>
<tr>
<td>OR</td>
<td>Odds ratio</td>
</tr>
<tr>
<td>PI</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>RCT</td>
<td>Randomized controlled trial</td>
</tr>
<tr>
<td>SES</td>
<td>Socioeconomic status</td>
</tr>
<tr>
<td>STI</td>
<td>Sexually transmitted infection</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNAIDS</td>
<td>Joint United Nations Programme on HIV/AIDS</td>
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<tr>
<td>UNC</td>
<td>University of North Carolina</td>
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<tr>
<td>US</td>
<td>United States</td>
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<td>USD</td>
<td>United States Dollar</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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CHAPTER 1: INTRODUCTION AND SPECIFIC AIMS

1.1 Problem Statement

Men’s perpetration of intimate partner violence (IPV), which includes behaviors that cause or have potential to cause physical, sexual, or psychological harm perpetrated against a current or former partner or spouse, is a widespread public health problem (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006). A systematic review of studies conducted in 81 countries estimated that 30.0% of women over the age of 15 years have experienced physical and/or sexual IPV (Devries, Mak, Garcia-Moreno, et al., 2013). The regional prevalence of physical and/or sexual IPV victimization among women in sub-Saharan Africa was 36.6%, one of the highest rates in the world (World Health Organization, 2013a). Studies assessing the prevalence of men’s perpetration of IPV are less common, but recent population-based studies have found IPV perpetration to be highly prevalent among men. For example, across eight low- and middle-income countries assessed as part of the International Men and Gender Equality Survey (IMAGES), 31% of men reported having perpetrated physical IPV, the focus of this dissertation, against a partner in their lifetime (Fleming, McCleary-Sills, et al., 2015).

The consequences of experiencing IPV among women are severe. Researchers have documented associations between women’s IPV victimization and mental health outcomes like incident depression, post-traumatic stress disorder, and suicidal ideation (Beydoun, Beydoun, Kaufman, Lo, & Zonderman, 2012; Devries, Mak, Bacchus, et al., 2013; Pico-Alfonso et al., 2006). Additionally, IPV victimization among women has been associated with behavioral consequence such as elevated substance use (Coker et al., 2002) as well as increased risk of
chronic pain, non-fatal injuries and death (Campbell, 2002; Devries, Mak, Bacchus, et al., 2013; Stockl et al., 2013). Moreover, IPV victimization has also been associated with decreased use of contraceptives (Maxwell, Devries, Zionts, Alhusen, & Campbell, 2015) and experiencing IPV during pregnancy has been associated with increased risk for low birth weight infants, pre-term delivery, induced abortions, and neonatal death (Murphy, Schei, Myhr, & Du Mont, 2001; Sarkar, 2008). Studies have also found a strong association between IPV and HIV among women, particularly in sub-Saharan Africa (Kouyoumdjian, Findlay, Schwandt, & Calzavara, 2013; Li et al., 2014; Maman et al., 2002). For example, experiencing violence has been prospectively linked to an increased risk of acquiring HIV in studies conducted with young women in South Africa (Jewkes, Dunkle, Nduna, & Shai, 2010; Silverman, 2010) and Uganda (Kouyoumdjian, Calzavara, et al., 2013). IPV victimization has also been associated with lower levels of engagement in care and HIV treatment and significantly lower levels of viral suppression among HIV-positive women (Hatcher, Smout, Turan, Christofides, & Stockl, 2015).

While the majority of research in sub-Saharan Africa has focused on documenting the negative consequences of IPV victimization among women, empirical evidence from the United States (US) has documented negative health outcomes among male perpetrators. For example, men’s IPV perpetration has been associated with hazardous drinking, illicit drug use, and mental health outcomes (Nahapetyan, Orpinas, Song, & Holland, 2014; Okuda et al., 2015; Reid et al., 2008; Rhodes et al., 2009). Male perpetrators are also more likely to report not receiving needed mental health care than men who do not perpetrate IPV (Lipsky, Caetano, & Roy-Byrne, 2011). Furthermore, evidence in sub-Saharan Africa suggests that men who perpetrate IPV also engage in higher levels of sexual risk behaviors (Dunkle et al., 2006; Maman, Yamanis, Kouyoumdjian, Watt, & Mbwambo, 2010; Townsend et al., 2011) and are more likely to have STI/HIV
diagnosis (Jewkes, Sikweyiya, Morrell, & Dunkle, 2011b) compared to men who do not perpetrate violence.

Given the scope and severity of intimate partner violence, addressing IPV and other forms of violence against women has been made a priority by many national and international organizations (Care International, 2014; United Nations, 2013; World Health Organization, 2013b). While efforts to address IPV have historically emphasized the provision of legal, medical, and social services to women experiencing violence (Rothman, Butchart, & Cerda, 2003; World Health Organization, 2013c), the prevention of IPV and other forms of violence against women has become an increasingly high priority. For example, preventing IPV was declared a public health and human rights imperative by the World Health Organization (WHO) (World Health Organization, 2010).

Recent reviews of interventions to prevent IPV found that evidence for intervention effectiveness comes primarily from high-income countries (Ellsberg et al., 2015; Fulu, Kerr-Wilson, & Lang, 2014). Furthermore, of the prevention programs implemented in low-income and middle-income countries, most have focused on empowering women and girls (Ellsberg et al., 2015). Men are important targets for IPV prevention efforts since societal norms provide men with the power and control within their romantic relationships (Jewkes, 2002). While the importance of working with men to prevent violence has been increasingly recognized (Jewkes, Flood, & Lang, 2015), evidence of the effectiveness of interventions engaging men to prevent violence is limited. This is partly because rigorous evaluations of existing interventions are lacking. Additionally, the existing evidence is sometimes conflicting (Fulu et al., 2014) because interventions have differed with regard to their populations, settings, intensity, and notably, the extent to which they have been grounded in theory (Jewkes et al., 2015). It was recently noted,
for example, that the focus of many interventions that have engaged men has been to “change
gender attitudes, with an assumption that behavior change will follow” (Jewkes et al., 2015).
Most interventions aim to change men’s attitudes partly because we have a limited understanding
of other important factors that may be driving the enactment of IPV in this setting.

In order to effectively intervene with men to reduce perpetration of IPV, we need an in-
depth understanding of the determinants of men’s perpetration of IPV (García-Moreno et al.,
2015; L. L. Heise, 1998; Jewkes, 2014). Several theoretical perspectives, including social
learning theory (Bandura, 1977) and social influence theory (Kelman, 1958), suggest that peer
networks play an important role in shaping behaviors like men’s perpetration of IPV. Social
learning theory suggests that individuals who socialize with peers who have norms accepting of
IPV, may through a process of observational learning as well as through the reinforcement of
peers, begin to internalize attitudes that are more accepting of IPV and subsequently be more
likely to engage in IPV than individuals who do not socialize with peers with norms endorsing
IPV (Arriaga & Foshee, 2004; Bandura, Ross, & Ross, 1961). In addition to this internalization
process, social influence theory posits that individuals may also feel pressured to conform with
peer norms even if they do not privately internalize similar attitudes (Kelman, 1958).
Furthermore, social influence theory and empirical research with this population (Yamanis,
Fisher, Moody, & Kajula, 2015), suggests that peer network social cohesion may work
synergistically with network norms to influence behaviors like IPV perpetration. Social cohesion
can be broadly defined as the degree of closeness, trust, and willingness to help members of the
same group (Sampson, Raudenbush, & Earls, 1997). Peer network social cohesion may interact
with peer network norms to shape behaviors because more cohesive networks allow for more
rapid diffusion of information between individuals (Valente & Fosados, 2006). Additionally,
consistent with social learning theory, peer networks with higher levels of cohesion may be characterized by more frequent contact and discussions between peers about various behaviors and the consequences of those behaviors (Burt, 1987). As a result, higher levels of peer network social cohesion may increase the likelihood that individuals perceive and adopt normative information surrounding behaviors like men’s perpetration of IPV.

Given the important role that peer network norms may play in shaping IPV perpetration, it is critical that research move beyond the individual level to identify norms at the peer network level that are associated with increasing risk of violence perpetration. In fact, there have been recent calls for additional research to better understand “the specific social norms and beliefs” that contribute to the perpetration of IPV (García-Moreno et al., 2015). Despite these calls, research in this area is scarce. In fact, until recently, most of the data on risk factors and correlates of men’s IPV perpetration in sub-Saharan Africa was obtained by asking women who disclosed experiencing IPV to reflect on the characteristics of their perpetrators. While a growing number of studies in the last five years have examined individual-level risk factors for men’s perpetration of IPV in sub-Saharan Africa (Fleming, McCleary-Sills, et al., 2015; Fulu, Jewkes, Roselli, & Garcia-Moreno, 2013; Jewkes et al., 2011b; Townsend et al., 2011), no studies in the region have explored associations between peer network norms and men’s perpetration of IPV.

Both theory and empirical research suggest that peer network gender norms may be significant in shaping men’s perpetration of IPV. Peer network gender norms are collective, group norms about appropriate roles and behaviors for men and women (Lapinski & Rimal, 2005; McHugh & Frieze, 1997). Gender norms range from embracing inequitable gender roles based on traditional notions of masculinity and femininity (where men are expected to be breadwinners and women are expected to be housewives and caregivers) to those supporting
more equitable, or egalitarian, gender roles (where men and women share responsibilities and
decision-making within the household) (King & King, 1997; Larsen & Long, 1988). The theory
of gender and power posits that traditional gender norms emphasize the superiority of men over
women and shape men’s and women’s behavior within societies by setting the stage for men to
maintain power and dominance over women (Connell, 1987). Consistent with the theory of
gender and power, empirical research has found that men with more traditional, or inequitable,
gender role attitudes are more likely to perpetrate violence against their partners (Fleming,
McCleary-Sills, et al., 2015). Because maintaining power is such an important part of men’s
traditionally defined gender roles, men who are surrounded by peers who embrace traditional
gender norms may use violence to assert their power and demonstrate their masculinity. Despite
the theoretical rationale for why peer network gender norms, above and beyond individual-level
attitudes towards gender roles, may exert a strong influence on men’s IPV perpetration (Bandura,
1977; Kelman, 1958), the association between peer network gender norms and men’s
perpetration of IPV has not been examined.

In response to these research gaps, I undertook this dissertation to examine the
association between peer network gender norms and the perpetration of IPV among men in Dar
es Salaam, Tanzania. This dissertation was conducted within the context of a cluster-randomized
parent trial, Vijana Vijiweni II, A Multilevel Intervention to Reduce HIV Risk Among Networks of
Men in Tanzania (NIMH R01MH098690), lead by Dr. Suzanne Maman. The clusters for this
trial are comprised of peer networks, locally referred to as “camps”. Camps were identified in
prior research as stable networks of mostly male members (on average, 80% of camp members
are male), with an elected leadership structure (Yamanis, Maman, Mbwambo, Earp, & Kajula,
2010). In this urban setting, many camp members are not formally employed, and men join these
camps to socialize, support one another, and engage in activities such as playing sports or occasionally participating in camp-led business enterprises. The parent trial is evaluating the effectiveness of a camp-randomized microfinance and health leadership intervention on STIs, IPV, and HIV risk behaviors (Kajula et al., 2016).

1.2 Study Purpose and Aims

The purpose of this study is to integrate quantitative and qualitative methods to better understand the association between peer network gender norms and men’s perpetration of intimate partner violence in Dar es Salaam, Tanzania. This dissertation was designed to address the following specific aims:

**Aim 1:** To assess the degree to which peer network gender norms are associated with men’s perpetration of IPV.

**Aim 2:** To test whether peer network social cohesion moderates the relationship between peer network gender norms and the perpetration of IPV.

**Aim 3:** To qualitatively explore whether and how peer networks influence IPV perpetration behaviors of male perpetrators.

Aims 1 and 2 involved secondary data analysis of baseline survey data of men (n = 1,103) nested within camp-based peer networks (n = 59). This quantitative data was collected through the parent trial between October 2013 and March 2014. For Aim 3, I collected and analyzed 2 waves of qualitative in-depth interviews with 20 men between March and June 2015.

1.3 Significance

This dissertation contributes to filling important gaps in the literature by thoroughly examining the associations between peer network gender norms and men’s perpetration of IPV. In this mixed methods dissertation, I utilized advanced statistical techniques to test the
empirically- and theoretically-driven hypotheses. I subsequently collected and analyzed qualitative data to provide additional context and meaning to the quantitative relationships found. Understanding the degree to which peer network gender norms are associated with IPV perpetration, quantifying the extent to which peer network social cohesion shapes that relationship, and illuminating the context and potential mechanisms underpinning these relationships provides a more meaningful understanding of the ways in which men’s peer network gender norms are associated with the perpetration of IPV. These cumulative findings provide direction for future research and inform future interventions to reduce the perpetration of intimate partner violence in this setting.

1.4 Organization of the Dissertation

This dissertation has six chapters. This chapter provides an overview of the problem and serves as an introduction to the dissertation. Chapter 2 provides background information on IPV in Tanzania as well as additional theoretical and empirical support for the studies. Chapter 3 provides an overview of the dissertation, a detailed description of the research aims, research questions, and corresponding hypotheses. This chapter also describes the research design and methods utilized. Chapter 4 presents the results from Aims 1 and 2 in a manuscript on the associations between peer network gender norms and IPV perpetration. Chapter 5 presents the results from Aim 3 in a manuscript on qualitative findings exploring peer network influence on men’s perpetration of IPV. Finally, Chapter 6 concludes the dissertation by integrating the findings from the two studies, reviewing the strengths and limitations of the research, and summarizing the contribution of this dissertation to the literature by reviewing implications for future research and public health practice.
CHAPTER 2: BACKGROUND AND SIGNIFICANCE

This chapter is organized into three sections. In the first section, I provide background information on scope of intimate partner violence in Tanzania. In the second section, I describe what is known about men’s gender role attitudes in Tanzania. I then review the theories informing this dissertation. Finally, I summarize the empirical support for this research.

2.1 IPV in Tanzania

Intimate partner violence is a serious public health problem in Tanzania. No population-based surveys with men have assessed the prevalence of IPV perpetration nationally or regionally. However, the 2010 Tanzania Demographic and Health Survey (DHS) assessed women’s IPV victimization and found that 45% of women ages 15-49 years reported having experienced either sexual or physical violence since the age of 15. A quarter of women reported experiencing only physical violence, 7% reported only sexual violence, and 14% reported experiencing both sexual and physical violence. Of ever married women who reported having experienced physical violence, 69.5% reported that the perpetrator was the current husband/partner and 24.5% reported that the perpetrator was the former husband/partner (National Bureau of Statistics (NBS) [Tanzania] and ICF Macro, 2011). The findings from the Tanzania DHS are consistent with the WHO multi-country study on intimate partner violence, which found that among women from urban areas of Tanzania, 41.3% reported ever experiencing physical or sexual violence, or both, by an intimate partner (Ellsberg, Jansen, Heise, Watts, & Garcia-Moreno, 2008). Thus, the rates of IPV victimization among Tanzania women are higher than the regional IPV prevalence rate estimates that indicate the prevalence of
physical and/or sexual IPV victimization among women in the WHO African Region, where Tanzania is located, was 36.6% (World Health Organization, 2013a). Figure 2.1 illustrates that the WHO African Region has one of the highest rates of IPV in the world (World Health Organization, 2013a).

While more research is available examining women’s IPV victimization, few studies in Tanzania have assessed men’s IPV perpetration. Maman et al. examined rates of sexual and physical IPV perpetration among a sample of 360 young men in Dar es Salaam (2010). In this study, 29.2% of young men reported that they had been physically violent with an intimate

Figure 2.1 Global Map of Regional Prevalence Rates of Intimate Partner Violence by WHO Region

While more research is available examining women’s IPV victimization, few studies in Tanzania have assessed men’s IPV perpetration. Maman et al. examined rates of sexual and physical IPV perpetration among a sample of 360 young men in Dar es Salaam (2010). In this study, 29.2% of young men reported that they had been physically violent with an intimate

1 Tanzania demarcated with a ★.
partner and 11.6% reported sexual partner violence (Maman et al., 2010). Rates of IPV perpetration among adolescent boys in Tanzania were also assessed in the baseline assessment of a school-based sexual and reproductive health education program for students in Dar es Salaam. This study found that among ever-partnered boys in this sample, 21.8% reported IPV perpetration (Wubs et al., 2009).

More recently, our team described the baseline rates of psychological, physical, and sexual IPV perpetration among the sexually active men enrolled in the parent trial of this dissertation (Mulawa, Kajula, et al., 2016). We found that 13.2% of sexually active men reported perpetrating physical IPV, the focus of this dissertation, in the last year. Approximately 20% of men reported perpetrating psychological IPV and 6.7% reported perpetrating sexual IPV. In sum, 27.6% of men reported perpetrating any form of IPV within the last year. While the purpose of that paper was to compare rates of victimization and perpetration for the three forms of violence for men and women and also to examine the rates of victimization and perpetration co-occurrence, the results also provided a rich description of men’s perpetration of IPV. For example, we examined the extent to which men reported perpetrating overlapping physical, sexual, and psychological IPV. We found that the most common form of IPV perpetrated by male perpetrators was only psychological IPV (reported by 36.2% of male perpetrators) and the second most common form was a combination of psychological and physical IPV (22.5%). Additionally, 16.9% reported only perpetrating physical IPV and 11.1% of male perpetrators only perpetrated sexual IPV (Mulawa, Kajula, et al., 2016).

Another study conducted by our team analyzed the same dataset to describe the mean, range, and clustering of men’s HIV-related behaviors including IPV perpetration (Mulawa, Yamanis, Hill, et al., 2016). We found that the camp-based peer networks had a wide range of
average IPV perpetration behaviors when looking across the 59 peer networks enrolled in the parent trial. For example, while on average approximately 25.1% of male camp network members engaged in IPV perpetration in the last year, this varied widely from networks in which only 5% of male members reported perpetrating IPV to networks in which 47.4% of men reported IPV perpetration. Furthermore, we examined the extent to which men within the same peer network tend to share similar IPV perpetration behavior. We did this by partitioning the variance in IPV perpetration into variance that occurs between peer networks ($\tau^{00}$) and the variance that occurs between men within the same peer network ($\sigma^2$). We found that peer network membership explained 3.42% of variance in IPV perpetration ($\tau^{00} = 0.12$, $p = .04$). In other words, our study found that men’s peer networks were more internally homogeneous and externally heterogeneous with regard to their IPV perpetration behaviors than would be expected by chance. This clustering of violent behaviors within men’s peer networks suggests that peer networks may be influencing or reinforcing the adoption of certain norms and behaviors among members.

Qualitative studies in Tanzania have also shed light on the scope of intimate partner violence. In one qualitative study, conducted with men and women between the ages of 16-24 years living in Dar es Salaam, many young men reported hitting, slapping, punching and kicking when they were asked about their own involvement in violence against a partner (Lary, Maman, Katebalila, McCauley, & Mbwambo, 2004). The researchers found that many of these men condoned violent behavior in certain situations, especially in the context of long-term committed relationships (Lary et al., 2004). Another qualitative study conducted with both male and female community members in Dar es Salaam, Mbeya, and Iringa Regions of Tanzania explored physical and sexual violence against women perpetrated by an intimate partner as well as sexual
violence perpetrated by others (McCleary-Sills et al., 2013). While much of this study was focused on understanding the range of services available to survivors of violence and to identify the pathways and barriers to services utilization, the study also documented community perceptions and attitudes about violence in these regions of Tanzania. The researchers found that many acts of violence, including physical violence between married couples, are considered “normal,” “common,” and/or “acceptable” in communities (McCleary-Sills et al., 2013). Physical violence between husbands and wives was considered to be a typical part of marriage and the authors reported that both men and women suggested that it was common for women to be physically beaten by their husbands for disobeying them (McCleary-Sills et al., 2013).

2.2 Gender Role Attitudes in Tanzania

Previous research in Tanzania has also found that many men hold inequitable attitudes towards gender roles. One study among young men in Dar es Salaam, Tanzania examined attitudes towards gender roles and documented extremely high levels of attitudes supporting inequitable gender roles in this setting (Maman et al., 2010). The vast majority (70.1%) of male respondents agreed that a man should have the final say in family matters and 40.6% felt that a woman should not take action if her husband wanted to have another girlfriend (Maman et al., 2010). The study did not examine associations between these attitudes and reported perpetration of IPV, though male control within sexual relationships, a related construct, was examined and not found to be significantly correlated with IPV perpetration (Maman et al., 2010).

Additionally, in our previous study that examined the clustering of men’s IPV perpetration, we also examined the extent to which men’s gender role attitudes clustered within their peer networks (Mulawa, Yamanis, Hill, et al., 2016). We found that peer network membership explained 6.04% of the variance in men’s attitudes towards IPV ($\tau^{00} = 0.052$,}
p = .002). In other words, our study found that men’s peer networks were also more internally homogeneous and externally heterogeneous with regard their attitudes towards gender roles than would be expected by chance. This clustering of attitudes bolstered the argument that these peer networks may be influencing the adoption of certain norms among members.

Additionally, a few qualitative studies in Tanzania have highlighted high levels of attitudes supporting inequitable gender roles and have suggested mechanisms that may underpin the relationship between inequitable attitudes towards gender roles and intimate partner violence perpetration. For example, in one qualitative study with young men and women in Dar es Salaam, many young men condoned being violent in the event that the partner was found to be unfaithful (Lary et al., 2004). Since women were expected to be “settled, forgiving, and enduring,” participants suggested that it was common “for young women who deviate from prescribed behaviors” to be physically punished by their male partners. Being unfaithful to a partner was one example of such deviation from the traditional role women were expected to have. Similarly, male participants also said that violence was justifiable “when women lie to their partners, when women make public things that men consider private, and when there are disagreements about financial matters” (Lary et al., 2004). Another study, based on focus-group discussions with men and women from Dar es Salaam, also illustrated prevailing attitudes supporting inequitable gender roles. In this study, men reported preferring quiet women who were obedient and deferential and also reported that “women who violated social norms were more exposed to violence” (Laisser, Nystrom, Lugina, & Emmelin, 2011).

2.3 Theoretical Basis for Examining Peer Network Gender Norms as a Driver of IPV

Broadly speaking, peer networks are thought to influence the likelihood that men engage in IPV perpetration because these networks give rise to and enforce norms that provide important
information on the prevalence and appropriateness of IPV. I specifically drew on social learning theory, social influence theory, and the theory of gender and power to inform this dissertation.

**Social Learning Theory**

Social learning theory, established by Albert Bandura, is an important cognitive behavioral theory that heavily emphasizes the social context of learning (Bandura, 1973). Later renamed Social Cognitive Theory, after the integration of additional concepts from the field of cognitive psychology, social learning theory emphasizes the cognitive nature of learning in a social context (McAlister, Perry, & Parcel, 2008). The theory suggests that learning occurs through observation of others, or modeling, and through the observation of the consequences of that behavior. Additionally, the theory also highlights the role of reinforcement, which can be positive or negative, in influencing behavior. Social learning theory is recognized as having influenced our understanding of intimate partner violence perpetration and having shaped IPV etiology research (Shorey, Cornelius, & Bell, 2008).

Social learning theory was one of the first theories to suggest that people learn through observation. Thus, social learning theory posits mechanisms through which peer network gender norms might influence men’s perpetration of IPV. The original experiments conducted by Bandura focused on the effects of observing violent behavior. In those experiments, children were randomized to watch an adult model aggressive or non-aggressive behavior towards a doll. The results of the study found that children were more likely to engage in aggressive behavior with the doll after observing the adult model aggressive behavior in comparison to observing the adult model non-aggressive behavior (Bandura et al., 1961). Thus, the theory posits that individuals who witness violent behavior, or are exposed to peers with pro-violent norms may be more likely to perpetrate violence against a partner. This is because individuals who witness peer
violence may learn, through observation, that violent behavior is an effective way to express dissatisfaction, solve problems, and control others (Foshee, Bauman, & Linder, 1999).

Social learning theory also emphasizes the importance of reinforcement, both positive and negative, in shaping behavior, though direct reinforcement is not required to maintain a behavior (Bell & Naugle, 2008). For this reason, social learning theory has also been used to explain the influence of peer behavior on the perpetration of partner violence (Ellis, Chung-Hall, & Dumas, 2013). Social learning theory suggests, for example, that individuals who socialize in contexts with peers that endorse violence against women, may through a process of reinforcement of peers, begin to internalize attitudes that are more accepting of the use of violence, and be more likely to resort to violent behavior with their intimate partners than individuals who do not socialize with peers that endorse violence against women (Arriaga & Foshee, 2004). Because of the positive reinforcement men may receive for engaging in violence and internalizing the norms of their peers, social learning theory suggests that individuals who have peers that are violent towards their partners or embrace pro-violent, traditional norms may be more likely to develop more positive expectancies and fewer negative expectancies of the consequences of perpetrating IPV than individuals who do socialize with peers who engage in IPV and hold traditional norms. As a result, these individuals are thought to be more likely to be violent with their partners than individuals who do not socialize with peers with norms endorsing IPV (Arriaga & Foshee, 2004; Bandura et al., 1961).

Social learning theory also provides support for the moderation hypothesis tested in Aim 2 of this dissertation. The theory posits that behaviors are more likely to be learned when they are modeled by close friends who are trusted (Bandura, 1977). Since peer networks with increasing levels of cohesion may be characterized by higher levels of trust as well as more
frequent contact and discussions between peers about various behaviors and the consequences of those behaviors (Burt, 1987), social learning theory would suggest that increasing social cohesion may increase the likelihood that individuals perceive and adopt normative information surrounding behaviors like men’s perpetration of IPV.

**Social Influence Theory**

Social influence theory, put forth by Herbert Kelman, emphasizes the distinction between different social influence processes (1958). The first mechanism articulated by Kelman, termed *internalization*, is consistent with social learning theory described above. Internalization occurs when individuals adopt the norms of their peers and come to agree both publically and privately with others (Kelman, 1958). This private adoption of peer norms is thought to occur because the norms fit with the individual’s existing value system. Kelman also states that individuals may internalize the norms of their peers because doing so is perceived to be rewarding or beneficial to the individual (1958).

Additionally, social influence theory posits that individuals may also feel pressured to comply with peer norms even if they do not privately internalize and adopt similar attitudes. This process, termed *compliance*, suggests that individuals comply to peer norms without privately accepting them because they hope to benefit in some way (Kelman, 1958). Individuals may also be motivated to conform to network norms because they fear social sanctions for transgression of normative behavior (Kelman, 1958). It has been suggested by other social norms scholars that compliance to peer norms occurs partly because peer norms can be used as a guide or short-cut during decision making (Lapinski & Rimal, 2005). Compliance has also been referred to as “fixed-action patterns” because of the way conforming to peer norms precludes the need for an
individual to think critically about a decision and its consequences before taking action (Cialdini & Griskevicius, 2010).

Social influence theory also suggests that the social cohesion of networks may work synergistically with network norms to influence behaviors like IPV perpetration. This may be because more cohesive networks allow for more rapid diffusion of information between individuals (Valente & Fosados, 2006). As a result, higher levels of peer network social cohesion may increase the likelihood that individuals internalize and also feel pressured to comply with normative information surrounding behaviors like men’s perpetration of IPV.

**Theory of Gender and Power**

The theory of gender and power is a structural theory that describes the social construction of gender in societies and explains how gender-based power differentials shape individual behavior (Connell, 1987). Connell describes the organization of gender in society as a whole. While he recognizes many forms of femininity and masculinity, he identifies one “structural fact” that shapes the relationship among women and women across societies, “the global dominance of men over women” (Connell, 1987). Widespread cultural ideals of masculinity and the superiority of men over women are reinforced and reproduced through institutions, mass media, wage structures, and government policies. These norms emphasizing the superiority of men over women then set the stage for individuals across the society to act to maintain men’s dominance over women. Because maintaining power is such an important part of men’s traditionally defined gender roles, men who are surrounded by peers who embrace traditional gender norms may use violence to assert their power and demonstrate their masculinity. In fact, the subordination of women by men is a prominent feature of Connell’s conceptualization of masculinity. The theory specifically posits that the gendered division of
labor, male partner control within relationships, and social norms related to gender roles shape men’s and women’s behavior within societies. In regards to the social norms related to gender roles, the theory suggests that societies develop norms of masculinity and femininity that are passed on to young men and women through their families, peers, and social institutions. These norms are then interpreted and internalized by individual men and women, who go on to socially construct future norms. Individuals vary in how closely they adhere to norms, which can in-turn evolve as individuals and groups reconstruct them (Connell, 1987).

The Gender Equitable Men (GEM) scale, developed by Pulerwitz and Barker, draws upon Connell’s theory of gender and power, is used in this dissertation to measure gender roles attitudes. Attitudes towards gender roles capture beliefs about the appropriate roles and behaviors for men and women (McHugh & Frieze, 1997). These attitudes range from supporting more inequitable gender roles based on traditional notions of masculinity and femininity (where men are expected to be breadwinners and women are expected to be housewives and caregivers) to those supporting more equitable, or egalitarian, gender roles (where men and women share responsibilities and decision-making within the household) (King & King, 1997; Larsen & Long, 1988). Pulerwitz and Barker developed the GEM scale in Brazil as a tool to measure gender norms in order to evaluate an intervention designed to change norms to reduce HIV risk among young men (2008). The GEM scale is widely used in the evaluation of various sexual and reproductive health programs as well as HIV and violence prevention research studies worldwide (Gottert, 2015; Pulerwitz, Hui, Arney, & Scott, 2015; Scott et al., 2013; Shattuck et al., 2013).

2.4 Empirical Evidence Linking Gender Norms to IPV

Endorsing inequitable gender roles has been associated with increased perpetration of violence against women in several studies. In a review of research using various scales to assess
attitudes towards gender roles as well as masculine ideology and their association with sexual aggression, almost all studies documented an association between inequitable gender roles and masculine ideology and aggressive behavior perpetrated against women (Murnen, Wright, & Kaluzny, 2002). For example, a study with men ages 18-35 years in Boston found that men who endorsed more traditional and therefore inequitable gender roles were more likely to report perpetrating violence against an intimate partner in the last year (AOR 2.1, 95% CI 1.2 – 3.6) (Santana, Raj, Decker, La Marche, & Silverman, 2006).

Additional research in sub-Saharan Africa has also supported the association between inequitable attitudes towards gender roles and increased perpetration of IPV among men. For example, endorsing more inequitable gender role attitudes was associated with increased odds of perpetrating physical IPV in the multi-country analysis of the IMAGES study (Fleming, McCleary-Sills, et al., 2015). Another study, conducted with men in Botswana and Swaziland using a population-based sample, found that men’s attitudes towards gender roles were associated with increased rates of partner violence (Shannon et al., 2012). Men who had more inequitable attitudes towards gender roles were significantly more likely to have ever perpetrated rape (AOR 2.19, 95% CI 1.32, 2.49) (Shannon et al., 2012). An additional cross-sectional study in South Africa found that men who had raped a woman (including intimate partners, strangers, or acquaintances) had less equitable attitudes towards gender roles than the men who did not report having raped (Jewkes, Sikweyiya, Morrell, & Dunkle, 2011a).

It is important to note that much of the empirical evidence assessing the relationships between gender role attitudes and perpetration of IPV has been cross-sectional. Thus, it is not possible to identify the temporal ordering of attitudes and violence and it is possible that perpetrating IPV results in an individual embracing more traditional gender role attitudes.
Additionally, there are limitations to the measure of gender role attitudes that are used in the assessment of peer network gender norms. Specifically, tools like the GEM scale have been critiqued for including items that assess acceptance of violence as well as items measuring gender role attitudes and masculinity norms (Reyes, Foshee, Niolon, Reidy, & Hall, 2015). This is particularly important given empirical data suggesting that the relationship between gender role attitudes and the perpetration of violence may depend on one’s acceptance of violence. Specifically, a recent longitudinal study in the US found that traditional gender role attitudes were associated with increased risk of subsequent perpetration of physical dating aggression only among boys who reported high levels of acceptance of dating violence (Reyes et al., 2015). In that study, endorsing traditional gender role attitudes did not influence perpetration of violence among boys who did not also have beliefs that were accepting of violence.

Despite the empirical evidence linking gender role attitudes to the perpetration of IPV and the theoretical rationale for why peer network gender norms, above and beyond the effect of individual-level attitudes towards gender roles, may exert a strong influence on men’s IPV perpetration (Bandura, 1977; Kelman, 1958), the association between peer network gender norms and men’s perpetration of IPV has not been examined.
CHAPTER 3: STUDY DESIGN AND METHODS

The overarching goal of this dissertation was to better understand the association between peer network gender norms and men’s perpetration of intimate partner violence in Dar es Salaam, Tanzania. I combined complementary quantitative and qualitative methods in a two-part study that utilized a sequential explanatory mixed methods design (Creswell & Plana Clark, 2011). Study 1 involved secondary analysis of quantitative data from the baseline survey of the NIMH-funded parent study, *Vijana Vijiweni II: A Multilevel Intervention to Reduce HIV Risk Among Networks of Men in Tanzania* (n = 1,103 men nested within n = 59 peer networks; 1R01MH098690-01, Maman PI). Study 2 involved the collection and analysis of qualitative in-depth interviews (n = 40) with 20 men purposively sampled from the quantitative sample.

3.1 Study Aims, Research Questions, and Hypotheses

Below are the study aims and corresponding research questions (RQ) and hypotheses for Study 1 and Study 2.

**Study 1**

**Aim 1:** To assess the degree to which peer network gender norms are associated with men’s perpetration of IPV (Error! Reference source not found.)

**RQ1:** Are peer network gender norms associated with men’s risk of perpetrating IPV above and beyond the associations of individual-level attitudes towards gender roles?

**Hypothesis:** Increasing levels of inequitable peer network gender norms will be associated with an increased risk of perpetrating physical IPV, controlling for
individual attitudes towards gender roles and other demographic characteristics and individual-level risk factors.

**Conceptual Model:** A conceptual model for Aim 1 is presented in Figure 3.1.

![Figure 3.1 Conceptual Model for Aim 1](image)

**Aim 2:** To test whether peer network social cohesion moderates the relationship between peer network gender norms and the perpetration of IPV (Error! Reference source not found.).

**RQ1:** Does peer network social cohesion moderate the relationships between peer network gender norms and men’s risk of perpetrating IPV?

**Hypothesis:** Peer network social cohesion will moderate this relationship such that the positive relationship between inequitable peer network gender norms and men’s risk of perpetrating physical IPV will be stronger in increasingly cohesive peer networks.

**Conceptual Model:** A conceptual model for Aim 1 is presented in Figure 3.2.
Aim 3: To qualitatively explore whether and how peer networks influence IPV perpetration behaviors of male perpetrators (Error! Reference source not found.). Note that there are no hypotheses for this exploratory aim.

**RQ1:** How do men perceive the gender norms within their peer networks?

**RQ2:** To what extent do selection and/or influence processes contribute to men being members of peer networks that are characterized by relatively homogenous attitudes towards gender roles and IPV perpetration behavior?

**RQ3:** To what extent do selection and/or influence processes contribute to the association between peer network gender norms and men’s perpetration of IPV?

**RQ4:** What are the mechanisms through which peer networks influence men’s perpetration of violence?

### 3.2 Mixed Methods Approach

This dissertation employed a mixed methods sequential explanatory design that allowed me to use qualitative data collection and analysis to elaborate on the results found in the initial quantitative study (Creswell & Plana Clark, 2011). For example, in the qualitative study, I was
able to more deeply describe the peer network gender norms in the Tanzanian context and to explore mechanisms underlying the relationship between peer network gender norms and men’s perpetration of IPV. Additionally, the mixed methods approach allowed me to minimize the limitations and maximize the strengths of both the quantitative and qualitative methods (Creswell & Plana Clark, 2011). For example, while Study 1 utilized sophisticated statistical methods to test theoretically supported hypotheses, the cross-sectional nature of the quantitative data resulted in several important limitations. These limitations included the inability to distinguish between social selection and social influence processes that could have contributed to the associations found. Thus, the qualitative study served as an opportunity to collect in-depth interviews to assess the extent to which selection and/or influence processes contribute to the quantitative findings.

3.3 Parent Study Overview

**Parent Study Description**

The parent study of this dissertation, *Vijana Vijiweni II*, is a cluster-randomized controlled trial, with the unit of randomization being peer networks that are locally referred to as “camps”. Camps were identified in prior research as stable networks of mostly male members (camp described in more detail below) (Yamanis et al., 2010). The parent trial tests whether men in camps randomized to a combined microfinance and peer health leadership intervention have less incident sexually transmitted infections (Neisseria gonorrhoea (NG), Chlamydia trachomatis (CT), and Trichomonas vaginalis (TV)) and report less past-year perpetration of physical and/or sexual IPV against female sexual partners compared to men in the control camps who receive a delayed intervention (Kajula et al., 2016). The intervention was piloted in three camps before the launch of the trial (Maman et al., 2015). Sixty eligible camps were enrolled in the trial (camp
eligibility criteria described below) and half were randomly assigned to the intervention condition. All members who met the study eligibility criteria (also detailed below) were offered enrollment in the trial. Behavioral and biological data were collected at baseline, which was completed two months prior to initiating the intervention. Though not used in this dissertation, midline behavioral data were also collected 12-months post intervention launch. Finally, the endline evaluation is scheduled to take place approximately 30 months post intervention launch.

**Study Site**

This study took place in Dar es Salaam, the commercial capital and largest city in Tanzania. Dar es Salaam is one of the fastest growing urban areas globally (City Mayors Foundation) and as a result the city has the highest population density (3,133 per sq. km) and the highest unemployment rate (13%) in the country (NBS, 2012). Seventy-percent of city residents live in informal settlements (Baker, 2012). Administratively, the city is divided into three districts, and 73 wards comprise these districts. The parent trial was conducted within four wards (analogous to US census tracts) of Kinondoni District, the most populated and impoverished of the three districts in Dar es Salaam. HIV prevalence in Dar es Salaam is 6.9% which is higher than the national average of 5% (Tanzania Commission for AIDS (TACAIDS), 2013).

The camp-based peer networks enrolled in the trial are comprised of mostly men. On average, 80% of camp members are male. Previous research with these camps suggests that most camp members are men who are not in school and who are unemployed or only occasionally employed (Yamanis et al., 2012). Men sometimes reported joining camps closest to where they lived and often talked about relying on one another to cope with financial stress and family

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2 The randomization process can be found in the protocol paper (Kajula et al., 2016), and is not detailed here since this dissertation was based on the baseline data, collected prior to randomization. Note, however, that the qualitative sub-sample in this study was restricted to men in the control arm.
emergencies (Yamanis et al., 2010). Additionally, camp members reported engaging in activities such as playing sports or participating in camp-led business enterprises (Yamanis et al., 2010).

Field Implementation

Prior to the start of the parent trial, community informant interviews were conducted with 489 individuals (432 men and 57 women) to enumerate all unique camp-based peer networks within the study area (Kajula et al., 2016). Informants were asked to provide information on up to 10 camps within 10 minutes walking distance from where the interview was conducted and 522 camps were identified. Research assistants subsequently used directions provided by the community informants to verify camp existence and operation. Camps were omitted from the sampling frame if the directions were insufficient (n = 56) or if they had closed permanently (n = 148) or closed temporarily (n = 24). Of the 522 possible camps, 294 camps were included in the sampling frame and assessed for eligibility (see APPENDIX A for a map of the 294 camps in operation within the study area). In order to be eligible for inclusion in the study, camps had to have more than 20 members, less than 80 members, have been in existence for at least 1 year, and could not have participated in pilot studies with our team. Camps in which research assistants felt unsafe or those in which a weapon had been used in a fight were also excluded. 172 camp networks were eligible and 60 were randomly selected for inclusion in our trial (see APPENDIX B for consort diagram describing the enumeration and selection of camp-based peer networks).

Since the camps were geographically proximal within the study wards, we implemented a three step, probability-based sampling method to randomly select 60 camps for the trail. This method reduced the possibility of contamination effects. The sampling method was described in the study protocol by Kajula (2016), as including the following steps:
1. “Field staff familiar with the physical geography of wards and camps assigned geographically proximal camps to groups containing between 1 - 6 camps on ArcGIS generated maps;

2. Probability proportionate to size with minimal replacement sampling of groups was conducted using SAS Survey Select Procedure;

3. Simple random selection of camps within groups selected was completed.”

Additionally, the study protocol noted that by using minimal replacement, groups containing greater numbers of camps with larger numbers of members could be selected more than once. In instances where a group was selected more than once, the number of times it was selected equaled the number of camps selected from that group at random.

Before collecting baseline data, we conducted a census of the selected networks by obtaining current camp rosters. Within the 60 camps, 1,581 men were identified as members and assessed for eligibility. In order to be eligible, participants had to be older than 15 years of age, have been a camp member for more than 3 months, visit the camp at least once a week, plan on residing in Dar es Salaam for the next 30 months, and be willing to provide contact information for a friend or family member to be used for study tracing purposes. For these reasons, 86 men (5.4%) were ineligible and 25 (1.6%) refused to participate. We reached but were unable to schedule appointments with 141 participants (8.9%) and were unable to contact 71 individuals after three attempts (4.5%). A total of 1,258 men completed the baseline behavioral assessment between October 8, 2013 and March 23, 2014. Soon after data was collected, camp members from one camp (n = 9) requested to be removed from the study because their leader falsified information with regards to the camp’s eligibility. This camp was removed from the parent trial, resulting in a final sample of n = 1,249 men within 59 camp networks. The overall response rate
among potentially eligible men (n = 1,581) in the parent trial was 79.0%. See APPENDIX C for a diagram depicting the eligibility and selection of participants.

Trained interviewers conducted the baseline behavioral assessment using tablets programmed with a custom-designed CAPI (computer-assisted personal interviewing) instrument. All study instruments were developed in English, translated to Swahili, and then checked for accuracy. Questionnaires were piloted before the baseline assessment. The behavioral survey questions used in this dissertation included demographic characteristics, attitudes towards gender roles (see APPENDIX E), social cohesion (see APPENDIX F), and perpetration of intimate partner violence (see APPENDIX D).

3.4 Quantitative Methods for Aims 1 and 2

Sample

Of the 1,249 men who completed a baseline behavioral survey and were enrolled in the parent trial, we included 1,103 in the analytic sample to address the quantitative aims in this study. Specifically, we excluded men who reported never having sex (n = 136). Of these 136 men, only 1 reported perpetrating IPV in his lifetime. Because these men were mostly single, unmarried young men who may not have been involved in romantic relationships in which IPV could occur, they were excluded from the analytic sample. We additionally omitted 10 individuals who were missing data on their gender role attitudes (n = 1), education (n = 3), SES (n = 1), marital history (n = 3), childhood violence victimization (n = 1), and alcohol use (n = 1), yielding a final sample of n = 1,103.

Measures

IPV perpetration: To measure past-year physical IPV perpetration, we used an adapted version of the WHO Violence Against Women instrument. This instrument was developed for
international use (Garcia-Moreno et al., 2006) and has been used previously to measure men’s perpetration of IPV in Tanzania (Maman et al., 2010) and other African populations (Groves, Kagee, Maman, Moodley, & Rouse, 2012; Jewkes et al., 2010). The IPV perpetration questions were asked after IPV victimization questions and were introduced with the following script:

“Now I would like you to think about whether or not you have done any of the following to your current partner, or any other partner. If you say you have done one of the following things, I will then ask you to think about how many times you did these things within the last 12 months and before the last 12 months. Remember, by partner, I mean someone you feel close to or intimate with. Partner can mean a sexual partner, but does not have to be.”

Participants were asked about six behaviorally specific items describing physical violence perpetration listed in Table 3.1. As described in the introduction script, men were asked whether they had ever (i.e. within their lifetimes) done any of these acts to a current partner or any other partner. For those who said yes to ever having perpetrated a specific act of violence, they were asked to report how many times they had perpetrated that act in the last 12 months. Response options included never, once, 2-3 times, 4-10 times, and more than 10 times. “Never” was included as a response option to the questions assessing the frequency of IPV perpetration in the last 12 months because the previous question assessed lifetime perpetration and the participants were also asked about the frequency of their perpetration prior to the last 12 months. Thus, it was possible for a man to report having ever perpetrated an act of violence, but having only done so prior to the last year. Because of the skewedness of the data toward no violence, a dichotomous variable was created such that a 1 indicated any perpetration and a 0 indicated no physical IPV perpetration within the last 12 months.
## Table 3.1 WHO Violence Against Women Questions Used to Measure Men's Perpetration of Physical IPV Perpetration

<table>
<thead>
<tr>
<th>No.</th>
<th>Questions and Filters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have you ever slapped or thrown something at your current or any other partner that could hurt her/him?</td>
</tr>
<tr>
<td>1a</td>
<td>In the last 12 months how many times have you slapped or thrown something at your current or any other partner that could hurt her/him?</td>
</tr>
<tr>
<td>2</td>
<td>Have you ever pushed or shoved your current or any other partner?</td>
</tr>
<tr>
<td>2a</td>
<td>In the last 12 months how many times have you pushed or shoved your current or any other partner?</td>
</tr>
<tr>
<td>3</td>
<td>Have you ever hit your current or any other partner with your fist or something else that could hurt her/him?</td>
</tr>
<tr>
<td>3a</td>
<td>In the last 12 months how many times have you hit your current or any other partner with your fist or something else that could hurt her/him?</td>
</tr>
<tr>
<td>4</td>
<td>Have you ever kicked, dragged or beaten up your current or any other partner?</td>
</tr>
<tr>
<td>4a</td>
<td>In the last 12 months how many times have you kicked, dragged or beaten up your current or any other partner?</td>
</tr>
<tr>
<td>5</td>
<td>Have you ever choked or burnt your current or any other partner on purpose?</td>
</tr>
<tr>
<td>5a</td>
<td>In the last 12 months how many times have you choked or burnt your current or any other partner on purpose?</td>
</tr>
<tr>
<td>6</td>
<td>Have you ever threatened to use or actually used a gun, knife or other weapon that could hurt your current or any other partner?</td>
</tr>
<tr>
<td>6a</td>
<td>In the last 12 months how many times have you threatened to use or actually used a gun, knife or other weapon that could hurt your current or any other partner?</td>
</tr>
</tbody>
</table>

**Peer network gender norms:** To measure peer network gender norms, we averaged responses from each male camp member to a 15-item adapted version of the inequitable subscale of the Gender Equitable Men (GEM) scale (Pulerwitz & Barker, 2008). The set of questions were introduced with the prompt:

> “Now I’d like to ask you a few questions about what behaviors you think are acceptable in intimate relationships. For each statement, please tell me whether you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the statement. When answering these questions, keep in mind that I’m asking you to say whether you agree with the statement based on what is true for you, not what other people think is true or what your camp thinks is true.”
Men were asked whether they strongly agreed (4), somewhat agreed (3), somewhat disagreed (2), or strongly disagreed (1) with statements included in Table 3.2. A similar version of the inequitable GEM subscale was validated in Tanzania and determined to have a single factor structure (Shattuck et al., 2013). We averaged the responses across these 15 items to create a composite scale for each individual (Cronbach’s $\alpha = .90$). Next, we took the mean of the composite scores for all men within the same peer network to create a peer network-level score representing peer network gender norm of each camp. Although we excluded men who were not sexually active in the final analytic sample, we included these men in the creation of the peer network variables (i.e. peer network gender norms and peer network social cohesion) as these men contributed to the normative environment of their networks.

Table 3.2 Gender Equitable Men (GEM) Scale Items Included in Survey

<table>
<thead>
<tr>
<th>No.</th>
<th>Questions and Filters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It is the man who decides what type of sex to have</td>
</tr>
<tr>
<td>2</td>
<td>A woman’s most important role is to take care of her home and cook for her family</td>
</tr>
<tr>
<td>3</td>
<td>Men need sex more than women do</td>
</tr>
<tr>
<td>4</td>
<td>You don’t talk about sex, you just do it</td>
</tr>
<tr>
<td>5</td>
<td>Women who carry condoms on them are ‘cheap’</td>
</tr>
<tr>
<td>6</td>
<td>A man must have sex with other women, even if things with his wife are fine</td>
</tr>
<tr>
<td>7</td>
<td>There are times when a woman deserves to be beaten</td>
</tr>
<tr>
<td>8</td>
<td>It is a woman’s responsibility to avoid getting pregnant</td>
</tr>
<tr>
<td>9</td>
<td>A man should have the final word about decisions in his home</td>
</tr>
<tr>
<td>10</td>
<td>Men are always ready to have sex</td>
</tr>
<tr>
<td>11</td>
<td>A woman should tolerate violence in order to keep her family together</td>
</tr>
<tr>
<td>12</td>
<td>If a woman cheats on a man, it is okay for him to hit her</td>
</tr>
<tr>
<td>13</td>
<td>If someone insults a man, he should defend his reputation with force if he has to</td>
</tr>
<tr>
<td>14</td>
<td>A man should be outraged if his wife asks him to use a condom</td>
</tr>
<tr>
<td>15</td>
<td>It is okay for a man to hit his wife if she won’t have sex with him</td>
</tr>
</tbody>
</table>

Peer network social cohesion: To assess social cohesion of each peer network, we averaged responses from each male camp member to a 5-item adapted version of a social cohesion scale. The items were adapted to the camp context from an existing measure of
neighborhood social cohesion (Sampson et al., 1997). The individual scores were then averaged for each camp network. The set of questions were introduced with the prompt:

“Now I’d like to ask you a few questions about how you and your fellow camp members get along in this camp. For each statement, please tell me whether you strongly agree, agree, disagree, or strongly disagree with the statement. When answering these questions, keep in mind that I’m asking you to say whether you agree with the statement based on what is true for you, not what other people think is true or what your camp thinks is true.”

Similar to the peer network gender norms measure, each participant was asked whether he strongly agreed (4), somewhat agreed (3), somewhat disagreed (2), or strongly disagreed (1) with the statements included in Table 3.3 (Cronbach’s $\alpha = .85$). Comparable scales have been used in studies examining the effect of neighborhood collective efficacy and cohesion on adolescent sexual behavior in the US (Kim, 2010).

### Table 3.3 Social Cohesion Scale Items Included on Survey

<table>
<thead>
<tr>
<th>No.</th>
<th>Questions and Filters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>People in my camp are willing to help each other</td>
</tr>
<tr>
<td>2</td>
<td>We are very close to each other in this camp</td>
</tr>
<tr>
<td>3</td>
<td>I can trust my fellow camp members</td>
</tr>
<tr>
<td>4</td>
<td>The members of my camp get along with each other</td>
</tr>
<tr>
<td>5</td>
<td>The members of my camp share the same values</td>
</tr>
</tbody>
</table>

**Analytic Approach**

We began our analysis by exploring our data using descriptive statistics to assess the demographic composition of our sample. Then, given the nested/hierarchical nature of the data, we used two-level models to model IPV perpetration. The nesting of the data arose from the fact that men in our dataset were nested within peer networks. The multilevel modeling approach accounted for within-network as well as between-network differences in IPV perpetration.
We used multilevel logistical regression (or hierarchical generalized linear models) to model physical IPV perpetration reported by men. In logistic regression, the probability of the outcome \( p \) is transformed to the logit, or log-odds, metric where \( \text{logit}(p) = \log \left( \frac{p}{1-p} \right) \). This logit transformation is executed so that the expected response values can be expressed as a linear function of the explanatory variables in the logit scale. The models were fit using PROC GLIMMIX in SAS version 9.4. (SAS Institute Inc, 2011). Statistical significance was determined using the Wald test and all significance tests were two-tailed with alpha set at .05.

Following standard recommendations, all individual-level variables were group-mean centered (i.e. we subtracted the peer network mean from each individual’s score on a variable) and peer network-level variables were grand-mean centered (i.e. we subtracted the grand mean of the entire sample from each of the peer-network scores on a variables) to facilitate interpretation and to allow for the decomposition of between and within-peer network effects (Raudenbush & Bryk, 2002). This centering procedure facilitated interpretation because the models produced the predicted probability of IPV perpetration when the individual-level predictors were at the group mean (Bauer & Curran, 2013). Thus, the group intercept in these models served as the unadjusted mean for that group. Centering in this way facilitates interpretation because group-mean individual-level variables have no between-group variation. Thus, the coefficients obtained represent within-group effects only (Bauer & Curran, 2013).

To test the study hypotheses, we estimated a series of multilevel random effects model with a Bernoulli distribution with expected value, or probability \( \mu_{ij} \). First, we ran a null model with no predictors (Model 1). In this model, the outcome \( IPV_{Perp_{ij}} \) represented the expected probability of perpetrating IPV for an individual \( i \) belonging to camp \( j \). Since we were modeling a binary outcome, the expected values implied by the model were constrained to the \([0,1]\)
interval through the logit transformation described above. This value was modeled as being equal to the probability of IPV perpetration within the camp. At level 2, we treated the intercept parameter of level 1 ($\beta_{0j}$) as the outcome variable. At this level, $\beta_{0j}$ was modeled as being equal to the grand mean of the probability of IPV perpetration across all camp-based peer networks plus the residual for camp $j$. We assumed that the residual was normally distributed. We used the covariance parameter estimate ($\tau^{00}$) from this model to compute an approximation of the intraclass correlation (ICC). The ICC is the proportion of total variance in an outcome ($\sigma^2 + \tau^{00}$) that can be attributed to the variance between camp networks ($\tau^{00}$). We used the variance of the logistic distribution ($\sigma^2 = \pi^2 / 3$) as an approximation for $\sigma^2$ (Ridout, Demétrio, & Firth, 1999).

Model 2 introduced individual-level attitudes towards gender roles as well as demographic characteristics and controls known to be associated with IPV perpetration. We first entered the individual-level attitudes towards gender roles because we were interested in quantifying the association between peer network gender norms and men’s perpetration of IPV above and beyond the association between individual-level attitudes towards gender roles. Model 2 introduced the following variables: ($AG_{E\_GRPMC}$ = age, $EDU_{\_GRPMC}$ = education, $SES_{\_GRPMC}$ = SES, $MARRIED_{\_GRPMC}$ = marital history, $SXP12_{\_GRPMC}$ = number of sexual partners within past year, $CHILDV101_{\_GRPMC}$ = childhood sexual victimization, $CHILDV102_{\_GRPMC}$ = childhood physical victimization, $ALC_{EVR\_GRPMC}$ = ever alcohol use, $ELIG5_D\_Y_{\_GRPMC}$ = duration of camp membership in years, and $GEM_{\_GRPMC}$ = individual attitudes towards gender roles). Note that the _GRPMC ending indicates the variable had been group-mean centered.
Model 3 was extended to include variables at the peer network-level, including 
(CAMP\_GEM\_MCENT = peer network gender norms, NODES\_MCENT = camp size, and 
CAMP\_YEARSOP\_MCENT = years of operation). Note that the _MCENT ending indicates the 
variable had been grand-mean centered.

Model 4 additionally included the main effect of peer network social cohesion 
(CAMP\_SOCOH\_MCENT) as well as the interaction between peer network gender norms and 
peer network social cohesion (CAMP\_GEM\_MCENT * CAMP\_SOCOH\_MCENT). The final 
model tested in Model was specified as follows:

**Response Distribution:** \( IPVP\_ij \mid \mu_{ij} \sim BER(\mu_{ij}) \)

**Level 1:** 
\[ \eta_{ij} = \beta_{0j} + \beta_{1j}(AGE\_GRPMC) + \beta_{2j}(EDU\_GRPMC) + \beta_{3j}(SES\_GRPMC) + \beta_{4j}(MARRIED\_GRPMC) + \beta_{5j}(SXP12\_GRPMC) + \beta_{6j}(CHILDV101\_GRPMC) + \beta_{7j}(CHILDV102\_GRPMC) + \beta_{8j}(ELIGS\_D\_Y\_GRPMC) + \beta_{9j}(GEM\_GRPMC) \]

**Level 2:** 
\[ \begin{align*} 
\beta_{0j} &= \gamma_{00} + \gamma_{01}(CAMP\_GEM\_MCENT) + \gamma_{02}(CAMP\_SOCOH\_MCENT) + \gamma_{03}(CAMP\_GEM\_MCENT * CAMP\_SOCOH\_MCENT) + u_{0j} \\
\beta_{1j} &= \gamma_{10} \\
\beta_{2j} &= \gamma_{20} \\
\beta_{3j} &= \gamma_{30} \\
\beta_{4j} &= \gamma_{40} \\
\beta_{5j} &= \gamma_{50} \\
\beta_{6j} &= \gamma_{60} \\
\beta_{7j} &= \gamma_{70} \\
\beta_{8j} &= \gamma_{80} \\
\beta_{9j} &= \gamma_{90} 
\end{align*} \]

\[ u_{0j} \sim N(0, \tau^{00}) \]

**Link Function:** 
\[ \eta_{ij} = \text{logit}(u_{ij}) = \ln \left( \frac{u_{ij}}{1 - u_{ij}} \right). \]
To explore the interaction in Model 4, we then conducted post-hoc analyses and graphing to explore the interaction using PROC PLM in SAS (Tao, Kiernan, & Gibbs, 2015). We obtained estimates of the ORs of the relationship between inequitable peer network gender norms and perpetration of IPV at high (+1 std. deviation above the mean), medium, and low (-1 std. deviation below the mean) levels of social cohesion (Hayes, 2013). We also plotted the predicted probabilities of IPV for increasing levels of inequitable peer network norms at the differing levels of peer network social cohesion.

3.5 Transition from Quantitative to Qualitative Study

Since this dissertation utilized a mixed methods sequential explanatory study design, findings from the quantitative study were used to inform purposive sampling strategy and the interview guides of the subsequent qualitative study (Creswell & Plana Clark, 2011). In order to gain a deeper understanding of the ways in which male perpetrators communicate with their peers about relationship conflicts, we decided to purposively sample men who reported perpetrating IPV on the quantitative survey. This also allowed us to gain a deeper understanding into the context in which violence occurred. We also used the quantitative findings to guide the development of our interview guide. For example, the findings from the quantitative data suggested that it was possible that peer networks influenced men to adopt certain norms and behaviors. However, due to the cross-sectional nature of the quantitative data, it was not possible to rule out that the associations observed were the result of selection effects as opposed to social influence (i.e. men seeking out peers with similar gender role attitudes and IPV perpetration behaviors; also called homophily) (McPherson, Smith-Lovin, & Cook, 2001). Thus, the qualitative phase was designed to examine the extent to which selection and/or influence processes contributed to the quantitative findings. Additionally, based on the quantitative results,
it was not possible to examine how peer networks were causally linked to increased risk of IPV perpetration among men. Thus, the qualitative phase was designed to identify the mechanisms through which peer networks influence men’s perpetration.

### 3.6 Qualitative Methods for Aim 3

**Sampling and Recruitment**

I hired and trained two male university-educated Tanzanian interviewers who were fluent in English and Swahili and had extensive prior qualitative experience. Both interviewers received additional training on interviewing techniques and research ethics as a part of this study. We conducted two waves of in-depth interviews (n = 40) with 20 men between March and June 2015. The interviewers recruited men who were included in the quantitative phase based on a purposive sample strategy that dictated we enroll only men within camps randomized to the control condition who had reported perpetrating IPV on the baseline behavioral survey. Participants were asked if they would be willing to participate in a qualitative study and whether they would agree to be interviewed twice over 6 month period. The interviewers read the consent form aloud to the participant and subsequently asked the participant to summarize the study and explain the reasons why they wanted to participate. This allowed the interviewers to address any misunderstandings regarding procedures, risk or benefits.

**Data Collection Procedures**

Interviews were conducted in Swahili by two male university-educated Tanzanian interviewers who were fluent in English and Swahili. A semi-structured interview guide was used to guide both waves of interviews, though the second interview was also purposefully designed to allow the interviewers to follow-up on unanswered questions generated in the Wave 1 interview. The Wave 1 interview guide (see APPENDIX G) included questions about the
participant’s membership in his camp, his reasons for joining, and his knowledge about camp members as well as the camp’s reputation prior to joining. The guide also contained questions about the participant’s relationship with fellow camp members, conversations with peers about women and intimate partner violence that occurred within the camp. Participants were also asked to reflect on changes they may have observed with regards to the attitudes and behaviors of their peers after those individuals joined the camp network. Finally, the guide included personal questions about the participant’s primary sexual partner, experiences with conflict with this partner, and conversations that occurred about those experiences with fellow camp members.

The Wave 2 guide (see APPENDIX H) included questions about the role of camp leaders and influential network members in shaping men’s behaviors with their romantic partners, including the perpetration of IPV. Moreover, the Wave 2 interviews served as an opportunity to follow-up on unanswered questions and themes identified in the first wave. The first wave of interviews lasted an average of 45 minutes (range 35 – 79 minutes) and the second follow-up interviews lasted an average of 23 minutes (range 20 – 30 minutes). Interviews were digitally recorded with the permission of the participants.

Interviewers were responsible for the verbatim transcription of the audio recordings. F4 transcription software was used to transcribe the data (Dresing, Pehl, & Schmieder, 2015). Benefits of this software include being able to press the f4 or f5 key to start or pause the audio file, automatically alternate speaker names when transcribing, and automatically insert time stamps following each speaker’s contribution. To ensure consistency, the interviewers followed a transcription protocol that we reviewed during the training (McLellan, MacQueen, & Neidig, 2003). If there were no suitable translations for a word/phrase, the original dialect was retained. The interviewers also wrote field notes identifying main points for each interview.
Data Analysis

Qualitative data collection, translation, and preliminary analysis occurred simultaneously so that interview guides could be adapted to further explore themes emerging from the initial interviews. A female Tanzanian translator with a Masters degree translated the Swahili transcripts into English. Translation was viewed as an important interpretive step and we followed recommendations that the translation process be “made visible” through open dialogue (Wong & Poon, 2010). To allow our team to stay close to the data, English translations were integrated into the original Swahili transcript with the translated text inserted directly below each contribution of dialogue. This allowed our team to simultaneously review both the English and Swahili data and to flag any discrepancies for group discussion. I read these transcripts as soon as they were available to provide feedback to both the interviewers and translator. At this time, I also began noting emergent themes. Based on these transcripts, I wrote narrative summaries for each participant in order to summarize the stories told by each man. The narrative summaries for the Wave 1 interviews also served to remind the interviewers about the content of the first interview before the follow-up interviews took place. When applicable, specific follow-up questions were noted on the Wave 1 summaries. Throughout this preliminary analysis process, I regularly met with the interviewers and translator to discuss emerging findings and to compare English and Swahili transcripts or audio files.

After the data collection, translation, and narrative summaries were completed, I implemented a macro in a text-editing program, Emacs, that used the alternating pattern of the Swahili/English transcript to systemically detect, check\(^3\), and then delete the Swahili text from the transcripts. The English-only transcripts were then imported to Atlas.ti, a qualitative software

\(^3\) Checks were performed to ensure that any part of the transcript that did not conform to the pattern due to input reasons was not erroneously deleted. All conflicts were deleted manually.
program, for coding (ATLAS.ti Scientific Software Development GmbH). I developed a codebook, including codes that were based on the topics covered in the interview guide and emergent codes noted during the development of the narrative summaries. The code book also included code definitions and examples of text (Gibbs, 2007). I then applied these codes to the transcripts using Atlas.ti. I reviewed the coded data and generated code reports with all quotes for each code to identify key themes and potential sub-themes. I also developed matrices to ease the comparison within key themes across participants (Miles, 1994). I used the code reports and the matrices to examine ways in which the themes contributed to answering my research questions. I incorporated memo-writing throughout the analysis to keep a record of my analysis and to document new ideas (Saldaña, 2009). These memos allowed me to record my thoughts about emerging themes and theoretical insights. Finally, I selected representative quotes to illustrate the key findings.

3.7 Ethical Approval for Research

The parent trial of this dissertation is a collaborative effort between the University of North Carolina at Chapel Hill (UNC) and the Muhimbili University of Health and Allied Sciences (MUHAS) in Dar es Salaam. All study procedures and instruments, including those developed specifically for this dissertation, were approved by the UNC Institutional Review Board (IRB) as well as the MUHAS Senate Research and Publications Committee.

A community advisory board (CAB) was established for the parent trial to liaise between research staff and the communities within which the study operates. The CAB includes leaders of camps in the study, parents of participants, and local government authorities. CAB meetings are held at least once every 6 months to provide an update on the study and promote participant retention, and additional meetings are arranged if major study-related issues that need input from
the CAB occur. Written informed consent was obtained from all participants prior to their participation in the qualitative sub-study. Participants were compensated with 10,000 Tanzanian Shillings (approximately 6 USD) at the end of each interview.

To protect against emotional distress resulting from the interview topics and process, each interview began with an explanation that participants were free to refuse to answer any question and that they could terminate the interview at any time. Interviewers were also trained to identify and respond to signs of discomfort and distress. Specifically, interviewers were trained in how to assess, when to give, and how to give the participants who experienced emotional distress information on referral services. The site co-Investigator of the parent study was available to speak with participants, though this was not ultimately needed.
CHAPTER 4: ASSOCIATIONS BETWEEN PEER NETWORK GENDER NORMS AND THE PERPETRATION OF INTIMATE PARTNER VIOLENCE AMONG URBAN TANZANIAN MEN: A MULTILEVEL ANALYSIS

4.1 Introduction

Men’s perpetration of intimate partner violence (IPV), which includes behaviors that cause or have potential to cause physical, sexual, or psychological harm perpetrated against a current or former partner or spouse, is a prevalent global problem (Garcia-Moreno et al., 2006; World Health Organization, 2013a). Across a sample of eight low- and middle-income countries assessed as part of the International Men and Gender Equality Survey (IMAGES), 31% of men reported having perpetrated physical violence against a partner in their lifetime (Fleming, McCleary-Sills, et al., 2015). IPV victimization can have severe negative consequences for women including: depression, post-traumatic stress disorder, harmful alcohol use, suicide, non-fatal injuries, and death (Beydoun et al., 2012; Devries et al., 2014; Devries, Mak, Bacchus, et al., 2013; Maxwell et al., 2015). Among men, the perpetration of IPV has been associated with hazardous drinking, illicit drug use, and mental health outcomes (Nahapetyan et al., 2014; Okuda et al., 2015; Reid et al., 2008; Rhodes et al., 2009). Additionally, evidence in sub-Saharan Africa suggests that men who perpetrate IPV also engage in higher levels of sexual risk behaviors (Dunkle et al., 2006; Maman et al., 2010; Townsend et al., 2011) and are more likely to have STI/HIV diagnosis (Jewkes et al., 2011b) compared to men who do not perpetrate violence. For these reasons, prevention of IPV perpetration has been declared a public health and human rights imperative by the World Health Organization and other international organizations (Care International, 2014; United Nations, 2013; World Health Organization, 2010).
Effectively intervening with men to reduce intimate partner violence requires an in-depth understanding of the determinants of men’s IPV perpetration (García-Moreno et al., 2015; L. L. Heise, 1998; Jewkes, 2014). Several theoretical perspectives, including social learning theory (Bandura, 1977) and social influence theory (Kelman, 1958), suggest that peer networks play an important role in shaping behaviors like men’s perpetration of IPV. Social learning theory, for example, suggests that individuals who socialize with peers who have norms accepting of IPV, may through a process of observational learning as well as through the reinforcement of peers, begin to internalize attitudes that are more accepting of IPV and subsequently be more likely to engage in IPV than individuals who do not socialize with peers with norms endorsing IPV (Arriaga & Foshee, 2004; Bandura et al., 1961). In addition to this internalization process, social influence theory posits that individuals may feel pressured to conform with peer norms even if they do not privately internalize similar attitudes (Kelman, 1958). Taken together, peer network norms are thought to exert an influence on men’s perpetration of IPV by shaping men’s attitudes and also by exerting an additional pressure above and beyond the effect of men’s own attitudes on their perpetration of IPV.

Moreover, the theory of gender and power suggests that peer network gender norms – defined as collective norms about appropriate roles and behaviors for men and women (Lapinski & Rimal, 2005; McHugh & Frieze, 1997) - may be a particularly important type of peer norms when it comes to understanding the etiology of men’s IPV perpetration (Connell, 1987). Gender norms range from embracing inequitable gender roles based on traditional notions of masculinity and femininity (where men are expected to be breadwinners and women are expected to be housewives and caregivers) to those supporting more equitable, or egalitarian, gender roles (where men and women share responsibilities and decision-making within the household) (King
The theory of gender and power posits that traditional gender norms emphasize the superiority of men over women and shape men’s and women’s behavior within societies by setting the stage for men to maintain power and dominance over women (Connell, 1987). Consistent with the theory of gender and power, empirical research on individual-level risk factors has found that men with more traditional, or inequitable, gender role attitudes are more likely to perpetrate violence against their partners. For example, endorsing more inequitable gender role attitudes was associated with increased odds of perpetrating physical IPV in the multi-country analysis of the IMAGES study (Fleming, McCleary-Sills, et al., 2015). Similarly, another study, conducted with men in Botswana and Swaziland using a population-based sample, found that men who had more inequitable attitudes towards gender roles were more than twice as likely to have ever perpetrated rape (Shannon et al., 2012). This relationship is thought to exist because traditional gender roles stress the importance of male dominance and control within intimate relationships and perpetrating violence against their intimate partners is one way for men to assert their dominant position within their relationships (Dobash & Dobash, 1979).

Despite the theoretical rationale for why peer network gender norms, above and beyond the effect of individual-level attitudes towards gender roles, may exert a strong influence on men’s IPV perpetration (Bandura, 1977; Kelman, 1958), the association between peer network gender norms and men’s perpetration of IPV has not been examined.

To further enhance our understanding of the determinants of men’s IPV perpetration, it is also important to examine theoretically derived moderators of the association between peer network gender norms and men’s perpetration of IPV. For example, social influence theory suggests that the social cohesion of peer networks may work synergistically with network norms to influence behaviors like IPV perpetration. Social cohesion can be broadly defined as the
degree of closeness, trust, and willingness to help members of the same group (Sampson et al., 1997). Peer network social cohesion may interact with peer network norms to shape behaviors because more cohesive networks allow for more rapid diffusion of information, like prevailing gender norms, between individuals (Valente & Fosados, 2006). Additionally, peer networks with higher levels of cohesion may be characterized by more frequent contact and discussions between peers about various behaviors and the consequences of those behaviors (Burt, 1987). Therefore social influence theory would suggest that men within highly cohesive networks may feel increased pressure to comply with network norms because of their heightened expectations of social rewards for complying with norms and intensified expectancies for consequences for transgressing against the network norms (Kelman, 2006). Social learning theory also posits that behaviors are more likely to be learned when they are modeled by close friends who are trusted (Bandura, 1977). This reasoning is also consistent with socialization models that specifically view the strength of bonds within peer groups as moderators of the influence of that group’s norms on an individual’s behavior (Oetting & Donnermeyer, 1998). Taken together, these theoretical perspectives suggest that increasing levels of peer network social cohesion may intensify the likelihood that individuals internalize and feel pressured to conform to peer network gender norms.

Given the important role that peer network gender norms may play in shaping IPV perpetration, it is critical that research move beyond the individual level to better understand whether norms at the peer network level have direct or moderated associations with increased IPV perpetration among men. Such research has the potential to contribute to a more comprehensive and detailed understanding of men’s IPV perpetration in this setting that could be used to inform prevention efforts.
Current Study

The purpose of the current study is to improve our understanding of the association between peer network gender norms and men’s IPV perpetration in sub-Saharan Africa. We use multilevel-modeling to analyze a unique dataset of men (n = 1,103) nested within 59 randomly selected peer networks locally referred to as “camps” in Dar es Salaam, Tanzania. These camp-based peer networks have a stable membership and form to socialize and support one another (Yamanis et al., 2010). The first aim of the study was to quantify the relationship between peer network gender norms and men’s perpetration of IPV. We were specifically interesting in examining this association above and beyond the association between individual-level attitudes towards gender roles. Next, we tested whether the relationship between peer network gender norms and perpetration of IPV was moderated by the social cohesion of the peer networks. Based on the theory of gender and power as well as social learning and social influence theories described above, we hypothesized that increasingly inequitable peer network gender norms would be associated with an increased risk of perpetrating IPV. We also hypothesized that peer network social cohesion would moderate this relationship such that the positive relationship between increasingly inequitable peer network gender norms and men’s perpetration of IPV would be stronger in increasingly socially cohesive peer networks. As such, peer network social cohesion was viewed as amplifying the relationship between peer network gender norms and men’s perpetration of IPV.

4.2 Methods

Setting

The setting for this study is Dar es Salaam, the business capital and largest city in Tanzania. The study took place within four wards of Kinondoni District, the most populated and
impoverished district within Dar es Salaam. HIV prevalence in Dar es Salaam is 6.9% which is higher than the national average of 5% (TACAIDS, 2013).

Data

Data are from the baseline assessment of an on-going cluster-randomized HIV and intimate partner violence prevention trial (Kajula et al., 2016). The clusters for this trial are comprised of social groups locally referred to as “camps.” Camps were described in prior research as stable social networks of mostly male members with an elected leadership structure (Yamanis et al., 2010). In this urban setting, many camp members are not formally employed, and join these camps to socialize, support one another, and engage in activities such as playing sports or occasionally participating in camp-led business enterprises. Some camps have physical structures in which group members gather, while others use public venues, such as the sides of buildings, to establish their camp.

Prior to the baseline assessment, we enumerated all operational camps within the study area (n = 294) by a conducting a PLACE (Priorities for Local AIDS Control Efforts) assessment (Weir et al., 2003). In order to be eligible for inclusion in our study, camps had to have more than 20 members, less than 80 members, have been in existence for at least 1 year, and could not have participated in pilot studies with our team. Camps in which research assistants felt unsafe or networks in which a weapon had been used in a fight were also excluded. Five camps refused to participate, leaving 172 eligible camps. From these 172 camps, we randomly selected 60 camps for inclusion in our trial.4 Next, we attempted to contact all study camp members at least three times to assess their individual eligibility for the study. In order to be eligible for participation in our trial, participants had to be older than 15 years, have been a camp member for more than 3

4 See APPENDIX B for consort diagram describing the enumeration and selection of camp-based peer networks.
months, visit the camp at least once a week, plan on residing in Dar es Salaam for the next 30 months, and be willing to provide contact information for a friend or family member to be used in the event we could not contact the participant for future follow-up assessment. Of the 1,581 potentially eligible men, we collected baseline data from 1,249 (79.0%) men who were confirmed as eligible between October 8, 2013 and March 23, 2014. Trained interviewers conducted the behavioral assessments using tablets programmed with a custom-designed CAPI (computer-assisted personal interviewing) instrument. Since men who reported never having sex reported extremely low rates of IPV perpetration,\(^5\) likely because these men were mostly single, unmarried young men who may not have been involved in romantic relationships in which IPV could occur, we restricted the analytic sample for this study to sexually active men (n = 1,113 within n = 59 camps). We additionally omitted 10 individuals who declined to answer key predictor variables, resulting in a final sample of n = 1,103.\(^6\)

**Measures**

*IPV perpetration:* Past-year physical IPV perpetration was assessed using an adapted version of the WHO Violence Against Women instrument, which was developed for international use (Garcia-Moreno et al., 2006). This tool has been used previously to measure young men’s perpetration of IPV in Tanzania (Maman et al., 2010) and has also been used with men and women in a number of other African populations (Groves et al., 2012; Jewkes et al., 2010). Physical violence items (n = 6) include instances of slapping, pushing, hitting, kicking, choking, and threatening with a weapon. Men were asked whether they had ever (i.e. within their lifetimes) done any of these 6 behaviorally specific violence acts to a current partner or any other partner. For those who said yes to ever having perpetrated a specific act of violence, they were

\(^5\) Of the 136 men in the sample who never had sex at baseline, only 1 reported perpetrating IPV in his lifetime.

\(^6\) See APPENDIX C for a diagram depicting the eligibility and selection of participants.
asked to report how many times they had perpetrated that act in the last 12 months. Response options included never, once, 2-3 times, 4-10 times, and more than 10 times. Because of the skewedness of the data toward no violence, a dichotomous variable was created such that a 1 indicated any perpetration and a 0 indicated no physical IPV perpetration within the last 12 months.

**Peer network gender norms:** To measure peer network gender norms, we averaged responses among all male camp members to a 15-item adapted version of the inequitable subscale of the Gender Equitable Men (GEM) scale (Pulerwitz & Barker, 2008). Men were asked whether they strongly agreed, somewhat agreed, somewhat disagreed, or strongly disagreed with statements such as “it is the man who decides what type of sex to have” or “a woman should tolerate violence in order to keep her family together.” A similar version of the inequitable GEM subscale was validated in Tanzania and determined to have a single factor structure (Shattuck et al., 2013). Men’s responses to these 15 items ranged from 1 to 4 where 1=strongly disagree, 2=somewhat disagree, 3=somewhat agree, and 4=strongly agree. We averaged the responses across the 15 items to create a composite scale for each individual (Cronbach’s $\alpha = .90$). Next, we took the mean of the composite scores for all men within the same peer network to create a peer network-level score representing the peer network gender norm of each camp (higher score = more inequitable norms).

**Peer network social cohesion:** To assess social cohesion of each network, each participant was asked how strongly he agreed or disagreed with five statements about how well

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7 Note that “never” was included as a response option to the questions assessing the frequency of IPV perpetration in the last 12 months because the previous question assessed lifetime perpetration. Thus, it was possible for a man to report having ever perpetrated an act of violence, but having only done so prior to the last year.

8 Although we excluded men who were not sexually active in the final analytic sample, we included these men in the creation of the peer network variables (i.e. peer network gender norms and peer network social cohesion) as these men contributed to the normative environment of their networks.
fellow camp members got along with each other. The statement included “people in my camp are willing to help each other” and “the members of my camp share the same values.” The items were adapted to the camp context from an existing measure of neighborhood social cohesion (Sampson et al., 1997) and have been used in studies examining the effect of neighborhood collective efficacy and cohesion on adolescent sexual behavior in the US (Kim, 2010). Similar to the network-level gender norms measure, responses to these items ranged from 1=strongly disagree to 4=strongly agree and were averaged for each participant (Cronbach’s $\alpha = .85$). The individual scores were then averaged for each camp network (higher scores = more cohesive).

*Covariates.* We controlled for a number of individual and peer network characteristics that have been associated with men’s IPV perpetration. Participant’s age was assessed in years. Each participant was also asked to report the highest level of education obtained and responses were categorized as primary school or less, some secondary school, or secondary school completed or greater. We assessed *SES* using principal components analysis (PCA) (Vyas & Kumaranayake, 2006) to compute a composite score combining participant responses to a wealth index assessing ownership of 10 different household assets (Filmer & Pritchett, 2001). We created a composite score by weighting each asset by its factor loading on the first component in the PCA and then placed individuals on a continuous scale of relative wealth. We then categorized the factor score for each participant into terciles based on the entire sample of men and women in our baseline dataset (the lowest 33% of participants were classified as low SES, the highest 33% were classified as high SES and the remainder were classified as medium SES). A similar approach has been used to measure SES in Tanzanian in previous studies (Khan, Hotchkiss, Berruti, & Hutchinson, 2006). We also assessed the number of sexual partners each participant reported having within the last 12 months. To assess childhood victimization from
physical violence, participants were asked if they experienced any physical violence while growing up (before the age of 12 years). Physical violence was defined as being hit, hit with an object, punched, kicked, or beaten up in a way that resulted in injury, severe pain or other serious harm. To assess victimization from childhood sexual violence, participants were also asked if they experienced any inappropriate touching or unwanted sexual intercourse while growing up (before the age of 12 years). Childhood sexual violence has been measured this way in other studies of IPV in South Africa (Groves et al., 2012). We also assessed each individual’s duration of camp membership. Finally, to measure each individual’s attitudes towards gender roles, we used the scores to the 15-item adapted version of the inequitable subscale of the Gender Equitable Men (GEM) Scale (Pulerwitz & Barker, 2008). At the camp network level, we controlled for the camp size as well as the camp’s duration of existence (in years).

**Statistical Analysis**

We used multilevel logistical regression (or hierarchical generalized linear models) to model physical IPV perpetration reported by men because of the nested structure of our data, where men were nested within camp networks. The models were fit using PROC GLIMMIX in SAS version 9.4. (SAS Institute Inc, 2011). Statistical significance was determined using the Wald test and all significance tests were two-tailed with alpha set at .05. Following standard recommendations, all individual-level variables were group-mean centered (i.e. we subtracted the peer network mean from each individual’s score on a variable) and peer network-level variables were grand-mean centered (i.e. we subtracted the grand mean of the sample from each of the peer-network scores on a variable) to facilitate interpretation and to allow for the decomposition of between and within-peer network effects (Raudenbush & Bryk, 2002).
To test the study hypotheses, we estimated a series of multilevel random effects models. First, we ran a null model with no predictors (Model 1). We used the covariance parameter estimate ($\tau^{00}$) from this model to compute an approximation of the intraclass correlation (ICC). The ICC is the proportion of total variance in an outcome ($\sigma^2 + \tau^{00}$) that can be attributed to the variance between camp networks ($\tau^{00}$). We used the variance of the logistic distribution ($\sigma^2 = \pi^2/3$) as an approximation for $\sigma^2$ (Ridout et al., 1999). Because we were interested in quantifying the association between peer network gender norms and men’s perpetration of IPV above and beyond the effects of individual-level attitudes towards gender roles, we first modeled the individual-level attitudes towards gender roles as well as other individual-level demographic characteristics and variables known to be associated with IPV perpetration (Model 2). The third model was then extended to include peer network gender norms as well as the peer network controls (camp size and years of operation). The fourth and final model included the interaction between peer network gender norms and peer network social cohesion.

To explore the interaction in Model 4, we then conducted post-hoc analyses and graphing to examine the interaction. We obtained estimates of the ORs of the relationship between inequitable peer network gender norms and perpetration of IPV within networks with high (+1 std. deviation above the mean), medium (mean), and low (-1 std. deviation below the mean) levels of social cohesion (Hayes, 2013). We also plotted the predicted probabilities of IPV for increasing levels of inequitable network norms at the differing levels of social cohesion.

4.3 Results

Descriptive Statistics

The characteristics of the camp-based peer networks are presented in Table 4.1. On average, the peer networks had 21.2 male respondents (range 7 - 40). On average, the camps had
been operating for 3.7 years (range 1.6 – 4.9). The average peer network gender norms score was 2.0 (range 1.4 – 2.5). Finally, the average peer network social cohesion score was 3.4 (range 2.8 – 3.9).

**Table 4.1 Characteristics of Camp-Based Peer Networks (n = 59)**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of male respondents</td>
<td>21.2</td>
<td>8.9</td>
<td>7 – 40</td>
</tr>
<tr>
<td>Years of operation</td>
<td>3.7</td>
<td>1.0</td>
<td>1.6 – 4.9</td>
</tr>
<tr>
<td>Peer network gender norms</td>
<td>2.0</td>
<td>0.3</td>
<td>1.4 – 2.5</td>
</tr>
<tr>
<td>Peer network social cohesion</td>
<td>3.4</td>
<td>0.2</td>
<td>2.8 – 3.9</td>
</tr>
</tbody>
</table>

The demographic characteristics of the men in our sample are presented in Table 4.2. The average age of the sample was 26.8 years for men (range 15-59). Approximately 60% of the participants had a primary school education or less, about 10% finished some secondary school, and only 30% completed secondary school or more. Just over one-quarter of the men were considered to have low socioeconomic status, and nearly 40% were considered medium SES. The remaining 35% were considered high SES. Most participants (75%) reported having never been married, though the vast majority identified having one (67.5%) or more than one (19.3%) sexual partner within the last year. Childhood violence victimization was uncommon in this sample. Just over 5% of men reported having experienced physical violence before the age of 12 years and approximately 7% reported having been a victim of sexual violence before this age. Having ever consumed any alcohol was fairly uncommon in this sample as well; the majority of men (54.9%) reported not having ever consumed alcohol. Less than 10% of men reported being members of their camps for less than 2 years and it was far more common for men to report membership durations of 2-3 years (23.2%), 4-5 years (23.5%), or more than six years (34.6%).
### Table 4.2 Sample Characteristics (n = 1,103)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Men % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age in years</strong></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td>13.2 (146)</td>
</tr>
<tr>
<td>20-24</td>
<td>30.1 (332)</td>
</tr>
<tr>
<td>25-29</td>
<td>29.1 (321)</td>
</tr>
<tr>
<td>30+</td>
<td>27.6 (304)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Primary school or less</td>
<td>58.8 (648)</td>
</tr>
<tr>
<td>Some secondary school</td>
<td>10.4 (115)</td>
</tr>
<tr>
<td>Secondary school completed or more</td>
<td>30.8 (340)</td>
</tr>
<tr>
<td><strong>SES</strong></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>26 (287)</td>
</tr>
<tr>
<td>Medium</td>
<td>39.3 (433)</td>
</tr>
<tr>
<td>High</td>
<td>34.7 (383)</td>
</tr>
<tr>
<td><strong>Marital History</strong></td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>75.1 (828)</td>
</tr>
<tr>
<td>Previously married</td>
<td>24.9 (275)</td>
</tr>
<tr>
<td><strong>Number of Sexual Partners in Last year</strong></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>13.2 (146)</td>
</tr>
<tr>
<td>1</td>
<td>67.5 (744)</td>
</tr>
<tr>
<td>2</td>
<td>10.6 (117)</td>
</tr>
<tr>
<td>3+</td>
<td>8.7 (96)</td>
</tr>
<tr>
<td><strong>Childhood Physical Violence</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>94.5 (1042)</td>
</tr>
<tr>
<td>Yes</td>
<td>5.5 (61)</td>
</tr>
<tr>
<td><strong>Childhood Sexual Violence</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>92.8 (1024)</td>
</tr>
<tr>
<td>Yes</td>
<td>7.2 (79)</td>
</tr>
<tr>
<td><strong>Alcohol Use Ever</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>54.9 (606)</td>
</tr>
<tr>
<td>Yes</td>
<td>45.1 (497)</td>
</tr>
<tr>
<td><strong>Years of Camp Membership</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;2</td>
<td>9.7 (107)</td>
</tr>
<tr>
<td>2-3</td>
<td>23.2 (256)</td>
</tr>
<tr>
<td>4-5</td>
<td>23.5 (259)</td>
</tr>
<tr>
<td>6+</td>
<td>43.6 (481)</td>
</tr>
<tr>
<td><strong>Frequency of IPV Perpetration</strong></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>86.8 (957)</td>
</tr>
<tr>
<td>1</td>
<td>4.3 (47)</td>
</tr>
<tr>
<td>2</td>
<td>4.7 (52)</td>
</tr>
<tr>
<td>3+</td>
<td>4.3 (47)</td>
</tr>
</tbody>
</table>
Within this sample, 13.2% reported perpetrating physical intimate partner violence against a partner at least one time within the last year (Table 4.2). Among the perpetrators, 32.2% reported only 1 instance, 34.9% reported 2 instances, and 32.9% reported 3 or more instances of physical IPV perpetration in the last year. The frequencies with which men reported perpetrating the specific acts of physical violence are presented in Table 4.3. The most commonly reported act of physical IPV, slapping or throwing something at the partner, was reported by 10.2% of the men. More men reported perpetrating this act 2-3 times in the last year than only once. Perpetrators reported engaging in the other acts of violence less frequently.

### Table 4.3 Frequency of Physical IPV Perpetration Among Men within Last Year (n = 1,103)

<table>
<thead>
<tr>
<th>Behavior</th>
<th>None</th>
<th>Once</th>
<th>2-3 Times</th>
<th>4-10 Times</th>
<th>&gt;10 Times</th>
<th>Overall Prop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slapped or thrown something</td>
<td>89.9 (991)</td>
<td>3.5 (39)</td>
<td>4.9 (54)</td>
<td>1.1 (12)</td>
<td>0.6 (7)</td>
<td>10.2 (112)</td>
</tr>
<tr>
<td>Pushed or shoved</td>
<td>96.6 (1065)</td>
<td>1.5 (17)</td>
<td>1 (11)</td>
<td>0.5 (5)</td>
<td>0.5 (5)</td>
<td>3.5 (38)</td>
</tr>
<tr>
<td>Hit with fist or something else</td>
<td>97.1 (1071)</td>
<td>1.5 (17)</td>
<td>0.8 (9)</td>
<td>0.4 (4)</td>
<td>0.2 (2)</td>
<td>2.9 (32)</td>
</tr>
<tr>
<td>Kicked dragged or beaten</td>
<td>97.8 (1079)</td>
<td>1.2 (13)</td>
<td>0.7 (8)</td>
<td>0.2 (2)</td>
<td>0.1 (1)</td>
<td>2.2 (24)</td>
</tr>
<tr>
<td>Choked or burnt</td>
<td>99.6 (1099)</td>
<td>0.3 (3)</td>
<td>0 (0)</td>
<td>0.1 (1)</td>
<td>0 (0)</td>
<td>0.4 (4)</td>
</tr>
<tr>
<td>Threatened or used a weapon</td>
<td>99.7 (1100)</td>
<td>0.2 (2)</td>
<td>0 (0)</td>
<td>0.1 (1)</td>
<td>0 (0)</td>
<td>0.3 (3)</td>
</tr>
</tbody>
</table>

### Results of the Hierarchical Logistic Regression

The results of the hierarchical logistic regression models are presented in Table 4.4. As shown in Model 1, there was significant variation in the log odds of perpetrating physical IPV across the camp networks. Specifically, using the variance of the logistic distribution, the ICC was .066. This suggests that nearly 7% of the variance in physical IPV perpetration in our sample was accounted for by differences between peer networks.

We introduced the individual-level demographic and control variables in Model 2. The odds ratios (ORs), and 95% confidence intervals around the odds ratios for these variables are
presented in Table 4.4. Increasing levels of age were associated with a decreased odds of perpetrating physical IPV ($OR = 0.95, p = .01$). Men who were married had twice the odds of perpetrating physical IPV compared to men who had never been married ($OR = 2.00, p = .01$). Increasing numbers of sexual partners within the last year were associated with 47% increased odds of perpetrating physical IPV ($OR = 1.47, p = .002$). Men who reported experiencing sexual violence before the age of 12 years had over three times the odds of perpetrating IPV against an intimate partner in the last 12 months ($OR = 3.23, p < .001$). Men who consumed alcohol within the last month had over twice the odds of perpetrating IPV against a partner ($OR = 2.16, p < .001$). Men who endorsed inequitable gender role attitudes had marginally higher odds of perpetrating physical IPV against a partner ($OR = 1.27, p = .06$). Education completed, SES, and experiencing physical violence as a child were not significantly associated with perpetration of physical IPV. Additionally, the individual’s duration of camp membership was also not significantly associated with the perpetration of violence.

In order to examine the association between peer network gender norms and IPV perpetration above and beyond the effects of individual-level attitudes towards gender roles, we subsequently introduced the main effects of peer network gender norms in Model 3. Consistent with study hypotheses, men within camp networks with increasing levels of inequitable peer network gender norms had an increased risk of perpetrating IPV. Specifically, a 1-unit increase in the level of inequitable peer network gender norms was associated with more than twice the odds of reporting physical IPV perpetration within the last year ($OR = 2.33, p = .04$), controlling for individual-level control variables including the man’s own attitudes towards gender roles. Camp network size and years of operation were not associated with increased odds of IPV perpetration.
Table 4.4 Results of Multilevel Logistic Regression of Physical IPV Perpetration (n = 1,103)

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
<th>Model 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff. (SE)</td>
<td>P</td>
<td>OR (95% CI) or Coeff. (SE)</td>
<td>P</td>
<td>OR (95% CI) or Coeff. (SE)</td>
<td>P</td>
<td>OR (95% CI) or Coeff. (SE)</td>
<td>P</td>
</tr>
<tr>
<td><strong>Fixed Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>-2.00 (0.12)</td>
<td>&lt;.001</td>
<td>-2.21 (0.14)</td>
<td>&lt;.001</td>
<td>-2.24 (0.14)</td>
<td>&lt;.001</td>
<td>-2.35 (0.15)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td><strong>Individual-Level Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.95 (0.91, 0.99)</td>
<td>0.01</td>
<td>0.95 (0.91, 0.99)</td>
<td>0.01</td>
<td>0.95 (0.91, 0.99)</td>
<td>0.01</td>
<td>0.95 (0.91, 0.99)</td>
<td>0.01</td>
</tr>
<tr>
<td>Education</td>
<td>0.93 (0.74, 1.18)</td>
<td>0.55</td>
<td>0.94 (0.74, 1.19)</td>
<td>0.6</td>
<td>0.94 (0.74, 1.18)</td>
<td>0.58</td>
<td>0.94 (0.74, 1.18)</td>
<td>0.58</td>
</tr>
<tr>
<td>SES</td>
<td>0.9 (0.66, 1.23)</td>
<td>0.51</td>
<td>0.9 (0.66, 1.23)</td>
<td>0.5</td>
<td>0.9 (0.66, 1.24)</td>
<td>0.52</td>
<td>0.9 (0.66, 1.24)</td>
<td>0.52</td>
</tr>
<tr>
<td>Marital Status</td>
<td>2.0 (1.17, 3.39)</td>
<td>0.01</td>
<td>2.01 (1.18, 3.41)</td>
<td>0.01</td>
<td>2.01 (1.18, 3.43)</td>
<td>0.01</td>
<td>2.01 (1.18, 3.43)</td>
<td>0.01</td>
</tr>
<tr>
<td># Sexual Partners in 12 mos.</td>
<td>1.47 (1.15, 1.87)</td>
<td>0.002</td>
<td>1.46 (1.15, 1.86)</td>
<td>0.002</td>
<td>1.45 (1.13, 1.84)</td>
<td>0.003</td>
<td>1.45 (1.13, 1.84)</td>
<td>0.003</td>
</tr>
<tr>
<td>Child Physical Violence</td>
<td>1.31 (0.64, 2.68)</td>
<td>0.46</td>
<td>1.35 (0.66, 2.75)</td>
<td>0.41</td>
<td>1.4 (0.68, 2.85)</td>
<td>0.36</td>
<td>1.4 (0.68, 2.85)</td>
<td>0.36</td>
</tr>
<tr>
<td>Child Sexual Violence</td>
<td>3.23 (1.77, 5.89)</td>
<td>&lt;.001</td>
<td>3.15 (1.73, 5.73)</td>
<td>&lt;.001</td>
<td>3.1 (1.71, 5.64)</td>
<td>&lt;.001</td>
<td>3.1 (1.71, 5.64)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Alcohol Use in Last Month</td>
<td>2.16 (1.44, 3.26)</td>
<td>&lt;.001</td>
<td>2.15 (1.43, 3.24)</td>
<td>&lt;.001</td>
<td>2.17 (1.44, 3.27)</td>
<td>&lt;.001</td>
<td>2.17 (1.44, 3.27)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Years of Camp</td>
<td>0.98 (0.94, 1.03)</td>
<td>0.49</td>
<td>0.98 (0.94, 1.03)</td>
<td>0.5</td>
<td>0.98 (0.94, 1.03)</td>
<td>0.5</td>
<td>0.98 (0.94, 1.03)</td>
<td>0.5</td>
</tr>
<tr>
<td>Attitudes Towards Gender Roles</td>
<td>1.27 (0.99, 1.62)</td>
<td>0.06</td>
<td>1.27 (0.99, 1.62)</td>
<td>0.06</td>
<td>1.27 (0.99, 1.62)</td>
<td>0.06</td>
<td>1.27 (0.99, 1.62)</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Camp-Level Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Camp Size</td>
<td>1.01 (1.03)</td>
<td>0.09</td>
<td>1.02 (1.10)</td>
<td>0.03</td>
<td>1.02 (1.10)</td>
<td>0.03</td>
<td>1.02 (1.10)</td>
<td>0.03</td>
</tr>
<tr>
<td>Years of Operation</td>
<td>0.9 (0.72, 1.13)</td>
<td>0.38</td>
<td>0.83 (0.67, 1.04)</td>
<td>0.11</td>
<td>0.83 (0.67, 1.04)</td>
<td>0.11</td>
<td>0.83 (0.67, 1.04)</td>
<td>0.11</td>
</tr>
<tr>
<td>Peer Network Gender Norms</td>
<td>2.33 (1.03, 5.27)</td>
<td>0.04</td>
<td>1.25 (0.5, 3.13)</td>
<td>0.7</td>
<td>1.25 (0.5, 3.13)</td>
<td>0.7</td>
<td>1.25 (0.5, 3.13)</td>
<td>0.7</td>
</tr>
<tr>
<td>Social Cohesion</td>
<td>3.79 (1.07, 13.42)</td>
<td>0.04</td>
<td></td>
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<tr>
<td>Peer Network Gender Norms * Social Cohesion</td>
<td>49.39 (1.04, 2342.54)</td>
<td>0.047</td>
<td></td>
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<tr>
<td><strong>Random Effects</strong></td>
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<tr>
<td><strong>Variance Components</strong></td>
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</tr>
<tr>
<td>Intercept</td>
<td>0.233</td>
<td>0.04</td>
<td>0.263 (0.145)</td>
<td>0.03</td>
<td>0.181 (0.129)</td>
<td>0.08</td>
<td>0.113 (0.111)</td>
<td>0.15</td>
</tr>
<tr>
<td>ICC</td>
<td>0.066</td>
<td>0.074</td>
<td>0.052</td>
<td>.033</td>
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<tr>
<td><strong>Fit Statistics</strong></td>
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<td></td>
</tr>
<tr>
<td>AIC</td>
<td>859.49</td>
<td></td>
<td>817.85</td>
<td></td>
<td>816.76</td>
<td></td>
<td>814.4</td>
<td></td>
</tr>
<tr>
<td>BIC</td>
<td>863.65</td>
<td></td>
<td>842.78</td>
<td></td>
<td>847.93</td>
<td></td>
<td>849.72</td>
<td></td>
</tr>
<tr>
<td>-2 Log Likelihood</td>
<td>855.49</td>
<td></td>
<td>793.85</td>
<td></td>
<td>786.76</td>
<td></td>
<td>780.4</td>
<td></td>
</tr>
</tbody>
</table>
The final model, Model 4, introduced the interaction between network-level social cohesion and network-level gender norms. The results of this model indicate that network social cohesion significantly moderates the positive association between inequitable network-level gender norms and odds of perpetrating physical IPV \((OR = 49.39, p = .047)\). The significant associations between the individual-level variables and IPV perpetration previously described for Model 2 remained significant after the network-level variables and the interaction were incorporated into the model.

To explore the significant interaction between peer network social cohesion and peer network gender norms, we computed the odds of perpetrating physical IPV associated with increasing levels of inequitable peer network gender norms for networks characterized with low, medium, and high levels of social cohesion. These results are presented Table 4.5. Examination of these ORs reveal that the positive relationship between inequitable peer network gender norms and men’s perpetration was strongest in highly cohesive networks \((OR = 2.71, p=.05)\) and was not significantly different from zero in networks with average or low levels of cohesion.

**Table 4.5 Simple Slopes of Peer Network Gender Norms on IPV Perpetration for Low, Medium, and High Levels of Social Cohesion**

<table>
<thead>
<tr>
<th>Cohesion Level</th>
<th>OR (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Cohesion</td>
<td>0.58 (0.29, 1.16)</td>
<td>0.43</td>
</tr>
<tr>
<td>Medium Cohesion</td>
<td>1.25 (0.78, 2)</td>
<td>0.63</td>
</tr>
<tr>
<td>High Cohesion</td>
<td>2.71 (1.63, 4.5)</td>
<td>0.05</td>
</tr>
</tbody>
</table>

The predicted probabilities of physical IPV perpetration associated with increasing levels of inequitable peer network gender norms for peer networks with low, medium, and high levels of social cohesion are presented in Figure 4.1.
Figure 4.1 Predicted Probabilities of Physical IPV Perpetration Associated with Increasing Levels of Inequitable Peer Network Gender Norms for Networks with Low, Medium, and High Levels of Social Cohesion

4.4 Discussion

We set out to examine men’s perpetration of physical IPV, focusing on the way in which this behavior is shaped by the gender norms of men’s peer networks in Dar es Salaam, Tanzania. This study fills important gaps in the literature because empirical assessments of risk factors for men’s IPV perpetration in sub-Saharan Africa have focused almost exclusively on the individual level, largely ignoring the role of peer group networks in shaping the perpetration of IPV. Scholars are becoming increasingly aware that men’s risk behaviors and beliefs are shaped by factors at multiple levels of influence and intervening effectively requires an understanding of these multilevel influences (Kaufman, Cornish, Zimmerman, & Johnson, 2014).
We found that within the average peer network (locally referred to as a camp), approximately 12% of men perpetrated physical IPV against a partner within the last year. Our findings indicate that a significant proportion of variance in physical IPV perpetration is due to differences across peer networks. This study adds to recent empirical findings documenting significant levels of clustering for the perpetration of any form of IPV (including psychological, physical, and sexual) as well as several other sexual behaviors among men’s peer groups (Mulawa, Yamanis, Hill, et al., 2016). In the current study, we similarly found significant clustering of physical IPV perpetration behavior within men’s peer networks. Our results indicate that peer network membership explains approximately 7% of the total variance in men’s perpetration of physical IPV. This means that the peer networks tend to be more internally homogeneous and externally heterogeneous with regard to physical IPV perpetration than would be expected by chance.

The current study builds on the existing research by examining the direct and moderated association between peer network gender norms and men’s perpetration of IPV. Peer network gender norms are collective, group norms about appropriate roles and behaviors for men and women (Lapinski & Rimal, 2005; McHugh & Frieze, 1997). We found that men’s membership in peer networks with increasing levels of inequitable, or traditional, gender norms was associated with increased risk of perpetrating physical IPV, even after adjusting for their own attitudes towards gender roles and other risk factors known to be associated with IPV perpetration. This is notable because while men’s own gender role attitudes have been shown to be associated with the perpetration of IPV (Fleming, McCleary-Sills, et al., 2015), the effect of broader gender norms of men’s peers have not yet been explored in sub-Saharan Africa. Our results suggest that inequitable peer network gender norms, above and beyond the individual’s
own attitudes towards gender roles, are associated with an increase in men’s risk of perpetrating IPV. Social influence theory suggests that individuals may feel pressured to comply to prevailing peer norms even if they do not privately internalize the same beliefs (Kelman, 1958). Thus, peer networks with inequitable gender norms may serve as a normative social environment that prescribes men’s dominance and power within their romantic relationships and members of those networks, even if they do not come to internalize the same gender role attitudes, may feel pressured by their peers to engage in behaviors like perpetrating IPV that comply with their peer norms. Per social influence theory, men may conform to these norms because they expect to be socially rewarded or because they fear social sanctions if they do not comply with the norms (Kelman, 1958). Additional research is needed to better understand the ways in which these norms emerge and how they are transmitted to network members. While future research is warranted, this study provides a significant first step in filling an important gap in the literature by empirically evaluating the association between peer network gender norms on the perpetration of IPV.

We further examined this relationship by determining the extent to which the relationship between network gender norms and perpetration of IPV was moderated by the social cohesion of the networks. We found that peer network social cohesion significantly moderated the association between inequitable peer network gender norms and men’s perpetration of IPV. Specifically, the positive relationship between increasingly inequitable peer network gender norms and men’s risk of perpetrating IPV was stronger for men nested within peer networks that were characterized by increasing levels of social cohesion. This may be because more cohesive networks allow for more rapid diffusion of information between individuals (Valente & Fosados, 2006). Based on this rationale, prevailing peer gender norms may diffuse more efficiently
through more socially cohesive networks, increasing the likelihood that individuals perceive and feel pressured to comply with those norms. Additionally, highly cohesive peer networks may be characterized by more frequent contact and discussions between peers about various behaviors and the consequences of those behaviors (Burt, 1987). Highly cohesive networks may therefore increase social pressure to conform to norms by intensifying the expectation of social rewards (or sanctions) for complying (or going against) the predominant norms (Kelman, 1958).

Our study adds to the growing body of literature examining the associations between contextual factors and intimate partner violence in sub-Saharan Africa. Research in sub-Saharan Africa has documented associations between male-dominant and patriarchal societies and increased rates of intimate partner violence against women (Jewkes, 2002). These societies are characterized by collective gender norms that support inequalities between men and women, which have been found to contribute to the endorsement and justification of violence against women. A recent study found that across 44 countries, national levels of norms justifying wife beating were significantly associated with the population prevalence of past-year IPV victimization among women (L. L. Heise & Kotsadam, 2015). One study in Nigeria found that state-level social norms within Nigeria were associated with increased rates of women’s physical IPV victimization (Linos, Slopen, Subramanian, Berkman, & Kawachi, 2013). Another Nigerian study found that increases in the proportion of male community members with attitudes accepting of violence were significantly associated with an increased likelihood of experiencing physical violence among women, even after controlling for the individual’s attitudes (Uthman, Moradi, & Lawoko, 2011). Our study builds on this work to demonstrate associations between peer network-level gender norms and men’s perpetration of IPV.
It is important to note that because our data were cross-sectional, it is not possible to determine the extent to which social influence and/or social selection processes contributed to the findings. While the hypothesized associations, informed by social influence and social learning theories, were supported, it is possible that men sought out peers with similar gender role attitudes and IPV perpetration behaviors (i.e. social selection or homophily) (McPherson et al., 2001). Thus, we cannot rule out that the homogeneity observed within peer networks and the association between peer network norms and men’s perpetration of violence were the result of selection effects. Our understanding of the mechanisms contributing to this association would be improved with longitudinal research. Specifically, we would benefit from longitudinal data on evolving social ties as well as temporal indicators of peer network gender norms, men’s gender role attitudes and their perpetration of IPV to better understand how peer gender norms, attitudes towards gender roles, and IPV perpetration behaviors change over time. Longitudinal data would allow for the empirical examination and separation of selection from influence effects underpinning the association between network norms and IPV (Kandel, 1978; Steglich, Snijders, & Pearson, 2010). Such research would provide important information towards the development of network-based interventions designed to maximize social influence effects to reduce IPV.

Our study highlights the importance of multilevel IPV interventions that strive to transform gender norms to be more equitable within peer networks. Gender-transformative interventions aim to reconfigure norms for gender roles and masculinity to be more gender equitable (Dworkin, Treves-Kagan, & Lippman, 2013). Emerging evidence from evaluation studies suggests that these gender norms may be transformed with targeted interventions (Pulerwitz, Hughes, et al., 2015; Pulerwitz, Hui, et al., 2015). Our findings suggest that engaging men’s peer networks to transform gender norms and attitudes related to IPV amongst peers may
be an important public health approach. Additionally, given that we found that social cohesion amplified the effect of peer network gender norms on men’s perpetration of IPV, our findings also suggest that interventions seeking to reduce IPV should consider efforts to simultaneously increase social cohesion within networks while striving to make gender norms more equitable. Such a multi-pronged intervention would leverage the interaction between social cohesion and peer network gender norms to maximize the prevention effects on IPV perpetration. Additionally, transforming gender norms may not be as effective in reducing men’s perpetration of IPV if it is done within socially fragmented networks compared to networks that are more cohesive.

**Limitations.** While our study utilized rigorous statistical methods to present novel data on the association between peer network-level gender norms and men’s perpetration of IPV, the findings should be considered in light of their limitations. First, this study focused exclusively on one form of IPV perpetration (physical). Existing research suggests that attitudes towards gender roles may also be associated with other forms of IPV perpetration (e.g. sexual IPV) (Jewkes et al., 2011a). Additionally, there have also been theoretically-supported calls to better understand the shared risk factors between men’s IPV and their interpersonal violence against peers (Fleming, Gruskin, Rojo, & Dworkin, 2015). Future research should examine whether peer network gender norms are similarly associated with sexual and psychological IPV perpetration as well as violence against peers.

We would also like to acknowledge the difficulty of measuring collective gender norms. Because collective norms exist at the level of the peer network, measuring these norms is a challenge (Lapinski & Rimal, 2005). In this study, we assessed individual attitudes towards gender role attitudes and then aggregated those individual attitudes to the peer network level to
measure collective norms. While this method has been called “a reasonable proxy for the norms that prevail in a setting” by violence researchers (L. Heise, 2011), it has been critiqued by social norms scholars. Specifically, Lapinski & Rimal suggest that aggregating individual attitudes or perceived norms among group members may not be the most effective way to measure collective group norms because these norms are conceptualized as resulting from social interactions in which network members do not contribute equally (2005). By aggregating the gender role attitudes of all peer network members, the measure of peer network gender norms used in this dissertation made the assumption that the attitudes of all peer network members contributed equally to the peer network gender norms. Future studies should build on this work by exploring other ways to assess collective norms at the level of the peer network level, perhaps by weighting the attitudes and behaviors of the most popular individuals more than others.

There were also limitations to the measure of gender role attitudes that we used to assess peer network gender norms. We used an adapted version of the Gender Equitable Men (GEM) scale (Pulerwitz & Barker, 2008) to measure gender role attitudes. This type of scale has been critiqued for including items that assess acceptance of violence as well as items measuring gender role attitudes and masculinity norms (Reyes et al., 2015). This is particularly important given longitudinal empirical data from the US suggesting that the relationship between gender role attitudes and the perpetration of violence may depend on one’s acceptance of violence. Specifically, a recent study with adolescent boys found that traditional gender role attitudes were associated with increased risk of subsequent perpetration of physical dating aggression only among boys who reported high levels of acceptance of dating violence (Reyes et al., 2015). In that study, endorsing traditional gender role attitudes did not influence perpetration of violence among boys who did not also have beliefs that were accepting of violence. Since our measure of
gender role attitudes included several items assessing the acceptability of violence, our results may have masked important differences in the associations between different aspects of this construct and the perpetration of IPV.

There were also limitations to the individual-level measures used in this study. For example, we relied on self-report to men’s perpetration of IPV, which may have led to under-reporting of IPV perpetration. While we attempted to limit biases by using behaviorally specific violent acts to assess perpetration (Straus, Hamby, Boney-McCoy, & Sugarman, 1996), social desirability and other recall or reporting biases may have led to under-reporting of violent behaviors (Sugarman & Hotaling, 1997). We implemented techniques to reduce social desirability bias by using introductory scripts that were designed to normalize the reporting of violence (i.e. “the next questions are about things that happen within many relationships”). We also trained survey interviewers to establish good rapport with the participants and to ask all questions in a non-judgmental manner.

Furthermore, as mentioned previously, the data used in this study are cross-sectional. As a result, in addition to not being able to rule out the possibility that the findings were due to selection effects, it is also not possible to determine the temporal sequencing of the variables and to make causal inferences regarding the associations found. For example, perpetrating IPV may have led to more traditional peer network gender norms rather than vice versa.

Finally, it is also important to note that our data come from men nested within camp-based peer networks in Dar es Salaam (Yamanis et al., 2010), and as such, may not be generalizable to other peer networks in sub-Saharan Africa. However, organized groups of mostly men have been described elsewhere in Africa (Covey, 2010; Kynoch, 1999; Soldan, 2004; Spergel, 1990). Moreover, qualitative research has found that men’s peer groups exert
social and peer pressures on men’s sexual behaviors across sub-Saharan African settings (Barker & Ricardo, 2006). Furthermore, according to a book of ethnographic descriptions of youth all over the world, more and more young people (and particularly those in urban areas of developing countries) are participating in social groups or “gangs” that are similar to the camps we studied because of the “increasingly prolonged, decoupled transitions between education and work, dating and mating, and childhood and adulthood” (Nilan & Feixa, 2006). Thus, the camps in our study may not be unique to Dar es Salaam, Tanzania, but rather characteristic of poor urban settings in sub-Saharan Africa. Future research should explore the similarities and differences between various peer groups within the sub-Saharan African context.

4.5 Conclusions

To our knowledge, this is the first study to identify peer network-level factors associated with IPV perpetration among young men in sub-Saharan Africa. We found that membership in social groups with inequitable gender norms increased men’s risk of perpetrating IPV, even after adjusting for their own attitudes towards gender roles. We also found that peer network social cohesion significantly moderated the effect of peer network gender norms of the odds of IPV perpetration such that the positive relationship between inequitable peer network gender norms and men’s risk of perpetrating IPV became stronger as peer network social cohesion increased. Our results suggest that peer network norms surrounding gender roles may shape men’s perpetration of violence and should be targeted in future interventions. Our findings also highlight the importance of multilevel IPV interventions that strive to transform gender norms to be more equitable within peer networks.
CHAPTER 5: A QUALITATIVE STUDY OF PEER NETWORK INFLUENCES ON MEN’S PERPETRATION OF INTIMATE PARTNER VIOLENCE IN DAR ES SALAAM, TANZANIA

5.1 Introduction

Male perpetration of intimate partner violence (IPV), which includes physical, sexual, or psychological harm perpetrated against a current or former partner or spouse is a widespread public health problem (Centers for Disease Control and Prevention, 2013; Garcia-Moreno et al., 2006). IPV against women in Tanzania is common, with 45% of all women ages 15-49 years reporting having experienced either sexual or physical violence since the age of 15 (National Bureau of Statistics (NBS) [Tanzania] and ICF Macro, 2011). The consequences of experiencing IPV for women are serious and include an increased risk of induced abortions, low birth weight, harmful alcohol use, depression, suicide, non-fatal injuries, and fatal injuries (Devries et al., 2014; Devries, Mak, Bacchus, et al., 2013; Maxwell et al., 2015).

In order to effectively intervene with Tanzanian men to reduce perpetration of IPV, we need an in-depth understanding of whether and how multilevel factors influence men’s perpetration of IPV in this setting (García-Moreno et al., 2015; L. L. Heise, 1998; Jewkes, 2014). The peer level may have a particularly important role in shaping men’s IPV behavior because it gives rise to and enforces social norms that provide important information on the prevalence and appropriateness of IPV perpetration (Witte & Mulla, 2013). Social learning theory suggests that individuals who socialize with peers with social norms accepting of IPV, may through a process of observational learning as well as through the reinforcement of peers, begin to internalize attitudes that are more accepting of IPV, and be more likely to be violent with their partners than
individuals who do not socialize with peers with norms endorsing IPV (Arriaga & Foshee, 2004; Bandura et al., 1961). Additionally, social influence theory posits that individuals may also feel pressured to comply with peer norms even if they do not internalize and adopt similar attitudes (Kelman, 2006). A number of empirical studies conducted outside sub-Saharan Africa (Casey & Beadnell, 2010; Foshee et al., 2013; Ramirez, Paik, Sanchagrin, & Heimer, 2012) have also found evidence of peer network influence on perpetration of IPV.

Despite the strong theoretical justification and existing empirical research in other settings, research studies in sub-Saharan Africa have just recently begun to examine peer network influence on men’s IPV perpetration. Given the scarcity of studies available and the limitations inherent in these existing studies, our understanding of how peer networks shape IPV perpetration is limited. One recent study conducted by our team found that Tanzanian men within the same peer network tend to share similar IPV perpetration behavior as well as similar gender role attitudes (Mulawa, Yamanis, Hill, et al., 2016). Gender role attitudes represent an individual’s beliefs about the appropriate roles and behaviors for men and women (McHugh & Frieze, 1997) and have been consistently associated with men’s perpetration of IPV. Our study found that men’s peer networks were more internally homogeneous and externally heterogeneous with regard their attitudes towards gender roles as well as their IPV perpetration behaviors than would be expected by chance. This clustering of attitudes and behaviors within men’s peer networks suggests that peer networks may be influencing or reinforcing the adoption of certain norms and behaviors among members. Another study conducted by our team (presented in CHAPTER 4) quantified the association between peer network gender norms (i.e. collective peer norms about appropriate roles and behaviors for men and women) and men’s perpetration of IPV within the same population and found that men within peer networks with
increasing levels of inequitable peer network gender norms had an increased risk of perpetrating physical IPV within the last year (p=.04).

Both of these studies utilized cross-sectional data and were limited in their ability to infer causality and to describe the mechanisms underpinning the associations. Specifically, in the first study, it was not possible to know what caused the peer network members to have similar gender role attitudes and IPV perpetration behavior. While it is possible that peer networks influenced men to adopt certain norms and behaviors, it is also possible that men within the same peer network were alike because those men purposefully joined peer groups with similar characteristics (i.e. social selection or homophily) (McPherson et al., 2001). In the second study, it was not possible to examine whether peer network gender norms were causally associated with increasing risk of IPV perpetration among men. Due to the cross-sectional nature of the data, that study was not able to rule out the possibility that men who engaged in IPV were drawn to peers that held traditional gender norms. Additionally, this study could not identify the mechanisms through which peer networks might influence men’s perpetration of IPV.

While our previous research indicates that the peer network likely plays an important role in shaping men’s perpetration of IPV, these limitations highlight the need for longitudinal data as well as in-depth qualitative examinations to build upon and explain the existing research. We undertook the current qualitative study to explore the role of peer networks in shaping IPV behaviors of male perpetrators. Our first aim was to better understand the extent to which selection and/or influence processes contributed to men being members of peer networks that are characterized by relatively homogenous attitudes towards gender roles as well as similar IPV perpetration behavior. Our second aim was to understand the mechanisms, if any, through which peer networks influence men’s perpetration of violence. Understanding how men’s perpetration
of violence is shaped by peer networks may provide valuable insight into future intervention efforts that aim to reduce men’s perpetration of IPV.

5.2 Methods

**Sampling and Recruitment**

This study was conducted within four wards of Kinondoni District in Dar es Salaam, Tanzania. The participants in this study came from an on-going cluster-randomized trial examining the effectiveness of a microfinance and health leadership intervention on incidence of sexually transmitted infections and the perpetration of IPV (Kajula et al., 2016). The clusters in this trial are stable peer networks of mostly young men, locally referred to as “camps.” Previous research with these camp-based peer networks found that camps are semiformal groups who socialize regularly in a fixed location (Yamanis et al., 2010). Since we were interested in learning about how men’s peer networks influenced perpetration of violence, we purposefully sampled men who reported perpetrating physical IPV against an intimate partner within the last year on the baseline behavioral assessment of the larger trial (conducted between October 2013 and March 2014). Additionally, because intervention activities within the trial were underway during this study, we restricted our sample to men within camps that were randomly assigned to the control arm of the study.

**Data Collection Procedures**

We conducted two waves of in-depth interviews (n = 40) with 20 men between March and June 2015. Interviews were conducted in Swahili by two male university-educated Tanzanian interviewers who were fluent in English and Swahili. Both interviewers were experienced with qualitative research methods and received additional training on interviewing techniques and research ethics as a part of this study. A semi-structured interview guide was used
to guide both waves of interviews, though the second interview was also purposefully designed to allow the interviewers to follow-up on unanswered questions generated in the Wave 1 interview. To qualitatively explore whether men specifically joined camps based on perceived commonalities, the Wave 1 interview guide included questions about the participant’s membership in his camp, his reasons for joining, and his knowledge about camp members as well as the camp’s reputation prior to joining. To better understand how individual beliefs may have been shaped by peers, the guide also contained questions about the participant’s relationship with fellow camp members as well as conversations with peers about women and intimate partner violence that occurred within the camp. To further explore how men’s attitudes and behaviors were shaped by their peer networks, participants were also asked to reflect on changes they had observed with regards to the attitudes and behaviors of their peers after those individuals joined the camp network. Finally, to provide additional context, the guide included personal questions about the participant’s primary sexual partner, experiences with conflict with this partner, and conversations that occurred about those experiences with fellow camp members. To probe further about the role of leaders in influencing behaviors, the Wave 2 guide included questions about the role of camp leaders and influential network members in shaping men’s behaviors with their romantic partners, including the perpetration of IPV. Moreover, the Wave 2 interviews served as an opportunity to follow-up on unanswered questions and themes identified in the first wave. The first wave of interviews lasted an average of 45 minutes (range 35 – 79 minutes) and the second follow-up interviews lasted an average of 23 minutes (range 20 – 30 minutes).

Interviews were digitally recorded with the permission of the participants. Verbatim transcription of the audio recordings was completed by the interviewers using f4 transcription
software (Dresing et al., 2015). To ensure consistency, the interviewers also followed a transcription protocol (McLellan et al., 2003). Finally, the interviewers also wrote field notes identifying main points for each interview. The research was approved by the University of North Carolina at Chapel Hill Institutional Review Board as well as the Muhimbili University of Health and Allied Sciences Senate Research and Publications Committee. Written informed consent was obtained from all participants prior to their participation in this qualitative sub-study. Participants were compensated with 10,000 Tanzanian Shillings (approximately 6 USD) at the end of each interview.

Data Analysis

Qualitative data collection, translation, and preliminary analysis occurred simultaneously so that the interview guides could be adapted to further explore themes emerging from the initial interviews. A female Tanzanian translator with a Masters degree translated the Swahili transcripts into English. Translation was viewed as an important interpretive step and we followed recommendations that the translation process be “made visible” through open dialogue (Wong & Poon, 2010). To allow our team to stay close to the data, English translations were integrated into the original Swahili transcripts with the translated text inserted directly below each contribution of dialogue. This allowed us to simultaneously review both the English and Swahili data and to flag any discrepancies for group discussion. The lead author (MM) read the transcripts as soon as they were available to provide feedback to both the interviewers and translator. MM also noted emergent themes and developed narrative summaries for each participant in order to summarize the stories told by each man. MM regularly met with the interviewers and translator to discuss emerging findings and to compare English and Swahili transcripts or audio files.
After the data collection, translation, and narrative summaries were completed, MM implemented a macro in a text-editing program to systematically delete the Swahili text from the transcripts. The English-only transcripts were then imported to Atlas.ti, a qualitative software program, for coding (ATLAS.ti Scientific Software Development GmbH). We developed a codebook, including codes that were based on the topics covered in the interview guide and emergent codes identified during the development of the narrative summaries. The code book also included code definitions and examples of text (Gibbs, 2007). We then applied these codes to the transcripts using Atlas.ti. We generated reports with all quotes for each code and reviewed these code reports to identify key themes and potential sub-themes. We also developed matrices to ease the comparison within themes across participants (Miles, 1994). The code reports and the matrices were used to examine ways in which the themes contributed to answering the research questions. We incorporated memo-writing to keep a record of the analysis and to document new ideas and thoughts about emerging themes (Saldaña, 2009). Finally, we selected representative quotes to illustrate the key findings.

5.3 Results

The average age of men in the sample was 27 years (range 20 to 39 years) (Table 5.1). Three-quarters of the sample had a primary school education or less, 10% finished some secondary school, and 15% completed secondary school or more. One-quarter of the men were considered to have low socioeconomic status, 35% were considered medium, and the remaining 40% were considered high SES. Most participants (65%) reported having never been married, though the vast majority identified having one (70%) or more than one (25%) sexual partner within the last year. Among the men, 15% reported being members of their camps for less than 2
years, and larger percentages reported membership durations of 2-3 years (25%), 4-5 years (30%), or more than six years (30%).

Table 5.1 Demographic Characteristics of Participants (n = 20)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Men % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age in years</strong></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>40.0 (8)</td>
</tr>
<tr>
<td>25-29</td>
<td>25.0 (5)</td>
</tr>
<tr>
<td>30+</td>
<td>35.0 (7)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Primary school or less</td>
<td>75.0 (15)</td>
</tr>
<tr>
<td>Some secondary school</td>
<td>10.0 (2)</td>
</tr>
<tr>
<td>Secondary school completed or more</td>
<td>15.0 (3)</td>
</tr>
<tr>
<td><strong>SES</strong></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>25.0 (5)</td>
</tr>
<tr>
<td>Medium</td>
<td>35.0 (7)</td>
</tr>
<tr>
<td>High</td>
<td>40.0 (8)</td>
</tr>
<tr>
<td><strong>Marital History</strong></td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>65.0 (13)</td>
</tr>
<tr>
<td>Previously married</td>
<td>35.0 (7)</td>
</tr>
<tr>
<td><strong>Number of Sexual Partners in Last year</strong></td>
<td></td>
</tr>
<tr>
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<td>2</td>
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<td>3+</td>
<td>15.0 (3)</td>
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<tr>
<td><strong>Years of Camp Membership</strong></td>
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<tr>
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<td>15.0 (3)</td>
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<td>2-3</td>
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We present the results of the qualitative analysis in three sections. First, we describe men’s camp-based peer networks and provide a summary of the reasons men gave for joining these networks. In this initial section, we specifically address the first aim of this study by focusing on themes that inform our understanding of the extent to which social selection processes contributed to men joining specific peer networks. Next, to provide additional background on the norms within this context, we review how men perceived their peer network
norms towards gender roles. Finally, to address the second aim of this study, we present three mechanisms through which peer networks were described as influencing men’s perpetration of violence.

**Camp-Based Peer Networks**

It was common for men to describe their camp-based peer network as an important group of friends that in many ways resembled a family. When asked to describe their relationships with other members of their camp, many men made statements like this:

“I can say my friendships are like family friendships, because we have been together for many years... So I see another [member] as a relative, as the camp has brought us close together.”

Most men talked about being with their camp peers “most of the time,” typically saying that they could be found with their fellow camp members whenever they weren’t working. One participant who described spending most of his free time with his peers in their camp said the reason for this was simple: “there is no other place to go.” When asked to describe his camp, this participant added, “that is our home.” Furthermore, when describing the role of their camps, many participants described relying on their camp networks for social support, talking often about seeking opportunities for employment, and about coping with other struggles they were facing.

One participant described the support he received from his camp network. He said,

“When you get a problem, the camp members are in the forefront to help you, more than non-camp members. You can’t tell a non-camp member your problem and have them understand you at once. But in camp we can sit together, and you tell them your problem. You and other three camp members can sit and resolve it.”
Participants also described the collection of donations to support members who were dealing with emergencies, such as deaths in the family or severe illness. Network members also contributed money to support weddings of members. One participant, the founder of a camp that started three years ago, said that youth in his area would regularly find themselves gathered together, questioning why they couldn’t create a more formal support group that would assist them later on in life. That desire for a network of peers that could provide support in the future became the impetus for creating the camp. A participant in another camp said he believed that “the foundation of our camp” was that camp members were there to “[help] each other if a problem happens.” While most participants reported spending a lot of time in their camps, a couple of participants described spending less time with their camp peers. One participant who worked as a “bajaji [rickshaw]” driver described his busy schedule and noted that he visits the camp daily, but only spends 10-15 minutes there. Another participant who used to spend a lot of time with his camp peers recently got a job as a barber and subsequently reduced the time he spent socializing in the camp. Overall, the camp-based peer network served as an important group of individuals that provided support to its members.

Many participants said that all of their close friends were also members of their camp. Only a few participants talked about having close friends or family members who were not also members. For example, one participant described how he could talk with anybody in his family about personal issues, but he was not that open with all camp members. He said, “We can be four or five family members discussing an issue but in the camp I can be with only one or two members.” In fact, even among participants who said all of their close friends were camp members, an overwhelming majority acknowledged that they could not talk with all camp members about personal problems. Rather, many participants described talking with a smaller,
select group of close friends that were the most trusted. One participant put it this way, “The relationships are close, but not all of them. Don’t you know that you can be thirty people, but you have three or four true friends with whom you all stay, talk and plan?” This sentiment was expressed by almost all of the men, though some men described only talking to one close friend while other described being able to talk to a larger number of close friends.

Despite the fact that most participants described only sharing personal information with a small number of camp members, the larger camp networks were generally described as a cohesive unit. For example, one participant remarked, “we are all one thing, we understand each other fresh...” This cohesion was also thought to contribute to the spread of information throughout the networks. Another participant described the diffusion of information in this way, “I mean that the information can reach them quicker, because [they] are my close friends... It means that we are all united, so it means that even if I give information to one person it is easy to reach all other members in the camp, even before any other ordinary person has known.”

When asked why they, in retrospect, joined their camp network, most participants reported knowing little about the camps before joining them. Many remarked that this camp was an obvious choice because of the location and proximity to the participant’s residence or work. One participant reflected on his decision to join the camp in this way, “I chose that camp because it... I mean, I was born in that area, so you can’t go out of that part, while that is your home.” Another participant echoed this sentiment, saying that most of his neighborhood peers were also members of the camp, explaining that, “That is, the houses are close together there. So we are together all the time.” Another participant shared that he moved to the area and after
moving found a group of peers who were in the street. He described feeling as though he “had to join them” because he had no other friends.

**Men’s Perceptions of Peer Network Gender Norms**

We asked participants to describe the way men in their camp network viewed women and the roles women had in relationships and society more broadly. Many participants suggested that among their peers, women were viewed as being less important, having lower levels of decision-making power within their relationships, and being generally “below men” in terms of their relative position in society. This view was described by most of the men, with one man describing it this way: “when we are seated here at the camp, a woman is seen like an entertainment provider.” In contrast to the subordinate role of women, it was commonly reported by our participants that their peers believed that men typically had the power to make decisions. As one participant put it, “the man has the power in the family to plan for what to do.” Thus, the perceived peer network gender norms described by the participants in this study were generally traditional; men perceived their peers as largely viewing women as inferior to men.

A smaller number of participants initially described peer gender norms that were more egalitarian, but even those views were usually clarified as not being truly equal. For example, one participant who was asked how men in his camp think about the position of women said, “We completely don’t undermine the position of a woman... the way I know, is that a woman now has almost the same rights as a man.” When the interviewer probed about the phrase *almost the same rights* and asked whether men in his camp thought men and women were actually equal, the participant clarified: “Isn’t she a woman? Because even in the bible, it is written that a woman is needed to be under a man.” After adding that women cannot compare to men in their abilities or in their strength, the participant added, “So, she is needed to be afraid a bit and
respect him.” As illustrated in these statements, even men who initially describe more equitable peer gender norms ultimately believed that most men had views that elevated the position of men in relation to that of women.

Additionally, we asked participants whether they perceived significant differences among the ways in which their fellow camp members viewed women. Most of the participants believed that men tended to have similar views towards women. For example, another man was asked specifically, “Are there some in the camp who differ in their perception on how they think about a woman?” He answered, “No, many of them have those thoughts, that a man should be first and a woman later on.” It was also common for participants to remark that men’s elevated position relative to women was not just something embraced by their peers, but something found in their street and also in their wider community and society, saying “it is like that in our African communities.” Thus, in addition to perceiving that their peers held traditional gender norms, men in our study perceived that most other men in their camp networks felt the same way.

While none of the participants described peer network gender norms that emphasized equality between genders, some participants acknowledged that their society was changing to embrace equality between men and women. One participant described the changes this way: “I can say that women nowadays are doing jobs that were only for men. For instance, you can find a woman carrying concrete.” In addition to describing jobs that were now acceptable for women, some participants also talked about the fact that more and more women were working and supporting themselves financially. This resulted in the women being less reliant on their male partners, and this was seen to shape their relationship dynamics, as illustrated by this participant:

"In relationships, normally a man is the one who makes decisions. But since nowadays every one is doing his/her own activities, some of the women are doing some activities
While others are not. So when you meet a woman who is doing her activities you can’t decide for her."

This participant suggests that these changing gender role dynamics have implications for power and decision-making responsibilities within relationships.

While several participants echoed the sentiment that today’s society was becoming more egalitarian, the concept of gender equity and the notion that men and women were equal was seen as a foreign concept, and generally viewed as something that was resisted by most camp members. One participant wondered, “Perhaps Europeans are the ones bringing in their perceptions that women and men are equal.” All the participants who mentioned the concept of gender equality contrasted it with the reality of life as they experienced it. As one participant put it, “Although we are trying to erase it, the truth is that a man is everything.” This statement illustrated a commonly held view: that efforts were in place to make women and men equal, but men were inherently more valuable than women. Resistance to increasingly egalitarian gender roles was also reflected in how several participants described peers norms around retaining control within their relationships. The exchange below represents a common response among the participants:

“I: What do most of them say about [the role of women in relationships]?

R: At a very big extent, most of us... You know, if you give freedom to a woman, it becomes a problem. So most of us, we refuse her... We don’t give her very much freedom, because after you have given her freedom, and if she has controlled you... There are some women after seeing, ‘Aaaah this one understands me.’ Then they do what they feel like doing. So most of us are in the position of tightening her.”

As illustrated in this exchange, despite some men having opinions that their society was
becoming more egalitarian, men in our study perceived peer norms that were resistant to the idea that men and women were equal.

**Mechanisms Through Which Peer Networks Influence Men’s Behaviors**

During the in-depth interviews, men described three over-arching mechanisms through which peer networks were found to influence men’s perpetration of IPV. These mechanisms were (1) men’s internalization of peer network norms, (2) men feeling pressured to conform to peer network norms without personally internalizing those norms, and (3) the direct involvement of peer networks in shaping couple power dynamics.

**Internalizing Peer Network Norms**

Men described a process through which they or their close friends came to internalize their peer network norms. This process of adopting and internalizing peers norms was often described as resulting from being exposed to new ideas, having in-depth conversations in which a consensus was reached, and seeking advice from close friends or leaders within the peer networks.

One theme that emerged to explain how men came to internalize the norms held by their peers was that men’s membership in their peer networks exposed them to new ideas. One participant mentioned, “*There is a certain topic that we discuss. That one which women say about equal rights to all, or women are needed to be equivalent to men.*” He went on to describe men in the camp talking about the importance of retaining control within their relationships even though society is pushing them to treat women as equals. Another participant talked about older camp members who share their views about how women ought to act:
“Because in the camp, we stay with elders who speak about those same issues... Meaning that a woman is needed to be this way, to be this way, to be this way... Do you see? So if you don’t know, there are things which you can take from there....”

As illustrated in this quotation, one way that men could adopt new beliefs about gender roles was learning about new ideas regarding gender roles from members and leaders within the camp networks. In this case, the participant felt that a young man could adopt certain beliefs after talking with elders in the camp.

Men also described more in-depth conversations in which a consensus was reached as a way through which men could come to internalize peer network norms. For example, one participant described the following relevant scenario: “As you may find 20 people seated and watching football... Sitting and exchanging ideas such stories on football. So everyone will have his own thought but one can have correct thoughts which will make everyone to listen to what he is talking about.” In this example, one individual happens to have a convincing argument that results in others taking notice. Another participant described a similar process through which camp members came to change their attitudes or behaviors. This was exemplified by the following statement, which took place after the participant said that for the most part, camp members were similar to one another in terms of their perceptions towards women. When asked to explain why that is, he talked about the group’s discussions and processes through which they come to agreement: “We like to meet together and we deeply discuss something until everyone understands... So our habits are in fact similar.” These in-depth conversations were seen as opportunities for individuals to change their own beliefs and behaviors after engaging in deep reflection.

Finally, participants frequently talked about sharing stories about their relationships with
their fellow camp members in order to seek and receive advice. In fact, many study participants described seeking guidance from a close friend when dealing with relationship conflict and the advice received was influential in shaping men’s beliefs and behaviors. One participant described his rationale for sharing his conflict with a peer as follows: “Many times I like to involve a person in an incident which I see is heavy, so that I can see what thoughts he has to help me.” For example, when one participant described beating his partner because she was disrespectful to him, the interviewer asked whether he sought out advice from his peers, either before or after he reached the point of beating her. The participant said that he received ongoing advice from a close friend in the network, and stated that he “needed [his] thoughts because not everything that you think is correct... You can think that this is correct, but...” Before the conflict occurred, the participant described being advised by his friend to talk to his partner, which he did. Talking helped and the partner initially understood that he felt she was being disrespectful. Her behavior improved for a short period of time. However, she later repeated the disrespectful behavior and the participant beat her. When reflecting back on what happened, the participant described receiving support from his friend with regard to his actions, and specifically described being supported in his decision to use violence. In fact, the participant explained how his friend helped him understand that “sometimes, if you beat her, that is when she starts to understand that this is a problem.” As illustrated in this example, seeking advice from a close and trusted peer was one way in which men came to adopt and internalize new norms that were embraced by their peers.

**Conforming to Peer Network Gender Norms**

In contrast to the internalization of peer network norms, several participants described feeling pressured to conform to network norms, even if they did not fully agree or internalize
those norms. The way in which men described feeling pressure to have perceptions in line with their peers was distinct from the internalization of peer norms described earlier. This was most vividly described by a participant in the following exchange that took place after discussing changes that new members had undergone with regard to their views towards women:

“I: Now what perceptions do those men have about women when they come in the camp, and after they have joined, do their perceptions changes or how is it?
R: Aaaah, our perceptions… That is, when you enter the camp, it is as if you have entered school. You can’t put on a pair of jeans, but you must put on school uniform, so that you look the same as your fellows. We can’t allow you to put on a pair of jeans while your fellows are wearing school uniforms. That would be difficult. You also put on uniform so that you look like a student.”

This idea that men feel pressure from their peers to appear as though they have beliefs consistent with their peers’ norms illustrates the mechanisms through which peer network gender norms come to shape men’s behaviors. Another participant who talked about his peers “imitating behaviors” of other camp members described an active process through which his peer network acted to pressure men to behave in a certain way:

“We have informed each other that we have got our own directives which guides us how to live. And if someone goes against the procedure we will trace him... And know even if you do it in a far away place, we will take action on you.”

It is interesting to note that this participant went on to say that he had never seen a member change his personal views towards women after joining the camp. In this way, the network was seen to have an important influence on men’s behaviors, but this wasn’t seen as happening through the transformation of individual beliefs and attitudes.
Several men also described how men could feel pressured by their peers to actually engage in violence with a partner. Most of these examples involved men being pressured to beat the man who was having an affair with his wife or girl friend. But in some of these cases, men were also pressured by their peers to take action against their partner. This was illustrated by one of the participants who described an example of peers having an active role in romantic conflicts and taking action. The participant said,

“Beating a partner? There in the camp, he is being convinced to do so by people. He can be convinced by the guys and then go to beat his partner or the man who is taking his partner. There is that one who doesn’t have the habit of fighting, and if it happens that someone is convincing him, you will be surprised that three, four or five guys stand up and invade the guy and beat him.”

As illustrated in this quotation, a group of peers could pressure a man who doesn’t have the habit of fighting to take violent action against his partner. This peer pressure to engage in a specific behavior was distinct from the internalization of peer norms that occurred through more in-depth discussions and advice from influential individuals.

While none of the participants described actual events in which peers in their network spoke out against violence, some of the men talked about how it could hypothetically be possible that their peer networks could be used to pressure men against being violent. For example, one participant mentioned, “So if you have done something wrong to her or used bad language to her in public they can tell you, ‘what you have done is not right.’” This participant mentioned that it could be possible that such a conversation could happen in response to him telling his peers about a fight. The participant seemed to think that the network could have a role in speaking out against disrespectful behavior, particularly if it were to occur in public. Another participant
mentioned that it would be possible for his wife to come to his camp to tell his fellow camp members that he had beaten her. The participant described a possible scenario this way:

“It is possible that I quarreled with my wife yesterday and she went to accuse me to a fellow member, saying, ‘Do you know what your friend did to me yesterday? He provoked me... and beat me because of this.’ So they are normal things. Then you find that he calls me and tells me that what I did was not good.”

While these hypothetical examples were not as rich as the real-life examples of men feeling pressured to conform to existing gender norms in embracing violence, it was encouraging to see men thinking of examples in which peer pressure could be used to reduce violence.

*Direct Involvement of Peer Networks in Shaping Couple Power Dynamics*

Another mechanism through which peer networks were described as shaping IPV was through their direct involvement in influencing couple dynamics. Men’s peer networks at times took an active role in engaging the female partners of their fellow camp member. For example, one participant described a fight his friend had with his partner after he was told that she had been cheating on him with another man. After confronting the partner about her infidelity, “he beat her with his fists and kicked her.” Then, the woman “ran to the police to take an RB [Police Report].” The participant then described hearing that the police were looking for their friend. In response, the participant explained their actions:

“We called his fiancé and told her, ‘Eeh, that one is your partner, and if you have quarreled, these are marriage issues... You cannot go to take police RB, as you will bring to him other problems.’ Truly at times you find other women understand us.”

As illustrated in this quotation, the peer networks sometimes played a role in maintaining power dynamics within romantic relationships. In this example, the man’s peers engaged with the
woman to communicate their belief that she needed to tolerate the violence and that she didn’t have the authority to seek help from the police in response to conflict.

A similar form of intervention was described by another participant who talked about how his friend (and a fellow camp member) was in a tumultuous relationship with “no trust between them.” He described how this couple fought often, and when the interviewer asked whether these arguments led to physical fights, the participant answered, yes, “because a woman is a woman if she is beaten two to three slaps, they don’t accept being slapped.” He described how women sometimes became more argumentative after being hit instead of accepting the situation. He then went on to describe the role of his fellow camp members in helping to resolve this conflict. He said, “So a few of us guys went to apologize to that woman... and until now she has accepted.” When the interviewer asked what exactly the woman accepted, the participant elaborated, saying, “She forgave him. As after she was beaten during that quarrel, they parted and each one was doing his own things.” The participant was pleased with how the group was able to intervene and that the couple had re-united. However, when describing the outcome of this intervention, the participant focused only on how the woman, who had been beaten, had understood what the men were saying. He described, “We sat down together and educated [the girl and the boyfriend]. And after we educated them, the leaders also educated them and the girl agreed and until now things are going on well.” This was another example of peer groups intervening within couples to communicate their belief that woman ought to tolerate violence.

5.4 Discussion

We undertook this qualitative study to explore the role of peer network gender norms in shaping IPV behaviors of male perpetrators. When studying how peers and peer norms shape individual behavior, it is often difficult to differentiate between social influence and social
selection processes. This is because both mechanisms can result in peer groups with internally homogenous attitudes and behaviors. Thus, we were interested in better understanding the extent to which male perpetrators described selection and influence processes contributing to them being members of peer networks with similar attitudes towards gender roles and IPV perpetration behavior. We specifically asked what men knew about the peer networks before they joined and inquired about their reasons for becoming members. Most participants reported knowing little about the camps before joining and many participants remarked that their primary impetus for joining their camp was the convenient location and proximity to the participant’s residence or work. None of the participants mentioned joining their camp because the camp had a certain reputation or because they expected to be with certain types of peers. Thus, we did not find support for the notion that men were self-selecting into peer networks to be with peers who held similar values and/or behaviors, particularly those related to IPV. Rather, our finding suggest that men joined peer networks for practical reasons, irrespective of the reputations of those networks, and became similar to their peers as a result of social influence processes.

Our second aim was to understand the mechanisms through which peer network gender norms might influence men’s perpetration of violence. Our results suggest that peer networks influence men through multiple mechanisms. First of all, men gave examples of individuals internalizing their peer network’s prevailing norms. This occurred after being exposed to new ideas, as well as after reaching a consensus within in-depth group discussions. Men also described seeking advice from camp members and leaders when responding to conflicts. This overarching mechanism is supported by social learning theory, which broadly suggests that learning occurs through observation of others and through the observation of the consequences of that behavior (Bandura, 1973). In other words, by being exposed to new ideas, engaging in in-
depth discussions, and seeking advice from peers with inequitable gender norms, men observed their peer’s actions and consequences of those actions and subsequently internalized attitudes that were more inequitable towards gender roles and more accepting of IPV. Internalization is also one of the key processes of social influence described by Kelman (2006). Kelman notes, additionally, that internalization occurs when peer norms are “congruent” with an individual’s own value system (2006). This would suggest that individuals are unlikely to adopt peer norms that are drastically different from the individual’s prior beliefs.

Secondly, men described feeling pressured to conform to network gender norms, even when not internalizing those norms. Men gave examples of feeling like they needed to conform to be accepted by their peers and also talked about stories in which men engaged in violence as a direct result of their peer’s persuasion. This mechanism is also supported by social influence theory, which posits that a key social influence process is “compliance,” when an individual is pressured to comply with peer norms even if they do not internalize and adopt similar attitudes (Kelman, 2006).

Finally, men also described ways in which men’s peer networks intervened directly within couples to maintain power dynamics that condoned the use of violence. While this mechanism is not described in social learning or social influence theories, it serves as a nice illustration of the interactions between factors at the peer level and dyad level of an ecological framework for conceptualizing IPV.

Our results have several implications for interventions aiming to reduce the perpetration of intimate partner violence. First of all, since our results suggest that men’s perpetration of IPV is influenced by their peer network gender norms, our findings highlight the importance of interventions that transform gender norms within social networks. Gender-transformative
interventions aim to reconfigure gender roles and norms surrounding masculinity to be more equitable (Dworkin et al., 2013). Emerging evidence from evaluation studies suggests that these gender norms may be transformed with targeted interventions (Pulerwitz, Hughes, et al., 2015; Pulerwitz, Hui, et al., 2015). Engaging with peer networks to transform peer network gender norms is particularly important given our finding that network norms appear to influence men’s perpetration of violence in part by pressuring men to conform to norms even if those men hold dissenting attitudes. Changing individual attitudes in this case would not be as effective as transforming broader peer norms around gender roles and violence. A similar conclusion was drawn in a systematic review of behavioral HIV prevention interventions for young people in sub-Saharan Africa. This review found that many interventions were ineffective in part because they predominantly focused on changing knowledge and attitudes as opposed to utilizing a broader ecological perspective to identify and target other determinants of risk, including peer norms (Michielsen et al., 2010).

Since our findings highlighted the importance of advice-seeking behavior in the adoption and internalization of peer norms, future network-based interventions may also want to consider engaging individuals who play central roles in their networks with regards to advising other network members in ways to resolve conflict (Valente & Pumpruang, 2007). Additional research is warranted to understand the advice network structure within these peer groups. Based on this information, future interventions could be designed to leverage the social influence processes identified in this study in part by engaging the central individuals in gender-transformative programming.

Furthermore, men in our study perceived peer network gender norms that were largely traditional and emphasized men’s power within relationships. Understanding these perceptions is
very important as an individual’s behaviors are thought to conform to their own perceptions of whether that behavior is viewed as acceptable or prevalent among their peers. It is important to note, however, that men’s perceptions of their peer network gender norms may not accurately capture actual gender role attitudes of their peers. This is because it is well documented that individuals have a tendency to underestimate health behaviors (e.g. exercising) among their peers while overestimating risky behaviors (e.g. engaging in substance use) (Berkowitz A. D., 2003), a phenomenon known as pluralistic ignorance (Prentice & Miller, 1996; Toch & Klofas, 1984). In fact, a recent study in this setting compared quantitative perceived HIV testing norms with actual HIV testing norms among men’s closest friends and found evidence of pluralistic ignorance in that men (and particularly those who had not tested for HIV) were biased towards assuming that their friends had not yet tested (Mulawa, Yamanis, Balvan, Kajula, & Maman, 2016). Those findings showed that men misperceived their peer testing norms, and suggested that correcting those misperceptions may be an intervention opportunity. Thus, future research should examine whether men are overestimating the extent to which their peer hold more risky, traditional gender norms that condone violence. If so, correcting potential misperceptions about peer network gender norms may be an intervention opportunity that could reduce IPV perpetration among men.

It is important to note that the men enrolled in our study were purposively selected to participate because they had reported perpetrating IPV on a previous behavioral survey and we were interested in better understanding how their peer network gender roles shaped their IPV perpetration behavior. As a result, we were limited in our ability to examine the ways in which peer network gender norms may be protective against the perpetration of violence. A couple of participants mentioned hypothetical examples in which peer networks could reduce violence and
we would have surely uncovered many other ways in which peer network norms could reduce or prevent IPV had that been a focus of the study. One way that peer networks could reduce behaviors like IPV perpetration in a positive way is through exerting social control over deviant behaviors (Berkman & Kawachi, 2000). Additionally, having peers who hold pro-social beliefs (such as valuing societal rules that maintain order and being committed to conventional activities) has been associated with lower levels of partner violence among adolescents in the US (Foshee et al., 2013). Future research should further explore the positive effects that peer network norms can have on preventing and reducing violence.

In conclusion, our findings improve our understanding of how peer networks shape men’s IPV perpetration. Specifically, we showed that men’s perpetration of IPV is socially influenced by the gender norms characterizing their peer network. Men described adopting and internalizing the gender norms of their peers and also feeling pressure to conform to their network’s gender norms. Their peer networks also played a role in shaping couple power dynamics. Thus, our results highlight the importance of interventions that transform gender norms within social networks. Future interventions should specifically consider targeting individuals who play central roles within the peer advice networks with gender-transformative interventions. Finally, since men may be overestimating the extent to which their peers hold traditional gender norms, correcting potential misperceptions may be an intervention opportunity that could lead to reductions in IPV perpetration among men.
CHAPTER 6: DISCUSSION AND CONCLUSION

The purpose of this dissertation was to better understand the association between peer network gender norms and men’s perpetration of intimate partner violence in Dar es Salaam, Tanzania. The findings presented contribute to the small, but growing body of literature examining the role of peer networks on men’s IPV perpetration in sub-Saharan Africa. The results advance our understanding of how gender norms shape the perpetration of violence and have implications for future research and interventions to prevent IPV. In this concluding chapter, I synthesize the findings of the two studies, address the strengths and limitations of the dissertation, and discuss the implications of this research.

6.1 Summary of Findings

The main finding from the first study, presented in Chapter 4, is that membership in peer networks with increasing levels of inequitable, or traditional, gender norms increased men’s risk of perpetrating physical IPV. It is important to note that this association was found above and beyond the effect of men’s individual-level attitudes towards gender roles. This is notable because while men’s gender role attitudes have been shown to be associated with their perpetration of IPV in sub-Saharan Africa (Fleming, McCleary-Sills, et al., 2015; Gottert, 2015; Jewkes et al., 2011a), the effect of peer network gender norms on IPV perpetration has not yet been explored in the region. Furthermore, this finding suggests that the association between men’s peer network gender norms and their perpetration of IPV is not mediated through individual-level attitudes. We further enhanced our understanding of this association by demonstrating that peer network social cohesion moderates the relationship between inequitable
peer network gender norms and men’s risk of perpetrating IPV such that the positive association is stronger as peer network cohesion increases.

The second study, presented in Chapter 5, built on the first study by qualitatively exploring the role of peer network gender norms in shaping IPV behavior of male perpetrators. Because the first study and previous research conducted by our team (Mulawa, Yamanis, Hill, et al., 2016) found significant clustering of gender role attitudes and IPV perpetration within these men’s peer networks, we were interested in better understanding the extent to which social selection and social influence processes contributed to these findings. Throughout the in-depth interviews, we did not find support for the notion that men self-selected into peer networks to be with peers who held similar values and/or behaviors, particularly those related to IV. Rather, our finding demonstrated that the men joined these peer networks for practical reasons, irrespective of the reputations of the camps, and likely became similar to one another overtime as a result of social influence processes. When we explored these social influence process in more depth, men described several mechanisms through which peer networks influenced men’s perpetration of IPV: men’s internalization of peer network norms, men feeling pressure to conform to peer network norms, and the direct involvement of peer networks in shaping couple power dynamics.

6.2 Summary of Strengths

This dissertation has a number of conceptual strengths including the focus on men, the examination of the peer network context with regard to men’s IPV perpetration, and the extension of the existing literature on gender role attitudes to the peer context. The first conceptual strength is the focus on men. Despite the growing number of initiatives designed to engage men to promote gender equality to prevent IPV (Fabiano, Perkins, Berkowitz, Linkenbach, & Stark, 2003; Pulerwitz, Michaelis, Verma, & Weiss, 2010), there is a large gap in
our understanding of the factors that influence men’s IPV behaviors, particularly in sub-Saharan Africa. In fact, until recently, most of the data on risk factors and correlates of IPV perpetration were obtained by asking women who disclosed experiencing IPV to reflect on the characteristics of their perpetrators. Engaging men in research is critical because intervening with men to reduce IPV requires an in-depth understanding of the determinants of men’s IPV perpetration within that setting. Another strength of this dissertation is its examination of whether and how networks of peers influence men’s IPV perpetration in sub-Saharan Africa. Despite strong theoretical rationale and empirical evidence from other settings that underscored the importance of peer groups in shaping IPV, assessments of risk factors for men’s IPV perpetration in the region have focused almost exclusively on the individual level. Thus, the shift to examining the peer network context is a strength of this dissertation. The last conceptual strength was the extension of the existing literature on gender role attitudes to the peer network context to test associations between peer network gender norms and men’s perpetration of IPV. As mentioned above, endorsing more inequitable gender role attitudes has been associated with increased risk of perpetrating IPV in other sub-Saharan African studies (Fleming, McCleary-Sills, et al., 2015; Gottert, 2015; Jewkes et al., 2011a), and our study expanded this body of research to examine the collective gender norms of men’s peer groups. Our findings suggest that collective peer gender norms exert additional pressure, above and beyond men’s individual attitudes towards gender roles, that leads men to conform to peer norms and may increase their perpetration of IPV.

This dissertation also has methodological strengths including the analysis of a large, unique sample of men within their naturally occurring peer networks, the use of multilevel modeling, and the utilization of a sequential explanatory mixed methods design. The first methodological strength of this dissertation is the unique dataset of a large number of men (n =
1,103) sampled within a random sample of naturally occurring peer networks (n = 59). It is notable that the 59 camp-based peer networks assessed in this study were randomly selected from 172 eligible networks enumerated within the study area of the parent trial. This sampling frame was particularly well suited for multi-level modeling using random effects since this modeling approach assumes that the upper-level groups (i.e. camp-based peer networks) are sampled from a larger population of groups (Bauer & Curran, 2013). On a related note, the second methodological strength of this dissertation is the use of multilevel modeling to examine men’s perpetration of IPV. The unique data structure allowed for the use of advanced multilevel modeling techniques to examine the association between peer network gender norms and men’s IPV perpetration above and beyond the individual-level characteristics known to be associated with men’s perpetration of IPV. Finally, the utilization of a sequential explanatory mixed methods design was another key strength of this dissertation. The findings generated in both studies contributed to a more thorough understanding of men’s IPV perpetration. Understanding the degree to which peer network gender norms were associated with men’s risk of perpetrating IPV (assessed with quantitative methods in Study 1) and gaining insight into the context and potential mechanisms underpinning this relationship (assessed with qualitative methods in Study 2) resulted in a more meaningful understanding of the ways in which men’s peer network gender norms are associated with men’s perpetration of IPV in Dar es Salaam, Tanzania.

6.3 Summary of Limitations

Despite the strengths of this dissertation, there are a number of limitations that should be taken into account. First, the data from this dissertation come from men who are members of peer networks called camps in Dar es Salaam, Tanzania. Camps are comprised of mostly men and some camps explicitly prohibit women from being members (Yamanis et al., 2010). As a
result, the participants in this study may be unique in the ways in which they socialize with their peers. The gender norms within these camps may also be unique to these types of male-dominated social groups. Therefore, the findings of this research may not be generalizable to other peer networks in sub-Saharan African settings. However, organized groups of mostly men have been described elsewhere in Africa (Covey, 2010; Kynoch, 1999; Soldan, 2004; Spergel, 1990). In fact, in a book of ethnographic descriptions of youth all over the world, more and more young people (and particularly those in urban areas of developing countries) were described as participating in social groups or “gangs” that are similar to the camps we studied because of the “increasingly prolonged, decoupled transitions between education and work, dating and mating, and childhood and adulthood” (Nilan & Feixa, 2006). Thus, the camps in our study may not be unique to Dar es Salaam, Tanzania, but rather characteristic of poor urban settings in sub-Saharan Africa. Future research should explore the similarities and differences between these peer groups within the sub-Saharan African context.

Finally, the quantitative data used in the first study were collected using self-reported behavior, which may have led to under-reporting of IPV perpetration. While we attempted to limit biases by using behaviorally specific violent acts to assess perpetration (Straus et al., 1996), social desirability and other recall or reporting biases may have led to under-reporting of violent behaviors (Sugarman & Hotaling, 1997). However, we attempt to reduce social desirability bias by using introductory scripts that were designed to normalize the reporting of violence (i.e. “the next questions are about things that happen within many relationships”). We also trained survey interviewers to establish good rapport with the participants and to ask all questions in a non-judgmental manner.
There were also limitations related to the measurement of peer network gender norms. First of all, we defined peer networks as the entire camp. While our qualitative work supported the notion that the camp networks were generally cohesive, measuring gender norms at the level of these sometimes large camp-based peer networks may have masked heterogeneity within influence processes occurring within an individual’s immediate friends (or friends of friends). Additionally, because we operationalized peer networks as camp networks, we were not able to examine influential individuals outside of the men’s camp-based peer networks.

Secondly, because collective norms like peer network gender norms exist at the level of the peer network and “are not explicitly codified,” measuring these types of norms is a challenge (Lapinski & Rimal, 2005). We assessed peer network gender norms by aggregating the individual gender role attitudes of male network members. While this method has been called “a reasonable proxy for the norms that prevail in a setting” by violence researchers (L. Heise, 2011), it has been critiqued by social norms scholars. These scholars argue that collective norm (such as peer network gender norms) are conceptualized as resulting from social interactions in which network members do not contribute equally (Lapinski & Rimal, 2005). By aggregating the gender role attitudes of all peer network members, the measure of peer network gender norms used in this dissertation made the assumption that the attitudes of all peer network members contributed equally to the peer network gender norms.

Additionally, there are limitations to the measure of gender role attitudes that was used in the assessment of peer network gender norms. We used an adapted version of the Gender Equitable Men (GEM) scale (Pulerwitz & Barker, 2008) to measure gender role attitudes. This type of scale has been critiqued for including items that assess acceptance of violence as well as items measuring gender role attitudes and masculinity norms (Reyes et al., 2015). This is
particularly important given empirical data suggesting that the relationship between gender role attitudes and the perpetration of violence may depend on one’s acceptance of violence. Specifically, a recent longitudinal study in the US found that traditional gender role attitudes were associated with increased risk of subsequent perpetration of physical dating aggression only among boys who reported high levels of acceptance of dating violence (Reyes et al., 2015). In that study, endorsing traditional gender role attitudes did not influence perpetration of violence among boys who did not also have beliefs that were accepting of violence. Since our measure of gender role attitudes included several items assessing the acceptability of violence, our results may have masked important differences in the associations between different aspects of this construct and the perpetration of IPV.

Finally, this dissertation focused exclusively on one form of men’s IPV perpetration (physical). Existing research suggests that attitudes towards gender roles may also be associated with other forms of IPV perpetration among men (e.g. sexual IPV) (Jewkes et al., 2011a). In addition, there have also been theoretically-supported calls to better understand the shared risk factors between men’s IPV and their interpersonal violence against peers (Fleming, Gruskin, et al., 2015). Lastly, the notion that IPV is only a problem of male violence directed towards women has also been challenged in the field (Straus, 2010) and scholars are increasingly aware of bidirectional violence and violence perpetrated against men.

6.4 Future Research

The findings for this dissertation have a number of implications for future research. Below, we outline the implication of our findings on the measurement of peer network gender norms, the evaluation of the impact of peer network gender norms on men’s IPV perpetration, the assessment of social cohesion as a moderator of that relationship, the separation of social
selection from social influence in shaping men’s perpetration of IPV, and the examination of the accuracy and bias of men’s perceptions regarding their peer network’s gender norms.

**Measurement of Peer Network Gender Norms**

Future research should utilize more advanced social network analysis methods to map the structure of peer networks in order to determine the most appropriate boundary of each individual’s peer network (Wasserman, 1994). While the results of such research might suggest that peer networks should be defined as the entire camp-based network (as we did in this dissertation), it would be useful to empirically assess the benefits of other options for defining peer networks, such as an individual’s immediate friends – a 1-step ego-network – or friends of friends – a 2-step ego-network. Our research findings (particularly those presented in Chapter 5) suggest that mapping advice networks might be particularly important since seeking advice is one of the ways in which men described internalizing their peer network’s gender norms.

Additional research is also needed to develop valid and reliable methods to assess peer network gender norms at the level of the peer network level. For example, social norm theory suggests that select individuals within peer networks play a disproportionate role in creating and maintain the collective norms of a group (Sherif & Sherif, 1964). Based on this theory, future measures of peer network gender norms should consider utilizing social network analysis to map the structure of peer networks and weighting the attitudes and behaviors of more highly central individuals more than others. Social norms scholars Paluck and Shepherd extend social norms theory to posit that central individuals influence collective norms through daily social interactions (2012). Thus, the social network assessments should take into consideration such daily interactions when determining the structure of peer networks and when determining the centrality of network members. Finally, it is important for future research measuring peer
network gender norms to keep in mind that collective norms are “not static but constantly reshaped and reproduced through these interactions” (Paluck & Shepherd, 2012). In addition to developing new measures of peer network gender norms, future research should explore how these norms change over time.

**Impact of Inequitable Peer Network Gender Norms on Men’s IPV Perpetration**

Future research should also employ longitudinal analyses to explore mediation and moderation pathways that may explain the relationship between peer network gender norms and men’s perpetration of IPV. For example, inequitable or traditional gender norms may have led men to engage in other delinquent behaviors, such as alcohol misuse, which then increased risk of perpetrating IPV. This mediation mechanism warrants further attention given research linking traditional gender norms to alcohol misuse (Wechsberg et al., 2008) and studies linking alcohol misuse to IPV perpetration (Townsend et al., 2011). On the other hand, it is also possible that alcohol misuse moderates the relationship between peer network gender norms and men’s perpetration of IPV. For example, recent qualitative work with men and women in South Africa highlighted the ways in which alcohol use and inequitable gender norms intersect to synergistically influence men’s perpetration of IPV (Hatcher, Colvin, Ndlovu, & Dworkin, 2014; Wechsberg et al., 2013). The role of alcohol misuse as a moderator of the relationship between gender role attitudes and IPV perpetration has been supported in the US context (Lisco, Leone, Gallagher, & Parrott, 2015). Alcohol misuse is an example of a potentially important mediator or moderator to consider in future work trying to better understand the multiple ways in which peer network gender norms influence men’s perpetration of IPV.
Social Cohesion as a Moderator

In this study, we found that peer network social cohesion moderated the association between inequitable peer network gender norms and men’s risk of perpetrating IPV such that the positive relationship became stronger as network social cohesion increased. Our measure of peer network social cohesion was adapted to the camp-based peer network context from an existing scale used to measure neighborhood social cohesion (Sampson et al., 1997). Social cohesion, while broadly representing the level of connectedness among social groups, can analytically be separated into ideational and structural dimensions (Moody & White, 2003). Ideational cohesion, the form of cohesion examined in this dissertation, refers to the perceptions of togetherness within a group. Structural cohesion, on the other hand refers to the patterns of observed connections between members of the group (Doreian & Fararo, 1998; Moody & White, 2003). Sociocentric network studies, studies using social network analysis with complete social networks, are aptly suited to examine the structural cohesion of bounded peer groups like our camp-based peer networks. These studies collect comprehensive data on the direct and indirect relationships between all individuals within larger bounded groups (Wasserman, 1994). Future research should identify the most appropriate measures of structural cohesion (e.g. network density, transitivity, and centralization) and test whether peer network structural cohesion also moderates the association between peer network gender norms and men’s perpetration of IPV.

Social Selection vs. Social Influence

Demonstrating the association between inequitable peer network gender norm and increased risk of men’s perpetration of IPV suggests that peer networks may be important socialization sites for men and may influence men’s perpetration of IPV. However, as we noted above, the cross-sectional nature of our quantitative data did not allow us to separate selection
from influence effects. We explored this issue in our qualitative study, and did not find evidence of social selection processes. Instead, men described several mechanisms through which their peer network’s gender norms influenced men’s perpetration of IPV. While these qualitative data are useful in explaining and contextualizing our results, future research should be conducted to quantify the extent to which selection and influence processes occur. Specifically, future studies should collected longitudinal network data on evolving social ties as well as temporal indicators of gender role attitudes, peer network gender norms, and men’s perpetration of IPV to better understand how norms, attitudes, and behaviors change over time within dynamic peer networks in sub-Saharan Africa. This type of data will allow for the empirical examination and separation of selection from influence effects because of the ability to determine whether friendship ties are formed before or after attitudes are embraced or behaviors occur (Kandel, 1978; Steglich et al., 2010). This research will provide important information towards the development of IPV prevention interventions designed to maximize social influence effects within peer networks.

**Examining the Accuracy and Bias of Perceived Peer Network Gender Norms**

Our qualitative data showed that men in our study perceived peer network gender norms that were largely traditional and emphasized men’s power within relationships. In addition to creating better measures of peer network gender norms, future research should also examine the accuracy and bias of men’s perceptions. This is important because men’s perceptions of their peer network gender norms may not accurately capture actual gender role attitudes of their peers. It is well documented that individuals have a tendency to underestimate health behaviors (e.g. exercising) among their peers while overestimating risky behaviors (e.g. engaging in substance use) (Berkowitz A. D., 2003), a phenomenon known as pluralistic ignorance (Prentice & Miller, 1996; Toch & Klofas, 1984). In fact, a recent study from the parent trial compared perceived
HIV testing norms with actual HIV testing norms among men’s closest friends and found evidence of pluralistic ignorance in that men (and particularly those who had not tested for HIV) were biased towards assuming that their friends had not yet tested (Mulawa, Yamanis, Balvanz, et al., 2016). Those findings showed that men misperceived their peer testing norms, and suggested that correcting those misperceptions may be an intervention opportunity. Thus, future research should examine the accuracy and bias of men’s perceptions regarding the gender norms of their peer networks to see whether there is an opportunity to decrease IPV by correcting misperceptions about peer gender norms.

6.5 Intervention Implications

In addition to the implications for future research, our results have implications for interventions aiming to reduce the perpetration of intimate partner violence. First of all, since our results suggest that men’s perpetration of IPV is influenced by their peer network gender norms, our findings highlight the importance of interventions that transform gender norms within peer networks. Gender-transformative interventions aim to reconfigure gender roles and norms surrounding masculinity to be more equitable (Dworkin et al., 2013). Evidence from recent evaluation studies suggests that these gender norms may be transformed with targeted interventions (Pulerwitz, Hughes, et al., 2015; Pulerwitz, Hui, et al., 2015). Engaging with peer networks to transform peer network gender norms is particularly important given our finding that network norms appear to influence men’s perpetration of violence in part by pressuring men to conform to norms even if those men hold dissenting attitudes. For this reason, interventions that strive to change only individual attitudes would not be as effective as transforming broader peer norms around gender roles and violence. A similar conclusion was drawn in a systematic review of behavioral HIV prevention interventions for young people in sub-Saharan Africa. This review
found that many interventions were ineffective in part because they predominantly focused on changing knowledge and attitudes as opposed to utilizing a broader ecological perspective to identify and target other determinants of risk, including peer norms (Michielsen et al., 2010).

Based on our findings, we echo calls to exert caution with regard to implementing intimate partner violence awareness campaigns within peer networks (L. L. Heise, 1998). Such awareness campaigns may inadvertently reinforce the idea that most men engage in IPV perpetration and hold traditional norms. We found that within the average peer network, approximately 12% of men perpetrated physical IPV against a partner within the last year. Rather than implementing campaigns to raise awareness about IPV, our findings suggest that peer network gender norms play an important role in shaping men’s IPV perpetration and could potentially be leveraged to prevent IPV. In fact, our qualitative data showed that male perpetrators perceived peer network gender norms that were largely traditional and emphasized men’s power within relationships. As we noted earlier, these norms may have been misperceived, as people have a tendency to over-estimate risky norms. Interventions ought to ensure the focus of prevention efforts remains on mobilizing around norms against IPV like equitable gender norms rather than communicating (and emphasizing) the prevalence of the problem.

Additionally, since our findings highlighted the importance of advice-seeking behavior in the adoption and internalization of peer norms, future network-based interventions may also want to consider engaging individuals who play central roles in their networks with regards to advising other network members in ways to resolve conflict (Valente & Pumpuang, 2007). As noted above, additional research is warranted to understand the advice network structure within these peer groups. Based on this information, future interventions could be designed to leverage
the social influence processes identified in this study in part by engaging the central individuals in gender-transformative programming.
APPENDIX A: MAP OF ENUMERATED STUDY CAMPS
APPENDIX B: CONSORT DIAGRAM FOR SELECTION OF CAMP-BASED PEER NETWORKS IN PARENT TRIAL

Camps Found in Community Informant Interviews (n=522)

Camps Assessed for Eligibility (n=294)

Eligible Camps (n=172)

Camps Excluded (n=228)
  - Insufficient address (n=56)
  - Closed permanently (n=148)
  - Closed temporarily (n=24)

Camps Excluded by Criteria (n=122)
  - Less than 20 members (n=67)
  - More than 80 members (n=17)
  - Existed < 1 year (n=1)
  - Research Assistant felt unsafe at camp (n=8)
  - Weapons used in fight at camp in last 6 months (n=20)
  - Participated in pilot (n=4)
  - Refused to participate (n=5)

Camps Selected and Randomized (n=60)
APPENDIX C: CONSORT DIAGRAM FOR INDIVIDUAL PARTICIPANTS

Male Camp Members Assessed for Eligibility in 60 Study Camps (n=1,581)

Individuals excluded by parent trial criteria:
• Not eligible (n=86)
• Refused to participate (n=25)
• Unable to contact (n=71)
• Contacted but unscheduled or missed appointment (n=141)

Baseline Surveys Completed (n=1,258)

Individuals excluded after members from one camp requested to be removed because their leader falsified information regarding the camp’s eligibility (n = 9)

Individuals excluded for additional dissertation criteria:
• Never had sex (n=136)
• Missing data on:
  • Gender role attitudes (n = 1)
  • Education (n = 3)
  • SES (n = 1)
  • Marital history (n = 3)
  • Childhood violence (n = 1)
  • Alcohol use (n = 1)

Analytic Sample (n=1,103)
**APPENDIX D: PHYSICAL IPV PERPETRATION MEASURES FROM WHO VIOLENCE AGAINST WOMEN INSTRUMENT**

*Interviewer:*

→ Now I would like you to think about whether or not you have done any of the following to your current partner, or any other partner. If you say you have done one of the following things, I will then ask you to think about how many times this you did these things within the last 12 months and before the last 12 months. Remember, by partner, I mean someone you feel close to or intimate with. Partner can mean a sexual partner, but does not have to be.

<table>
<thead>
<tr>
<th>No.</th>
<th>Questions and Filters</th>
<th>Coding Categories</th>
<th>Codes</th>
<th>Skip</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have you ever slapped or thrown something at your current or any other partner that could hurt her/him?</td>
<td>NO</td>
<td>YES</td>
<td>0</td>
</tr>
<tr>
<td>1a</td>
<td>In the last 12 months how many times have you slapped or thrown something at your current or any other partner that could hurt her/him?</td>
<td>NEVER</td>
<td>ONCE</td>
<td>2-3 TIMES</td>
</tr>
<tr>
<td>2</td>
<td>Have you ever pushed or shoved your current or any other partner?</td>
<td>NO</td>
<td>YES</td>
<td>0</td>
</tr>
<tr>
<td>2a</td>
<td>In the last 12 months how many times have you pushed or shoved your current or any other partner?</td>
<td>NEVER</td>
<td>ONCE</td>
<td>2-3 TIMES</td>
</tr>
<tr>
<td>3</td>
<td>Have you ever hit your current or any other partner with your fist or something else that could hurt her/him?</td>
<td>NO</td>
<td>YES</td>
<td>0</td>
</tr>
<tr>
<td>3a</td>
<td>In the last 12 months how many times have you hit your current or any other partner with your fist or something else that could hurt her/him?</td>
<td>NEVER</td>
<td>ONCE</td>
<td>2-3 TIMES</td>
</tr>
<tr>
<td>4</td>
<td>Have you ever kicked, dragged or beaten up your current or any other partner?</td>
<td>NO</td>
<td>YES</td>
<td>0</td>
</tr>
<tr>
<td>4a</td>
<td>In the last 12 months how many times have you kicked, dragged or beaten up your current or any other partner?</td>
<td>NEVER</td>
<td>ONCE</td>
<td>2-3 TIMES</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Response</td>
<td>Frequency</td>
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<tr>
<td>5</td>
<td>Have you ever choked or burnt your current or any other partner on purpose?</td>
<td>NO</td>
<td>0</td>
<td>6</td>
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<td></td>
<td></td>
<td>YES</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5a</td>
<td>In the last 12 months how many times have you choked or burnt your current or any other partner on purpose?</td>
<td>NEVER</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ONCE</td>
<td>1</td>
<td></td>
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<td></td>
<td></td>
<td>2-3 TIMES</td>
<td>1</td>
<td></td>
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<td></td>
<td></td>
<td>4-10 TIMES</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>&gt;10 TIMES</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Have you ever threatened to use or actually used a gun, knife or other weapon that could hurt your current or any other partner?</td>
<td>NO</td>
<td>0</td>
<td>Next</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6a</td>
<td>In the last 12 months how many times have you threatened to use or actually used a gun, knife or other weapon that could hurt your current or any other partner?</td>
<td>NEVER</td>
<td>0</td>
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<td></td>
<td></td>
<td>ONCE</td>
<td>1</td>
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<td>2-3 TIMES</td>
<td>1</td>
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<td></td>
<td></td>
<td>4-10 TIMES</td>
<td>1</td>
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<td></td>
<td></td>
<td>&gt;10 TIMES</td>
<td>1</td>
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</tbody>
</table>
APPENDIX E: ADAPTED GENDER EQUITABLE MEN (GEM) SCALE

Interviewer:
Now I’d like to ask you a few questions about what behaviors you think are acceptable in intimate relationships. For each statement, please tell me whether you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the statement. When answering these questions, keep in mind that I’m asking you to say whether you agree with the statement based on what is true for you, not what other people think is true or what your camp thinks is true.

<table>
<thead>
<tr>
<th>No.</th>
<th>Questions and Filters</th>
<th>Coding Categories</th>
</tr>
</thead>
</table>
| 1   | It is the man who decides what type of sex to have. | STRONGLY AGREE
|     |                       | SOMEWHAT AGREE    |
|     |                       | SOMEWHAT DISAGREE |
|     |                       | STRONGLY DISAGREE |
| 2   | A woman’s most important role is to take care of her home and cook for her family. | STRONGLY AGREE
|     |                       | SOMEWHAT AGREE    |
|     |                       | SOMEWHAT DISAGREE |
|     |                       | STRONGLY DISAGREE |
| 3   | Men need sex more than women do. | STRONGLY AGREE
|     |                       | SOMEWHAT AGREE    |
|     |                       | SOMEWHAT DISAGREE |
|     |                       | STRONGLY DISAGREE |
| 4   | You don’t talk about sex, you just do it. | STRONGLY AGREE
|     |                       | SOMEWHAT AGREE    |
|     |                       | SOMEWHAT DISAGREE |
|     |                       | STRONGLY DISAGREE |
| 5   | Women who carry condoms on them are ‘cheap’. | STRONGLY AGREE
|     |                       | SOMEWHAT AGREE    |
|     |                       | SOMEWHAT DISAGREE |
|     |                       | STRONGLY DISAGREE |
| 6   | A man must have sex with other women, even if things with his wife are fine. | STRONGLY AGREE
|     |                       | SOMEWHAT AGREE    |
|     |                       | SOMEWHAT DISAGREE |
|     |                       | STRONGLY DISAGREE |
| 7   | There are times when a woman deserves to be beaten. | STRONGLY AGREE
|     |                       | SOMEWHAT AGREE    |
|     |                       | SOMEWHAT DISAGREE |
|     |                       | STRONGLY DISAGREE |
| 8   | It is a woman’s responsibility to avoid getting pregnant. | STRONGLY AGREE
|     |                       | SOMEWHAT AGREE    |
|     |                       | SOMEWHAT DISAGREE |
|     |                       | STRONGLY DISAGREE |
| 9   | A man should have the final word about decisions in his home. | STRONGLY AGREE
<p>|     |                       | SOMEWHAT AGREE    |
|     |                       | SOMEWHAT DISAGREE |
|     |                       | STRONGLY DISAGREE |</p>
<table>
<thead>
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<th>Coding Categories</th>
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<td>10</td>
<td>Men are always ready to have sex.</td>
<td>STRONGLY AGREE SOMEWHAT AGREE SOMEWHAT DISAGREE STRONGLY DISAGREE</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>3</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>A woman should tolerate violence in order to keep her family together.</td>
<td>STRONGLY AGREE SOMEWHAT AGREE SOMEWHAT DISAGREE STRONGLY DISAGREE</td>
<td>4</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
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<td>1</td>
</tr>
<tr>
<td>12</td>
<td>If a woman cheats on a man, it is okay for him to hit her.</td>
<td>STRONGLY AGREE SOMEWHAT AGREE SOMEWHAT DISAGREE STRONGLY DISAGREE</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>3</td>
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<td>If someone insults a man, he should defend his reputation with force if he has to</td>
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<td>A man should be outraged if his wife asks him to use a condom.</td>
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<td>It is okay for a man to hit his wife if she won’t have sex with him.</td>
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Interviewer:

Now I’d like to ask you a few questions about how you and your fellow camp members get along in this camp. For each statement, please tell me whether you strongly agree, agree, disagree, or strongly disagree with the statement. When answering these questions, keep in mind that I’m asking you to say whether you agree with the statement based on what is true for you, not what other people think is true or what your camp thinks is true.

<table>
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<th>No.</th>
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| 1   | People in my camp are willing to help each other. | STRONGLY AGREE
|     |                         | AGREE                                  | 4     |
|     |                         | DISAGREE                                | 3     |
|     |                         | STRONGLY DISAGREE                       | 2     |
| 2   | We are very close to each other in this camp. | STRONGLY AGREE
|     |                         | AGREE                                  | 4     |
|     |                         | DISAGREE                                | 3     |
|     |                         | STRONGLY DISAGREE                       | 2     |
| 3   | I can trust my fellow camp members. | STRONGLY AGREE
|     |                         | AGREE                                  | 4     |
|     |                         | DISAGREE                                | 3     |
|     |                         | STRONGLY DISAGREE                       | 2     |
| 4   | The members of my camp get along with each other. | STRONGLY AGREE
|     |                         | AGREE                                  | 4     |
|     |                         | DISAGREE                                | 3     |
|     |                         | STRONGLY DISAGREE                       | 2     |
| 5   | The members of my camp share the same values. | STRONGLY AGREE
|     |                         | AGREE                                  | 4     |
|     |                         | DISAGREE                                | 3     |
|     |                         | STRONGLY DISAGREE                       | 2     |
APPENDIX G: QUALITATIVE INTERVIEW GUIDE FOR IN-DEPTH INTERVIEWS – WAVE 1

Introduction: I would like to thank you for participating in this interview. This interview is part of a study that we are doing with approximately 20 male camp members who previously participated in surveys with our Vijana Vijiweni II Project. We have invited you to participate because we would like to ask you more questions to follow-up on topics we asked about in the previous survey you completed with our team. Our team from the Muhimbili University of Health and Allied Sciences (MUHAS) and the University of North Carolina at Chapel Hill (UNC) is interested in learning more about you and your relationships within and outside your camp. We would like to interview you today and another time within the next four months. We want to use these interviews to hear more about your experiences with your intimate partners and with friends within your camp. Your participation is completely voluntary and you may decline to answer any specific question or refuse to continue with the study if you feel uncomfortable at any point. The interview will take approximately 45 minutes to 1 hour. As I told you before, we would like to record this interview. There are no right or wrong answers in this interview. We are interested in hearing about your experiences and opinions. Do you have any questions before we begin?

I would like to start by asking you about your membership in [CAMP NAME].

- How long have you been a camp member?
- How often do you come to the camp? For how long do you stay during a visit?
- How do you spend your time in this camp?
- Why did you choose to join this camp?
- What did you know about this camp and the camp members before you joined?
- What do you think is the reputation of this camp? How do you think this camp viewed by others in your neighborhood?

Can you describe the relationships that you have with other camp members in [CAMP NAME]?

- What can you say about your friendship with camp members? Would you say you are good friends with a few members or many members?
- How do your relationships with camp members compare to relationships that you have outside of this camp? Are your closest friends, or individuals that you talk to most about personal things, also camp members?

What are some of the common topics that you discuss with your fellow camp members at [CAMP NAME]?

- What personal things do you talk about with your camp member? Do you talk about personal things like relationships with girlfriends and partners?
- Have any of your camp members talked about conflict that has occurred within their intimate relationships? By conflict, I mean a serious disagreement or argument that may or may not have resulted in verbal or physical violence. Can you tell me about a discussion you remember with your friends in the camp about conflict within an intimate relationship?
I would now like you to think about the men in your camp.

- What would you say are some of the values that are important to your fellow male camp members? By values, I mean guiding principles that your camp may have.
- How would you say the men in your camp generally think about women? What are some things you have heard men in your camp say about women?
- Can you give me an example of what some of your fellow camp members have said in the past about the role of a woman in a relationship? What about the role of the man? For example, in terms of decision-making? What about regarding finances?
- How do you think the men in your camp would react to their partners if they suspected the partner was cheating on them? What do you think about this reaction?
- Do you think any of them would hit their partners if, for example, they thought she was cheating? What are some other situations in which they might hit their partners?
- What do you think the men in your camp would think about a friend who beat his girlfriend because she refused to have sex with him?

Thinking about your fellow male camp members, would you say that the men generally have similar opinions about the role of women in relationships?

- Are there some men in the camp who have different opinions about the role of women in relationships? Can you tell me how these men talk about the role of women?
- Do you think the men in this camp are similar or different from one another in how they think about whether it is OK to hit their partner under certain circumstances? Can you tell me more about how similar they are? Can you tell me more about how different they are?

Thinking back to when new people join the camp, what do you think happens to their views about women after they join the camp?

- Can you give me an example of a camp member who changed in terms of their views towards women since they first joined? How has this person changed? What about some male members who joined and their views about women didn’t change?
- Do you think camp members become more similar to each other in terms of their values over time, less similar, or no different? How? What do you think is the reason for this?
- What about you? What would you say has happened to your views about women since you joined the camp?

I would now like to ask you about your primary sexual partner. Can you tell me about your relationships with that partner?

- How did you meet?
- How often do you see each other?
- What are some of the things you do together when you spend time with each other?

Can you give me an example of a recent conflict that may have occurred between you and this primary partner?

- What was the conflict related to?
- Why did the conflict occur?
- How was the conflict resolved?
• Thinking about it now, how would you have handled that situation?

Can you tell me about the conversations you had with your camp members about this conflict? What is some of the advice you received from your fellow camp members? [If the participant did not talk with camp members about this conflict,] Why do you think you did not talk about this conflict with your fellow camp members?

• How do you think your fellow camp members would have dealt with the conflict in which you were involved?

(If the participant does not mention a conflict…) Can you give me an example of a conflict that may have occurred between you and a previous partner? [Ask the same previous 2 sets of questions]
APPENDIX H: QUALITATIVE INTERVIEW GUIDE FOR IN-DEPTH INTERVIEWS – WAVE 2

Introduction: I would like to thank you again for participating in this interview. As you may remember, our team from the Muhimbili University of Health and Allied Sciences (MUHAS) and the University of North Carolina at Chapel Hill (UNC) is interested in learning more about you and your relationships within and outside your camp. We are using these interviews to hear more about your experiences with your intimate partners and with friends within your camp. I would like to remind you that your participation is completely voluntary and you may decline to answer any specific questions or refuse to continue with the study if you feel uncomfortable at any point. Similarly to the first interview, today’s interview will take approximately 30 minutes to 1 hour. There are no right or wrong answers in this interview. We are interested in hearing about your experiences and opinions. Do you have any questions before we begin?

During the last interview, we talked a lot about your membership in your camp and how you and your fellow camp members interact. I would like to start this interview by now asking you about your childhood. Can you tell me about how you were raised?

• Where did you grow up?
• Who raised you?
• Did you have brothers and/or sisters at home?
• Were both of your parents in the home?

When you misbehaved as a child, can you remember what happened as a result?

• In what ways did you misbehave?
• How were you disciplined?
• Who generally disciplined you? How did the other parent or guardian react?

Can you tell me about the relationship between your father and mother?

• How did they communicate with one another?
• How do you think they made big decisions? Probe: For example, in the way they raised the children, in financial decisions?

Can you tell me about a time when your mother and father had a disagreement?

• What happened?
• How did they resolve their disagreement?
• Can you tell me about a conflict you may have witnessed as a result of a disagreement?
• How often would you say your parents had such conflicts?

Can you tell about a conflict that you may have witnessed between other adult partners in the surroundings where you were growing up?

• What happened?
• How did they resolve their disagreements?
• How often would you say these happened?
Can you tell me how you view these conflicts and the way they were resolved? I’m interested to know what you learned from these experiences.

Last time when we talked, I asked you about your camp and you told me [insert examples of rules from Wave 1]... I’m now interested to know more about the role of the camp leaders and elders in your camp.

- Can you describe the function of camp leaders?
- And what are the functions of camp elders [if applicable; ask only for camps with elders]?
- In what ways would you say the camp leaders influence the way men in your camp view women? What about camp elders [if applicable]?

What about the role of leaders and elders regarding romantic relationships of camp members?

- In what ways would you say the camp leaders influence the romantic relationships of camp members? What about camp elders [if applicable]?

How do your camp leaders and elders respond to certain behaviors like camp members having multiple sexual partners?

- What about a member who has beaten his partner because he heard she was cheating on him and then he found her having sex with another man?
- What about a man who panicked and beat his partner without evidence that she has done anything wrong?

Last time we talked, I asked you about your primary partner and you told me [insert a few details about the partner and how they met]... I’m now interested to know more about your relationship and disagreements that you may have experienced with this partner. These disagreements don’t have to end in conflict.

- What types of things do you and your partner disagree about?
- How do you resolve your disagreements?

Can you tell me about the discussions you had regarding these disagreements with your fellow camp members?

- Who did you talk to? What is some of the advice you received from your fellow camp members? What did you think about their advice?
- [If the participant did not talk with camp members about this conflict] Who did you talk to about this disagreement? What did they say?

Last time we talked, I asked you about conflict within your relationships and you told me [insert brief summary of example given in Wave 1]... Can you give me an example of a conflict that may have occurred between you and another sexual partner who was not your primary partner? Probe about one-time partners or casual partners met at a bar, etc.

- What was the conflict related to?
- Why did the conflict occur?
- How was the conflict resolved?
Can you tell me about the conversations you had with your camp members (or other friends) about this conflict [from above]?

- What is some of the advice you received from your fellow camp members?
- [If the participant did not talk with camp members about this conflict] Who did you talk to about this conflict?

I am also interested to know if you discussed any of these topics, like the issue of conflict within relationships with any of your fellow camp members since our last interview?

- Who did you talk to?
- What did they say about the topics that we discussed together?
REFERENCES


ATLAS.ti Scientific Software Development GmbH. Retrieved from Berlin, Germany


