

EVALUATING THE COUPLES HEALTH COOP IN SOUTH AFRICAN COUPLES:  
UNDERSTANDING SEXUAL CONCURRENCY, LONG-TERM SKILL RETENTION, AND  
RELATIONSHIP DYNAMICS

Jennifer M. Belus

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Approved by:

Donald H. Baucom

Wendee M. Wechsberg

David L. Penn

Deborah J. Jones

Abigail T. Panter

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## ABSTRACT

Jennifer M. Belus: Evaluating the Couples Health CoOp in South African Couples:  
Understanding Sexual Concurrency, Long-Term Skill Retention, and Relationship Dynamics  
(Under the direction of Donald H. Baucom)

Incident rates of HIV infection continue to be unacceptably high in South Africa, where HIV is primarily transmitted through sexual contact. Couple-based HIV prevention programs, which focus on the dyad as the point of intervention, are shown to be efficacious in improving safe sex behaviors. However, not all individuals show improvement through this type of intervention, suggesting an opportunity to improve these programs. Therefore, the current study has three aims tied to improving couple-based HIV prevention programs in South Africa: (a) use individual and relationship predictors to better understand why individuals engage in outside sexual relationships, known as sexual concurrency; (b) examine the long-term effects of a particular couple-based HIV prevention program, the Couples Health CoOp; and (c) develop and initially evaluate a theory of adaptive couple functioning for Black South African couples, which can improve the relationship focus of couple-based HIV prevention programs. A quantitative investigation using a structural equation modeling framework was carried out for Study 1 using data collected from 286 South African heterosexual couples. Results show that alcohol use for both sexes, relationship satisfaction among men, and mistrust among women were predictive of different types of sexual concurrency. Study 2 used qualitative methods, specifically focus group discussions with men and women, to investigate the second and third aims. Results of Aim 2 indicated that the most salient information learned by men and women related to communication and problem-solving, safe sexual behaviors, and negative effects of alcohol. Long-term changes

were reported in the areas of communication and healthier sexual behavior, but alcohol use for many participants was still an area of struggle. Finally, Aim 3 of this investigation revealed four major components associated with adaptive relationship functioning: active relationship building behaviors, emotional support/display, communication, and problem-solving. Overall, this study provides evidence that relationship factors are central to the lives of South African men and women, and it identifies a number of ways in which couple-based HIV prevention programs might be improved through enhancing various relationship factors.

*Keywords:* HIV prevention, sexual concurrency, South Africa, couples, communication

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## LIST OF ABBREVIATIONS

AUDIT	Alcohol Use Disorders Identification Test
CFI	Comparative fit index
CHC	Couples Health CoOp
FGD	Focus group discussion
HIV	Human immunodeficiency virus
IPV	Intimate partner violence
IRB	Institutional review board
RMSEA	Root mean squared error of approximation
SEM	Structural equation modeling
WLSMV	Weighted least squares mean and variance adjusted
WRMR	Weighted root mean square residual

## **CHAPTER 1: INTRODUCTION**

Couple-based HIV prevention interventions have become an increasingly important HIV prevention strategy in sub-Saharan Africa, including South Africa where the presence of HIV continues to lead to high morbidity and mortality (UNAIDS, 2013; 2016). A meta-analysis examining the efficacy of couple-based HIV prevention interventions, which place the responsibility for prevention on the dyad rather than the individual, demonstrates that they are efficacious in their main objectives of increasing condom usage and decreasing engagement in outside sexual relationships, known as sexual concurrency (LaCroix, Pellowski, Lennon, & Johnson, 2013). Despite the demonstrated efficacy of these interventions, there exist important gaps in our understanding of how to optimize couple-based HIV prevention programs, especially in the long-term. Thus, the goal of the current investigation is to address these limitations by further evaluating one intervention, the Couples Health CoOp (CHC), that was developed specifically for South African couples (Wechsberg et al., 2015). Investigating this intervention further will help the field gain a better understanding of modifiable factors related to sexual concurrency, the long-term skill retention of couples who participate in these interventions, as well as a broader understanding of relationship domains that are important for adaptive couple functioning in a high HIV prevalence setting. In order to address the goals of the current investigation, a mixed-methods approach that uses both quantitative and qualitative data was employed. Specifically, existing quantitative data that was collected to evaluate the efficacy of the CHC were used to understand modifiable factors related to sexual concurrency, whereas new qualitative data were collected through the use of focus group discussions (FGDs) in order to

understand long-term skill retention of the CHC and adaptive relationship functioning in South African couples.

### **Sexual Concurrency**

Our understanding of why individuals engage in sexual concurrency in sub-Saharan Africa is limited, despite it being a target of couple-based HIV prevention programs. Reported rates of sexual concurrency at the national level across sub-Saharan Africa show that approximately 6% of men and 0.5% of women report sexual concurrency over the past 6 months (Sawers, 2013). Rates of this phenomenon in sub-Saharan Africa that cover time periods greater than the past 6 months are often much higher, though still believed to be underreported; these rates range from 15- 34% for men and 1-18% for women, with studies conducted in Botswana, Kenya, Malawi, Uganda, South Africa, and Zambia (Conroy, 2014a; Kasamba, Sully, Weiss, Baisley, & Maher, 2011; Z. Kaufman et al., 2014; Kenyon & Colebunders, 2015; Xu, Luke, & Msiyaphazi Zulu, 2010). Although this phenomenon appears to be more common among men, it is certainly not exclusive to them. Moreover, despite the debate in the literature regarding whether sexual concurrency increases the likelihood of transmitting HIV (Lurie & Rosenthal, 2010; Sawers, 2013; Sawers & Stillwaggon, 2010) as well as how best to measure this construct (UNAIDS, 2009), both men and women report that it is an unwanted behavior within their relationship that causes distress (Harrison & O’Sullivan, 2010; Montgomery, Chidanyika, Chipato, & Van Der Straten, 2012; L. Parker, Pettifor, Maman, Sibeko, & MacPhail, 2014; Smith, 2009). Finally, the presence or suspicion of sexual concurrency in relationships can also lead to other negative outcomes such as intimate partner violence (Wechsberg et al., 2013), highlighting the importance of better understanding this phenomenon.

Before discussing sexual concurrency in greater detail, it is first important to understand the South African context more broadly, which in turn impacts the context within which sexual concurrency takes place. South Africa is a country of high unemployment and high levels of poverty, especially among women; currently over half of the population is considered to be poor, and over 20% are living in extreme poverty (Statistics South Africa, 2014). Due to limited economic opportunities, some women (and men) turn to alternative means in order to meet their basic needs. Transactional sex, or the exchange of sex for goods or money, is one such way. It is important to note that transactional sex does not necessarily equate to commercial sex work, although the distinction is not always clear (Scorgie et al., 2012). For men and women who engage in transactional sex, the sex-resource exchange is typically part of a broader set of ongoing relationship expectations (C. E. Kaufman & Stavrou, 2004); this is distinct from most formal sex work interactions that typically terminate once the sexual act is complete (UNAIDS, 2000). Moreover, those who engage in transactional sex are not considered ‘clients’ or ‘sex workers,’ and the sex-resource form of exchange is more acceptable within communities than is formal sex work (Wojcicki, 2002). Representative rates of transactional sex in South Africa have been difficult to acquire, but one study found that 12% of men and women attending alcohol establishments had engaged in transactional sex in the past (Kalichman, Simbayi, Vermaak, Jooste, & Cain, 2008). In addition to economic motivations, other drivers of transactional sex exist such as social status (Leclerc-Madlala, 2003), women’s desire for agency and autonomy (Watt et al., 2012), or as a way to acquire alcohol or drugs (Watt et al., 2012; Wechsberg et al., 2013).

One common setting in which transactional sex takes place, as well as casual sex more broadly, is in alcohol establishments. Shebeens (a private home serving alcohol that may be

licensed or unlicensed), taverns (licensed public venues), and bars are all common settings in South Africa where this happens. Cultural norms related to attending these drinking establishments normalize casual and transactional sex that occurs there (Morojele et al., 2006; Watt et al., 2012; Wechsberg et al., 2013). Individuals who are in committed relationships do frequent such drinking establishments (Morojele et al., 2006; Wechsberg et al., 2013), which are high-risk settings where sexual concurrency can, and does, take place. This context is especially pertinent to the current investigation, since couples who participated in the study were recruited from such drinking venues.

It might also be useful to consider how sexual concurrency in South Africa may be similar or different to sexual concurrency in western cultures, often referred to as *infidelity* or *affairs*. First, rates of sexual concurrency in sub-Saharan Africa, which are often believed to be higher than rates in western regions (e.g., Halperin & Epstein, 2004) appear to be very similar between the two cultural contexts; in fact, rates of sexual concurrency may actually be lower in the sub-Saharan Africa region (Sawers, 2013). For example, 12-month prevalence rates of sexual concurrency in the United States are estimated to be approximately 11% for men (Adimora, Schoenbach, & Doherty, 2007) and 6% for women (Adimora, Schoenbach, Taylor, Khan, & Schwartz, 2011). One important difference in exploring sexual concurrency in these two cultures is that research on sexual concurrency in sub-Saharan Africa has overwhelmingly been through the lens of HIV reduction, whereas with western couples, research has focused on the deleterious effects of this phenomenon on individual and couple functioning (see Allen et al., 2005 for a review). Moreover, in an attempt to explain why sexual concurrency occurs, research with western couples has primarily investigated qualities of the individual (both the individual engaging in sexual concurrency and the “injured” partner who did not engage in sexual

concurrency) as well as qualities of the couple's relationship (Allen et al., 2005). This is in contrast to the sub-Saharan African context, where the vast majority of research has focused on contextual factors, such as culture or gender (e.g., Jewkes & Morrell, 2010; Smith, 2009). Although differences exist in the two contexts, borrowing from the western perspective on individual and relationship factors that influence sexual concurrency may prove to be fruitful in attempting to understand sexual concurrency in South Africa specifically.

With regard to explaining sexual concurrency in sub-Saharan Africa, a number of explanations have been put forth including biological (e.g., Orubuloye, Caldwell, & Caldwell, 1997), economic (e.g., Hunter, 2009), and sociocultural factors (e.g., Jewkes & Morrell, 2010; Smith, 2009). The sociocultural explanation has received the most attention, which suggests that gender norms prescribe men to be sexually promiscuous as a way of demonstrating their virility. This is part of a broader set of behaviors that represent hegemonic masculinity, or the dominant idealized form of masculine behavior. Moreover, these gender norms have a deep-seated history and broad community acceptance, which make them resistant to change (Swartz, Tyler, & Versfeld, 2013; Tibesigwa & Visser, 2015). Similarly, women's engagement in sexual concurrency is largely explained by the confluence of sociocultural and economic factors. Limited economic opportunities for some South African women result in their engagement in outside sexual relationships as a way to support themselves and their families (e.g., Wechsberg, Luseno, & Lam, 2005; Wechsberg et al., 2013). Although sociocultural and economic factors are important in understanding sexual concurrency, these factors do not fully explain sexual concurrency for either men or women, given that not all men and women engage in sexual concurrency. This highlights the need to refine the existing theoretical framework in order to better understand and predict sexual concurrency in South Africa, with the ultimate goal of



improving the efficacy of couple-based HIV prevention interventions and the quality of life for South African men and women.

The various theories discussed above focus on broader, macro-level explanations of sexual concurrency. Although important, individuals living in the same environment (e.g., couples living in the same township in Cape Town, South Africa) are exposed to the same societal factors such as gender and cultural norms. This suggests that there are likely other factors at play in the complex phenomenon of sexual concurrency, such as factors at the individual and relationship level. This is consistent with the organizational framework put forth by Allen and colleagues (2005) on understanding sexual concurrency in western couples. As discussed earlier, much of the existing research on sexual concurrency with western couples has explored individual and relationship factors, although contextual factors have also been explored to a certain degree. Given that a more nuanced understanding of sexual concurrency in South African couples is desired, exploring individual and relationship factors may be of significant value.

Regardless of the specific factor of sexual concurrency being examined (i.e., individual, relationship, or contextual factors), research in this area has primarily examined this phenomenon as an *individual-level* behavior. Only one study to date has examined the extent to which both partners in a couple engage in outside sexual relationships. This study, by Kwena (2014), examined sexual concurrency in married Kenyan couples at the *couple-level*. In other words, the study differentiated between couples in which one or both partners engaged in outside sexual relationships. However, most other studies on sexual concurrency that have collected data from both partners ultimately examine what each partner does individually, rather than what happens for the couple as a unit (e.g., Conroy, 2014a). This then assumes that there is no

difference between couples in which one partner engages in sexual concurrency, here called monoconcurrency, as compared to couples wherein both partners engage in the behavior, referred to as biconcurrency. However, it is proposed here that there exists an important distinction between these two groups of couples, and this distinction is empirically explored in the current investigation.

For couples where biconcurrency is present, this behavior is viewed as a “systems problem,” meaning that there are factors operating at the relationship level that make sexual concurrency more likely for both partners. When sexual concurrency occurs, it has high potential to harm the relationship per se. One relationship factor that may mitigate against sexual concurrency is a relationship milieu where partners feel as if they are operating as a connected unit or united on the same team. When operating as a unit, partners have shared goals and view things that are beneficial to the relationship as also salubrious to the individual. Under these circumstances, actions that harm the unit are also harmful to the individual partners. This is aligned with theories on interdependence within relationships, whereby couples can operate as a “unit relation” if they have mutual goals and important similarities (Lerner, 1980). In the process of becoming a “unit relation,” partner preferences become intrinsically rewarding for an individual, and one’s own self-interest merges with the interest of one’s partner (Borden & Levinger, 1991). Therefore, engaging in sexual concurrency is incongruent with this relationship milieu, since bringing a third party into the relationship disrupts the sense of being united as a team and is not in the best interest of one’s partner (and as a corollary is not in one’s own best interest). For biconcurrency couples, it is predicted that relationship factors that contribute to feeling divided and not operating as a unit, termed a *divisive relationship milieu*, such as mistrust or relationship inequity, play a significant role in sexual concurrency. Moreover, these

relationship factors are hypothesized to be stronger predictors of sexual concurrency for these couples than are individual factors. Individual factors are still believed to be important, but are merely predicted to play a smaller role.

For monoconcurrency couples wherein only one partner is engaging in sexual concurrency, it is proposed that this behavior is less related to relationship factors and more related to individual factors. Under this circumstance, sexual concurrency is viewed as a risky behavior, something that puts both the individual's health at risk (e.g., increased risk of contracting a sexually transmitted infection or HIV) as well as the intimate relationship at risk, since most individuals do not approve of their partner engaging in outside sex (e.g., Montgomery et al., 2012; L. Parker et al., 2014). Excessive alcohol use is an individual factor that is associated with increased risk-taking, particularly when it comes to sexual risk behaviors (Morojele et al., 2006; Smit et al., 2006). Therefore, it is proposed here that for monoconcurrency couples, factors at the individual level that are associated with higher levels of risk-taking play a more important role than the relationship factors previously discussed. Again, relationship factors are still believed to influence sexual concurrency in these couples (e.g. an individual who does not trust her or his partner might feel free to engage in sexual concurrency), but to a lesser degree under this circumstance.

Given these predictions, it is necessary to examine sexual concurrency at the *couple-level*, taking into account the actions of both partners rather than examining each partner's behavior separately. Only one previous investigation on sexual concurrency in sub-Saharan Africa by Kwenya (2014) has simultaneously taken into account the sexual concurrency behavior of both partners in a sample of married couples in rural Kenya. This study produced descriptive data on rates of sexual concurrency: 31% for male monoconcurrency, 4% for female

monoconcurrency, 2.6% for biconcurrency, and 62.4% for no concurrency. However, no predictive models were investigated to understand these different patterns of sexual concurrency. Therefore, in order to build a case for examining the specific individual and relationship factors relevant to the current investigation, relevant past literature on sexual concurrency conducted in sub-Saharan Africa is discussed. Literature on sexual concurrency with western couples is also noted at times, though this cultural context is made clear to the reader when such findings are discussed.

When examining individual factors in relation to sexual concurrency in sub-Saharan Africa, much of the research to date has examined demographic characteristics. Variables that have been linked to an increase likelihood of men's sexual concurrency include younger age (Kasamba et al., 2011), earlier sexual debut (Harrison & O'Sullivan, 2010; Kasamba et al., 2011; Sandøy, Dzekedzeke, & Fylkesnes, 2010), being married (Kenyon & Colebunders, 2015; Sandøy et al., 2010), living in an informal settlement (Kenyon & Colebunders, 2015), not living with one's partner and being physically absent from one's partner (e.g., due to migratory work; Sandoy et al., 2010; Xu et al., 2010), and not knowing a partner's HIV status (Kasamba et al., 2011). However, not all studies found a significant association between age (Harrison, Cleland, & Frohlich, 2008; Kenyon & Colebunders, 2015; Xu et al., 2010), time of sexual debut (Kenyon & Colebunders, 2015; Xu et al., 2010), and marriage (Carter et al., 2007) in terms of increasing the likelihood of sexual concurrency. The majority of these studies though used younger samples with a more restricted age range (16- 24 years of age), which may have reduced the ability to detect differences with respect to age-related variables.

When predicting sexual concurrency for women from individual variables, consistent with the findings for men, living in an informal settlement (Kenyon & Colebunders, 2015) and

not knowing a partner's HIV status (Kasamba et al., 2011) were both related to an increased risk for sexual concurrency. However, a woman's age and sexual debut were both found to be unrelated to sexual concurrency (Kasamba et al., 2011; Kenyon & Colebunders, 2015; Xu et al., 2011), which is distinct from the findings for men. Finally, there were more inconsistent findings regarding the demographic predictors for women. For example, one study found that marriage in South African women was related to increased likelihood for engaging in sexual concurrency (Kenyon & Colebunders, 2015), whereas a study with Kenyan women found the opposite association (a decreased risk of concurrency; Xu et al., 2010), yet both of these studies used samples of younger women. Despite these inconsistencies, this body of research suggests that demographic characteristics have been the most frequently investigated predictors of engaging in outside sexual relationships. The results from these studies show that the variables investigated to date (primarily demographic) do not provide much additional information regarding women's sexual concurrency, although for men they do yield some important predictive power. Nevertheless, most of these individual factors are static variables and therefore are inappropriate targets of intervention, highlighting the need to explore modifiable individual factors that can become targets of intervention.

As described earlier, engaging in sexual concurrency is viewed as a risky behavior for both the individual and the couple's relationship. Therefore, individual factors that increase risk-taking behavior are thought to be important in this context. Current alcohol use can increase individual's risk-taking and has been associated with engaging in risky sexual behaviors more broadly (Arriola, Loudon, Doldren, & Fortenberry, 2005; Kalichman, Simbayi, Kaufman, Cain, & Jooste, 2007). Thus, this variable is explored as a factor associated with increased risk-taking and is of interest in predicting engagement in sexual concurrency in the current investigation.

Alcohol use has received much attention in the literature as a factor that increases high-risk sexual behaviors. Morojele and colleagues (2006) put forth a culturally-sensitive model of how alcohol use increases sexual risk behaviors based on qualitative work with risky South African drinkers. They propose that the psychoactive effects of alcohol use include a reduction in reasoning skills, inhibition, judgment, and sense of responsibility, coupled with an increase in one's sexual arousal and desire. Taken together, these effects make it more likely for an individual to engage in risky sexual behaviors than they otherwise might, such as not wearing condoms or engaging in sexual concurrency.

Reviews of alcohol use in South Africa specifically (F. A. Browne & Wechsberg, 2010) and in sub-Saharan Africa more broadly (Kalichman et al., 2007) demonstrate that alcohol as well as the use of other substances is associated with decreased condom use and an increased number of sex partners. Although it is conceivable that alcohol use may be used as a coping strategy for individuals after they have engaged in risky sexual behavior, the vast majority of theoretical and empirical research in this area examines alcohol use as a predictor for high-risk sexual behavior. Yet, the majority of research on alcohol abuse and risky sexual behaviors has not separated out sexual concurrency from multiple partnerships that occur in close proximity, which may or may not occur concurrently (e.g., Brodish et al., 2011; Simbayi et al., 2006). In addition, qualitative research has documented multiple or concurrent partnerships as a common theme in individuals who engage in high alcohol or drug use (e.g., Atkinson, McCurdy, Williams, Mbwapbo, & Kilonzo, 2011; Wechsberg et al., 2013), although minimal quantitative research has been conducted. One study examined hazardous alcohol use as a risk factor for sexual concurrency in South African youths aged 12-18 in Cape Town and Port Elizabeth, South Africa, and found that males and females who engaged in hazardous alcohol use were at least

three times more likely to report sexual concurrency at the time (Z. Kaufman et al., 2014). A similar finding for the role of alcohol use in women's sexual concurrency was found in another study with South African youths, where Kenyon and Colebunders (2015) showed that women who drank alcohol at least once per month were three times more likely to engage in sexual concurrency.

However, another study examining hazardous alcohol use and sexual concurrency in South African men living in peri-urban settings outside of Cape Town did not find an association between these variables (Townsend et al., 2010). It is important to note that the men in Townsend and colleagues' (2010) study were specifically recruited if they had had multiple sexual partnerships over the past 3 months, and 94% of the entire sample responded affirmatively to engaging in concurrent sexual relationships over that time period. This likely resulted in limited variability available to assess associations between alcohol use and sexual concurrency. Moreover, much of the research on alcohol use has not examined the impact of alcohol use on sexual concurrency in established relationships, which is important because sexual concurrency likely carries different meaning in long-term established relationships versus casual partnerships, since the relationships themselves have different meanings (W. Parker, Makhubele, Ntlabati, & Connolly, 2007).

As described above, current alcohol use is an important factor for sexual risk-taking behaviors, but research also suggests that alcohol use may be a coping strategy that individuals engage in as a way to deal with past trauma (Parkhill, Norris, & Davis, 2014; Quina, Morokoff, Harlow, & Zurbriggen, 2004). Interpersonal traumas, namely physical and sexual abuse, are often the most common types of trauma examined and are explored in the current investigation. Two previous studies have examined alcohol use as a mediator of past abuse and current sexual

risk-taking behaviors in South Africa, and the results of both studies were consistent with the theory that alcohol is used as a coping strategy (Icard, Jemmott, Teitelman, O’Leary, & Heeren, 2014; Pitpitan et al., 2012). One study examined childhood sexual abuse in men and found that problem drinking, but not marijuana use, was associated with a range of sexual risk-taking behaviors such as unprotected vaginal and anal sex and having sex with multiple partners (Icard et al., 2014). Sexual concurrency was not examined per se, but 80% of the men in Icard and colleagues’ investigation reported having a “steady partner,” and 50% also reported having a casual sex partner in the last 90 days. This suggests sexual concurrency was occurring in the sample but was not examined directly as an outcome of interest.

The other study to examine alcohol use as a coping strategy examined lifetime gender-based violence in women, but only examined unprotected sex as the sexual risk-taking behavior (Pitpitan et al., 2012). Large scale studies on rates of childhood physical abuse are not as common in the literature, but one study using data from Tanzania, South Africa, and Zimbabwe found rates of physical abuse during childhood to be approximately 6.5% for women and 15% for men (Richter et al., 2014). Moreover, data regarding rates of childhood sexual abuse from a global review found that approximately 20% of African men and women report sexual abuse (Stoltenborgh, van Ijzendoorn, Euser, & Bakermans-Kranenburg, 2011). Both of these statistics suggest high prevalence rates of adverse childhood experiences that are likely to impact significant proportions of the male and female South African population.

In addition to a history of physical or sexual abuse that increases the likelihood of maladaptive coping through alcohol use, it also puts an individual at high-risk for being revictimized later in life (e.g., Dunkle et al., 2004; Gass, Stein, Williams, & Seedat, 2011; Zablotska et al., 2009) as well as becoming the perpetrator of violence (Gass et al., 2011; Gupta



et al., 2008; Mathews, Jewkes, & Abrahams, 2011). For example, the study by Richter and colleagues (2014), which examined the impact of childhood physical and sexual abuse for adult men and women from representative samples in Zimbabwe, South Africa, and Tanzania, found the presence of either childhood physical or sexual abuse was associated with a 2-3 times greater likelihood of ever being physically abused by one's intimate partner or being forced to have sex in the past 6 months. Rates of intimate partner violence (IPV) in sub-Saharan Africa are high, with a recent meta-analysis estimating that approximately 36% of women living in sub-Saharan Africa have had an intimate partner perpetrate violence against them at some point in their adult lives (World Health Organization, 2013). Violence against women has a deep-seated history in South Africa, with men treating women as their property and also enacting violent behaviors that were carried out in previous generations (Sawyer-Kurian, Wechsberg, & Luseno, 2009). However, men are also victims of IPV, though this is not as well-documented in the literature (Zacarias, Macassa, & Soares, 2012). A study examining 684 Malawian men in committed relationships found that approximately 10% of the sample reported an intimate partner had ever perpetrated sexual violence against them (Conroy & Chilungo, 2014).

A model has been put forth by Singer (1996; 2006) describing the intertwining and overlapping health problems of substance abuse, violence, and HIV/AIDS, termed SAVA. The idea is that these health epidemics do not occur in isolation, and in fact often co-occur and work in tandem, influencing each other. As described previously, past violence is known to increase the risk for later use of substances and continued perpetration and victimization of violence. Moreover, these factors all increase risk for HIV through unsafe sex or drug-using behaviors. Although early experiences such as trauma history precede current experiences, the current violence, substance use, and risk of HIV all co-occur and influence each other.

Therefore, research on individual risk factors suggests that current alcohol use, which for some may be a coping strategy to deal with past trauma, is related to a range of sexual risk-taking behaviors in South African adults. However, sexual concurrency per se has only received limited attention as an outcome of interest in quantitative investigations. Moreover, alcohol use has a reciprocal relationship with IPV in romantic relationships, and IPV is also associated with a trauma history; this suggests that IPV is an important variable that should be accounted for when examining the influences of past trauma and current alcohol use on sexual concurrency. Finally, past research on alcohol use and engaging in sexual risk-taking behaviors has not specified whether individuals were in formal committed relationships or more casual relationships, which is an important distinction because expectations are different in these two types of relationships (W. Parker et al., 2007).

In addition to the importance of individual factors in better understanding sexual concurrency, qualities of the relationship are thought to play a role in this phenomenon. Relationship factors are viewed as systemic or dyadic and are not attributed to either partner alone (Allen et al., 2005). As discussed earlier, it is proposed that factors of the couple's relationship that contribute to partners feeling divided and in disunion, a divisive relationship milieu, contribute to sexual concurrency. Although relationship factors have been investigated to a much lesser degree in the context of sexual concurrency in sub-Saharan Africa, some researchers have begun to call for a more dyadic focus on this phenomenon (Conroy, 2014a). Mistrust and relationship inequity are two variables that capture division and disunion between partners and are explored below in more detail.

Interpersonal trust is conceptualized as involving attributions about a partner's benevolence and honesty (Larzelere & Huston, 1980). Trust involves an attribution of a partner's

benevolence in order to determine whether the partner is motivated to act individualistically (i.e., for their own good) or cooperatively (i.e., for the good of both partners; Larzelere & Huston, 1980). Benevolence is important in dyadic relations since the responsibility for the well-being of the relationship per se does not fall on either member of the couple. Ideally then, both members of the couple consider the well-being of the relationship, in addition to considering their own needs. The other attribution in trust involves assessing a partner's honesty, or the extent to which an individual can take at face value what their partner is telling them (Larzelere & Huston, 1980). This too is important since partners cannot be in each other's physical presence at all times. A lack of trust in the relationship therefore suggests that an individual does not perceive the partner to prioritize the relationship well-being and/or cannot take their partner's statements at face value. Trust then represents a critical component of a couple being united; if an individual cannot trust their partner, then it will be difficult for the couple to operate as a united team.

One particularly salient aspect of intimate relationships requiring trust between partners relates to sexual activity. Research with individuals from a number of countries in sub-Saharan Africa who are in monogamous relationships suggests that individuals expect their partners to refrain from engaging in sexual activity with other people, even in the face of community norms that suggest high rates of concurrency (Harrison & O'Sullivan, 2010; Montgomery et al., 2012; L. Parker et al., 2014; W. Parker et al., 2007; Smith, 2009). Moreover, studies have examined how discussing the use of condoms for couples in South Africa is mired in issues of mistrust. Both men and women perceive that if their partner raises the issue of wearing condoms, then their partner is engaging in sexual concurrency (L. Parker et al., 2014; W. Parker et al., 2007).

Perceptions of partner sexual concurrency may increase an individual's likelihood of engaging in their own sexual concurrency for two reasons. First, it may be an act of revenge

since research with western couples shows that the “injured” partner often has desires to retaliate after being hurt, and one way is through their own engagement in sexual concurrency (Morrissette, 2012). The idea of revenge also emerged in a qualitative study with Mozambican women who reported that one of the primary reasons for their own sexual concurrency was to retaliate against a partner who they believed was having additional sexual relationships (Vera Cruz & Maússe, 2014). Second, believing that one’s partner is engaging in sexual concurrency may provide the rationale that an individual needs to begin pursuing his/her own sexual partners outside of the relationship. In other words, the perception of partner infidelity may legitimize one’s own pursuit of concurrent sexual relationships. However, it is also possible that an individual’s perception of one’s partner being unfaithful is a post-hoc justification that reduces cognitive dissonance and guilt after one’s own sexual infidelity has taken place. It is also possible that some relationships have broader norms that accept multiple relationships (Ferrand, Marquet, & Van Campenhoudt, 1998). A few studies have shown that an individual’s perception that one’s partner is involved in other sexual relationships was one of the strongest predictors of both men and women’s self-reported sexual concurrency in samples of Kenyan and South African young adults (Kenyon & Colebunders, 2015; Xu et al., 2010) as well as in an adult sample from Botswana (Carter et al., 2007). However, this variable has received limited attention in the literature and has not been quantitatively investigated in a South African adult population.

Relationship inequity is another variable that may also be related to sexual concurrency because it can detract from a couple’s sense of feeling that they are a team where both give and benefit similarly. Relationship equity describes the extent to which both members of the couple are considered equals within their relationship. Relationships can be inequitable in a number of ways, including financial resources, division of household labor, and decision-making power, to

name a few. Much has been written on the topic of equality between partners, and most scholars, including western and non-western, agree that relationship equity is an important goal for couples to work towards (Dunkle et al., 2004; Shefer et al., 2008; Wechsberg et al., 2008).

Equity theory (Hatfield, Traupmann, & Walster, 1979), a specific theory on equity that has been applied to intimate relationships, describes the extent to which an individual feels underbenefited or overbenefited from their relationship. Individuals feel underbenefited when they experience that they put more into the relationship than what they get out, relative to their partner. The reverse is true for those who feel overbenefited—they get more out of the relationship than they put in, relative to their partner. Researchers have suggested that those who underbenefit or overbenefit from their relationship may be more likely to engage in sexual concurrency, although for different reasons (Hatfield et al., 1979; Prins, Buunk, & VanYperen, 1993).

Hatfield and colleagues (1979) originally suggested that the partner who underbenefits is likely to engage in sexual concurrency for at least three reasons: in order to reinstate a sense of equity by increasing one's own rewards and decreasing the rewards of the partner (e.g., through increasing partner jealousy); using sexual concurrency as a disengagement strategy to remove oneself from the unfair relationship; or as a way to increase one's overall sense of equity by having multiple relationships with the hope that the other relationships will be more equitable. In addition to these assertions, Prins and colleagues (1993) suggested that those who overbenefit from relationships are also likely to engage in sexual concurrency; this is because it helps justify an individual's position of overbenefitting by demonstrating that one is desirable to other people and, therefore, that one brings value to the current relationship. Moreover, because the experience of inequity is an aversive state, those who overbenefit likely experience negative

emotions such as guilt or fear of losing their position (Hatfield et al., 1979) and may act in ways to avoid or escape the situation, such as engaging in outside relationships.

Studies with western couples have investigated relational equity and sexual concurrency and have found that individuals in relationships characterized by greater inequity engage in sexual concurrency to a greater degree than individuals who are in more equitable relationships. For example, Prins and colleagues (1993) found that married women who either underbenefited or overbenefited from their relationship were more likely to have engaged in sexual concurrency at some point in the past. For men, most of the evidence has examined men who overbenefit and has found a greater likelihood of overbenefited men engaging in sexual concurrency than men in more equitable relationships (Munsch, 2015; Prins et al., 1993).

One common way to define relationship equity in studies conducted in sub-Saharan Africa is to operationalize this construct as the decision-making power of both partners. Many studies find that men are the de facto decision makers in relationships, despite some men and women reporting that couples should ideally be making joint decisions (Montgomery et al., 2012). Women often need to carefully navigate raising issues with their male partners in order to increase the likelihood that their partners will be in agreement with their perspective on the issue being discussed (Gafos et al., 2015; Miller et al., 2009; Montgomery et al., 2012). This suggests that relationships are not equitable if women need their partner to be in agreement with them before they are able to make a decision. However, it is also true that some men report the need to address certain topics delicately with their female partners (Miller et al., 2009), suggesting variability in who has the decision-making power within a given relationship. Although a direct empirical test of shared relationship power has not been conducted in this population, one study with South African youth examined condom negotiation as an indicator of relationship equity

(Kenyon & Colebunders, 2015). Specifically, men's willingness to use a condom if their partner requested them to do so and women's ability to refuse to have sex with someone who refused to use a condom were both predictive of reduced likelihood for sexual concurrency. Taken together, relationship inequity is common in South Africa, defined by scholars and couples alike as a less desirable relationship outcome, and is associated with an increased likelihood of sexual concurrency in western couples; other similar constructs in South African samples appear to be predictive of this phenomenon. Moreover, the presence of relationship inequity represents a division of unity in a couple's relationship, which is hypothesized to be an important relationship milieu contributing to sexual concurrency. For these reasons, it is expected that lack of relationship equity is an important predictor of sexual concurrency in South African couples for both partners.

Therefore, it appears that trust and relationship equity are important facets of a couple feeling united, and the absence of these elements may put couples at risk for sexual concurrency. Mistrust is a relatively common phenomenon in South African couples, particularly around sexual behavior, and has been investigated as a predictor of sexual concurrency in samples of mostly young adults. Moreover, relationship inequity, also a relatively common phenomenon in South Africa, has been predictive of sexual concurrency in western couples but has not been investigated in South Africa. Thus, it appears that mistrust and relationship inequity are two variables worth investigating as predictors of sexual concurrency in the context of adult committed romantic relationships in South Africa.

In addition to investigating relationship factors that put couples at risk for sexual concurrency, it is also important to identify factors that protect couples from such outcomes. Because relationship factors have not been extensively examined as predictors of sexual

concurrency, it is unclear whether relevant factors are those that are more focal to the behavior, such as sexual satisfaction, or whether diffuse characteristics such as relationship satisfaction are also pertinent. Therefore, both of these relationship variables are investigated in the current study. With regard to sexual satisfaction, Kwena (2014) found an increased likelihood of sexual concurrency for men when their sexual desire was not met and an increased likelihood for women when they were denied their preferred style of sexual positions. These findings suggest when sexual satisfaction needs are met, there is a decreased likelihood for men and women's sexual concurrency. Moreover, one study examined the role of relationship satisfaction as a predictor of sexual concurrency with Zambian couples and found that individuals with higher relationship satisfaction had fewer outside sex partners, when relationship satisfaction was divided into low, medium, and high levels (Vamos et al., 2013). Moreover, the study also showed that higher levels of relationship satisfaction were related to more consistent condom use, suggesting a protective presence of relationship satisfaction for risky sexual behavior. However, the results for Vamos and colleagues' study were not separated by sex, making it unclear whether these findings apply to both men and women. Nevertheless, the findings across these two previous studies suggest the possibility of specific and diffuse relationship factors that may protect against sexual concurrency.

Overall, however, there is scant research on individual and relationship factors that relate to sexual concurrency in the context of a high HIV prevalence setting in sub-Saharan Africa. The goal of this study is to examine how specific individual factors and relationship factors predict sexual concurrency in South African couples, above and beyond established predictors of this phenomenon, at the *couple-level*. The research on demographic factors continues to be important in order to define the target population, and broad contextual factors are also worthy of continued



investigation, although they will unlikely result in a change in sexual concurrency in the short-term. In response to these limitations of the field, the current study examines predictors of sexual concurrency using individual and relationship variables, since these factors have the potential to be modified through intervention, especially over a shorter time period. Moreover, the research investigating sexual concurrency to date has examined this phenomenon as an individual-level behavior. Although such a focus is helpful, it does not capture the dynamic nature of sexual concurrency. Examining sexual concurrency at the couple-level takes both partners' behavior into account and better represents the behavior as it happens in the lives of these couples. Moreover, the current investigation involves specific predictions regarding how individual and relationship factors differentially affect couples wherein one or both partners are engaged in sexual concurrency.

In order to facilitate an elucidation of the hypotheses associated with sexual concurrency, Figure 1 presents a conceptual and testable model of the individual and relationship variables that are hypothesized to be predictive of couple-level sexual concurrency. The model put forth is culturally-specific, meaning that the variables selected have great relevance to Black South African couples living in townships but may not be relevant to other cultures, such as couples in the United States. For example, the pervasiveness of relationship inequity in South Africa (Hunter, 2010) and the way in which conversations about safe sex are mired in mistrust (L. Parker et al., 2014; W. Parker et al., 2007) make these variables likely predictors of sexual concurrency in South Africa, but are likely not among the most important for US couples. As can be seen from Figure 1, a history of trauma is predictive of current alcohol use for both men and women, which in turn is associated with sexual concurrency. Moreover, alcohol use is associated with violence in romantic relationships. Alcohol use may again be used as a coping mechanism

to deal with current victimization, or alcohol use may lower one's inhibitions and decrease judgment, making violence more likely (past research supports both of these views; Singer, 1996; 2006). In addition, past trauma is also predictive of IPV in the couple's current romantic relationship, given the documented revictimization and violence perpetration of individuals with a trauma history.

Furthermore, the presence of IPV in a couple's relationship is also expected to be associated with a divisive relationship milieu. The divisive relationship milieu is one where partners do not feel as if they are united and working as a team. In the current investigation, relationship inequity and partner mistrust are indicators of a divisive relationship milieu, and this variable is expected to predict sexual concurrency. Moreover, a divisive relationship milieu is expected to be positively associated with IPV because the presence of inequity and mistrust in the relationship likely make it easier to engage in violence, another form of inequity, as well as being a potential behavioral consequence of mistrust. However, the presence of violence in a relationship also likely facilitates the experience of current inequity in the relationship. Irrespective of the direction of the association, past research has found consistent associations between relationship inequity and IPV in Malawi, Tanzania, and South Africa (Conroy, 2014b; Grabe, Grose, & Dutt, 2015; Jewkes, Dunkle, Nduna, & Shai, 2010). Finally, relationship satisfaction and sexual satisfaction are viewed as protective factors for sexual concurrency and are also expected to be negatively associated with current IPV.

### **Long-term Intervention Effects**

In addition to better understanding sexual concurrency in South African couples as a way to improve HIV prevention interventions in the future, the second aim of this study is to examine the long-term effects of existing programs. The research to date on couple-based HIV prevention

interventions shows that such programs have a positive effect on HIV risk behaviors, such as condom usage and sexual concurrency (LaCroix et al., 2013). Most studies, however, have only evaluated the efficacy of these interventions in the short-term, with the longest follow-up times typically being one year post-intervention (see Jiwatram-Negrón & El-Bassel, 2014 for a review). Yet, HIV risk behaviors continue to be important for the couple beyond the first 12 months after completing the intervention. Thus, it is imperative to know what the longer-term impact of HIV prevention interventions is on couples' HIV risk behaviors.

In the earlier investigation of the CHC's efficacy, study participants were followed up for a period of 6-months post-intervention. Results from the outcome of the intervention suggest that the CHC reduced men's problem drinking, improved men and women's condom usage, and reduced the likelihood that women who were HIV-uninfected would seroconvert (Wechsberg et al., 2016). However, the follow-up time period of the intervention was short, making it difficult to draw conclusions about the sustainability of the skills learned and whether the intervention had long-term positive effects. Moreover, it is important to assess whether specific skills or content from the intervention were especially vulnerable to being lost over time, which may suggest areas for program improvement. Finally, not all couples showed improvements in the expected outcomes, suggesting an opportunity to refine the intervention by understanding individuals' experiences in participating in the CHC.

### **Adaptive Relationship Functioning**

In addition to better understanding sexual concurrency and the long-term effects of HIV prevention interventions as a way to improve couple-based HIV programs, the final aim of the current study is to better understand healthy relationship functioning in South African couples, since researchers have called for a greater focus on aspects of couples' relationships per se to be

included in these interventions (Burton, Darbes, & Operario, 2010; El-Bassel & Remien, 2012; El-Bassel & Wechsberg, 2012; Jiwatram-Negrón & El-Bassel, 2014). In other words, although one of the primary goals of couple-based interventions is to change how partners interact with each other in order to effectively reduce HIV risk behaviors, it is difficult to intervene effectively when researchers do not understand how couples function more broadly. To date, the majority of couple-based HIV interventions have been based in individual theories of HIV risk behaviors and behavior change (e.g., Catania, Kegeles, & Coates, 1990; Rosenstock, Strecher, & Becker, 1994), which ignore the role of the relationship and the bidirectional influence that partners have on each other. The lack of relationship theory guiding these interventions has been noted by previous researchers and highlighted as an area requiring future research (Burton et al., 2010; El-Bassel & Remien, 2012; El-Bassel & Wechsberg, 2012; Jiwatram-Negrón & El-Bassel, 2014). Because the underlying theory of any intervention is expected to guide the intervention's foci, using relationship theory for couple-based HIV prevention interventions may indeed alter the content of such programs.

Thus, a likely byproduct of the lack of relationship theory is that couple-based HIV prevention interventions focus only minimally on relationship variables. For interventions that do have a dyadic focus, one major emphasis has been to teach couples communication and problem-solving skills (Darbes et al., 2014; Pettifor et al., 2014; Wechsberg et al., 2015). Moreover, the CHC in particular focuses on addressing central relationship issues of sexual pleasure and trust, and how these aspects of the relationship intersect with HIV risk (Wechsberg et al., 2015). The CHC's content was based on qualitative work with South African couples from Cape Town who were in committed relationships of over one year and included an exploration of individuals' views on monogamy and ideal couple relationships (Wechsberg et al., 2013). The formative

work for the CHC and the intervention itself represents an important step in addressing key relationship facets and their intersection with HIV.

Moreover, Thomas and Cole (2009) argue that intimate romantic relationships in sub-Saharan Africa are worthy of investigation in their own right, not only in relation to HIV prevention. Because the vast majority of research on couples' relationships emanates from an HIV prevention perspective, this results in a primary focus on negative aspects of these relationships; as a corollary, researchers have neglected positive aspects of couples' functioning. One area noted by Thomas and Cole (2009) that is lacking in the current literature is a focus on the emotional aspect of relationships. A handful of recent studies have begun to examine domains of relationship functioning in sub-Saharan African couples, including relationship satisfaction (Pasipanodya & Heatherington, 2015), trust (Conroy et al., 2016), communication (Conroy et al., 2016; Gevers, Jewkes, & Mathews, 2013), and sexual satisfaction (Jewkes & Morrell, 2012; Vera Cruz & Maússe, 2014). However, only minimal qualitative research has been conducted on these various relationship domains with South African adult couples (and for some domains, only quantitative research has been conducted). In addition, these various relationship domains have been studied independently in many investigations, rather than examining these factors simultaneously. Thus, an important next step is to better understand the intersection of various relationship domains pertinent to South African couples and develop a theory of adaptive relationship functioning that can in turn be used to guide couple-based HIV prevention programs.

Grounded theory (Glaser & Strauss, 1965; 1967) is a methodological approach used to develop and generate new theories and is, therefore, particularly relevant to the current investigation. Grounded theory is an inductive research approach where the goal is to create

novel theoretical insights from the data that can then be developed into a *substantive theory*—meaning a conceptual model that is useful and practical in understanding phenomena of interest within a specific context. Although grounded theory can be applied to both quantitative and qualitative data, it is most commonly used as a means of guiding qualitative research. In the earliest versions of grounded theory, it was recommended that researchers be removed from existing literature so as to avoid being influenced in the process of developing new theories (Glaser & Strauss, 1967). More contemporary versions of grounded theory espouse a view that suggests the importance of understanding the literature and using it as a guide, yet being open to uncovering or creating a theory that emanates from the data, which may or may not be consistent with preconceived ideas (Bryant, 2014; Charmaz, 2006).

With grounded theory in mind, the overarching question guiding this research is: “What constitutes adaptive or healthy relationship functioning in Black South African couples?” In other words, what does it mean, or what does it look like, for Black South African couples to be in a healthy romantic relationship. Although the data collected are used to generate a substantive theory, Maslow’s (1943) hierarchy of needs is used as an organizational framework to identify broad categories of needs for adaptive relationship functioning. The hierarchy of needs is a theory of human motivation, stating that individuals are motivated to achieve certain needs, which fall into five categories: physiological, safety, love/belonging, esteem, and self-actualization. These needs are viewed as fundamental to humans and are represented in a hierarchical manner, meaning that as one moves up the hierarchy, needs become more complex. This same framework can be applied to understanding the fundamental needs of intimate relationships (excluding physiological needs since this relates to basic biological needs). This

suggests that an intimate relationship must provide safety, love/belonging, esteem, and self-actualization to its members for it to be healthy and adaptive.

Safety is the most basic need of the hierarchy and relates to safety of the physical body and one's health. In the South African context, there are high rates of intimate partner physical and sexual violence, particularly against women (World Health Organization, 2013) as well as high rates of HIV transmission through sexual contact (UNAIDS, 2013). This suggests that both violence (including psychological, physical, and sexual) and risky sexual behaviors that contribute to HIV (wearing condoms, not engaging in sexual concurrency) are important risk factors for physical safety and, therefore, need to be minimized for adaptive relationship functioning. Love/belonging is the next domain of needs and is most closely tied to intimate relationships. Adaptive intimate relationships provide an opportunity for individuals to feel that they are loved and belong, which may be facilitated by experiences of physical and emotional intimacy as well as support provided by one's partner. However, because very limited research exists on positive aspects of couples' relationships across sub-Saharan Africa (Thomas & Cole, 2009), these dyadic processes need greater exploration.

The next level of the hierarchy of needs is esteem, which is the way an individual feels about oneself. Respect of others and respect by others are part of Maslow's (1943) original hierarchy and apply very readily to the needs of intimate relationships. Mutual respect in intimate relationships is especially important in the context of South Africa because the environment places many constraints on women and men due to hegemonic masculinity, which can result in both genders feeling devalued and "less than," and result in experiencing less personal esteem. Hegemonic masculinity, or the dominant masculinity, devalues women consistently because they are not men, restricting their behavior and ability to make autonomous

decisions. For some men, hegemonic masculinity devalues them because they do not meet the narrow definition of acceptable masculine behavior (Jewkes & Morrell, 2010). It is therefore difficult for individuals to feel good about themselves (i.e., have their esteem needs met) when the environment devalues them. Thus, the role of intimate relationships becomes more important in fulfilling esteem needs, in the form of partner respect, because the broader environment often contributes to feeling deficient in this domain.

Finally, the last element of the needs hierarchy is self-actualization, which relates to personal growth and fulfillment. Continuing to experience personal growth and deriving some feeling of personal fulfillment are both intimate relationship needs that would fall in this category. Self-actualization needs are the most difficult to meet because they are the most complex and represent higher-order constructs. This suggests that many people may not experience growth or personal fulfillment from their intimate relationship, especially in a resource-constrained environment where the more basic needs can be challenging to meet. However, it is important to acknowledge the possibility that even in resource-constrained environments, intimate relationships can serve higher-level functions.

Overall, relationship theory is needed to guide couple-based HIV prevention interventions but is notably missing from the literature for couples across sub-Saharan Africa. The use of grounded theory provides an opportunity to develop new theories and can be used to create a theory of adaptive relationship functioning specific to Black South African couples. The theory of adaptive relationship functioning will come directly from individuals who are living that experience. Maslow's (1943) hierarchy of needs provides a broad framework for conceptualizing areas that may represent the fundamental needs of intimate relationships, namely



safety, love/belonging, esteem, and self-actualization, operationalized for the South African context.

## **Study Hypotheses**

As described above, the current investigation seeks to improve couple-based HIV prevention interventions by (a) improving predictors of sexual concurrency, (b) examining the long-term effects of the CHC, and (c) developing a theory of adaptive relationship functioning for Black South Africans. In order to address these aims, a quantitative investigation was undertaken to address the first aim, and a qualitative investigation was undertaken to address the second and third aims. A description of the three aims and the specific hypotheses are described below.

### Aim 1

The first aim of the study was to examine how (a) individual factors associated with risk-taking, specifically alcohol use, as well as (b) the relationship factors of mistrust, relationship inequity, relationship satisfaction, and sexual satisfaction predicted sexual concurrency at the couple-level. Specifically, couples were differentiated into four distinct categories regarding sexual concurrency over the past 6 months: biconcurrency, where both partners engaged in sexual concurrency; male monoconcurrency, where only the male partner engaged in sexual concurrency; female monoconcurrency, where only the female partner engaged in sexual concurrency; or none, where neither partner engaged in sexual concurrency. Figure 1 presents a diagrammatic representation of the current aim and hypotheses.

*Hypothesis 1a.* Based on the existing literature, alcohol use is related to risky sexual behaviors and current IPV. Therefore, it was expected that for both men and women, greater engagement in alcohol use would be related to an increased likelihood of *one's own* engagement

in sexual concurrency as well as current IPV. Couples engaging in biconcurrency were expected to engage in problematic alcohol use to a greater degree, relative to couples in which neither partner engaged in sexual concurrency. For monoconcurrency couples, it was expected that only the participating partner's alcohol use would be related to sexual concurrency, relative to couples where neither partner engaged in concurrency.

*Hypothesis 1b.* Based on the previous literature that suggests that alcohol use is employed as a coping strategy to deal with past traumatic events, it was hypothesized that alcohol use would be a mediator in the association of past interpersonal traumatic events (i.e., physical or sexual abuse) and one's own engagement in sexual concurrency, for both men and women. Moreover, past traumatic events put individuals at risk for revictimization and perpetration of violence; therefore, it was expected that men and women who had a history of trauma would be more likely to endorse current IPV in their relationship.

*Hypothesis 1c.* Based on the literature regarding the pervasiveness of mistrust and relationship inequity in South African couples, these variables were used as indicators of a divisive relationship milieu, which was anticipated to be a predictor of sexual concurrency. Relative to couples in which neither partner engaged in sexual concurrency, it was hypothesized that couples who had greater levels of a divisive relationship milieu would be more likely to engage in sexual concurrency, and that this would be true for both monoconcurrency and biconcurrency couples. In addition, relationship satisfaction and sexual satisfaction were examined as protective relationship factors, with greater levels of relationship satisfaction and sexual satisfaction predicting a decreased likelihood of sexual concurrency (both monoconcurrency and biconcurrency). Moreover, it was expected that there would be a positive

association between a divisive relationship milieu and current IPV and a negative association between relationship satisfaction and IPV and sexual satisfaction and IPV.

*Hypothesis 1d.* As discussed earlier, when differentiating between biconcurrency and monoconcurrency couples, it was expected that relationship variables would be a stronger predictor of biconcurrency, relative to monoconcurrency, since this behavior is viewed as a “systems problem.” Therefore, a divisive relationship milieu was hypothesized to be a stronger predictor of biconcurrency relative to monoconcurrency. In contrast, alcohol use, an individual variable, was hypothesized to be a stronger predictor of monoconcurrency relative to biconcurrency.

### Aim 2

The second aim of this study was to examine the long-term effects of the CHC. Specifically, the goal was to understand the sustainability of the skills and content learned several years after couples participated in the intervention, determine whether the intervention has had long-term positive effects, as well as opportunities to improve the CHC. The skills that were addressed included communication and problem-solving skills, and the content domains of the CHC included sexual risk behaviors (e.g., condom use, sexual concurrency) and alcohol use. This study also evaluated the importance of individuals’ satisfaction with the intervention, in particular its focus on couples as the point of intervention. No specific hypotheses were predicted for this aim, as the goal was to understand participants’ experiences using the intervention skills over the long-term.

### Aim 3

The third aim of the study was to develop a culturally-informed theory of adaptive relationship functioning for Black South African adult couples, which can potentially aid in

understanding couples' HIV risk behaviors, but was not limited to focusing on HIV alone. The research question guiding this aim was: "What constitutes adaptive or healthy relationship functioning in South African couples?" Although Maslow's (1943) framework was used to identify broad areas of need pertinent to healthy relationships, no specific hypotheses for this aim were provided, consistent with the grounded theory approach.

In order to facilitate the methods, results, and discussion for the above aims and hypotheses, details pertinent to Aim 1 are first presented followed by the combined methods, results, and discussion pertinent to Aim 2 and Aim 3.

## CHAPTER 2: STUDY 1 TO ADDRESS AIM 1

### Methods

#### Participants and Procedure

In order to investigate the first aim and its hypotheses, baseline data were examined from heterosexual couples who participated in a randomized controlled trial between 2010- 2012 examining the efficacy of the Couples Health CoOp (CHC) in a township in Cape Town, South Africa (Wechsberg et al., 2015; 2016). For this study, men were recruited from local shebeens (informal drinking establishments) and taverns and were eligible for the study if they were between 18-35 years old, self-identified as Black African, used alcohol or other drugs in the past 90 days, spent time in a tavern or shebeen at least weekly, were in a stable romantic relationship of at least 1 year, and engaged in unprotected sex with his main female partner at least once in the past 90 days. Male and female partners were consented separately, and the only inclusion criterion for the female partners of these men was their willingness to participate in the study. Couples who reported severe IPV were ineligible for the study. Although this study involved communities being randomized to one of three intervention arms, the current investigation used baseline data only and, therefore, treatment condition did not need to be taken into account. Three hundred heterosexual couples were recruited into the study, although the final sample includes 286 couples who completed the baseline questionnaire.<sup>1</sup> Individual demographic

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<sup>1</sup>N = 290 couples began the baseline interview but four men completed demographic information only (i.e., did not provide any data on the substantive variables). As a result, these four men and their female partners were removed from the analyses.

information for men and women in the final sample is reported in Table 1. Relationship demographic information based on couple-level sexual concurrency status is provided in Table 2.

### Measures

*Sexual concurrency.* In order to assess sexual concurrency, participants were asked about whether they engaged in sexual relationships with individuals other than their main partner. Because a number of different relationships or behaviors can constitute sexual concurrency, this construct was assessed by asking several different questions about additional sexual relationships. Questions referenced either a one-, three-, or six-month time frame prior to the interview. Therefore, this study assesses engagement in outside sexual relationships over the past 6 months. Based on both partners' responses to the questions regarding sexual concurrency (provided below), couples were classified as belonging to one of four categories: no sexual concurrency ( $n = 168$ , 58.7%), male monoconcurrency (male sexual concurrency only;  $n = 88$ , 30.7%), female monoconcurrency (female sexual concurrency only;  $n = 16$ , 5.6%), or biconcurrency (both partners engaged in sexual concurrency;  $n = 14$ , 4.9%).

The following questions were used to assess sexual concurrency, with an affirmative response to any question constituting sexual concurrency: *In the past month, did you have sex with a casual partner? In the past month, did you have sex with a trading partner or client? In the past 12 weeks, was there a week when you had more than one sexual partner? During the past 3 months, how many partners of the opposite sex have you had sex with?<sup>2</sup> In the past 3 months, have you given sex to anyone other than a main partner to get: money, drugs, alcohol, clothes, food, transport, a place to stay, anything else? In the past 3 months, have you ever given*

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<sup>2</sup>Any value greater than one was considered sexual concurrency.

*the following things in exchange for sex: money, drugs, alcohol, clothes, food, transport, a place to stay, anything else? In the past 6 months, did you have sex with a casual partner?*

*Lifetime trauma history.* To measure trauma history, participants answered a one-item yes/no question as to whether they had ever experienced physical trauma and sexual trauma. The question for a history of physical violence stated, *“Has anyone ever physically hurt you (i.e., someone hurt you by striking or beating you to the point that you had bruises, cuts, or broken bones)?”* For sexual violence the question was, *“Has anyone ever forced you to participate in sexual acts against your will?”* Participants were considered to have a trauma history if they answered affirmatively to either question. Differentiating individuals based on whether the trauma occurred during childhood (up to 18 years of age) was considered, given that trauma experienced at a younger age can have a more enduring impact (Springer, Sheridan, Kuo, & Carnes, 2007). However, only a small proportion reported experiencing trauma during childhood (10 women and 12 men); as a result, lifetime trauma only was used.

*Alcohol use.* In order to measure current alcohol use, items from the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) were used. The AUDIT is a 10-item self-report measure that is used to identify individuals at high-risk of hazardous alcohol use. Eight items are scored on a 5-point likert scale, and two items are scored on a 3-point likert scale, with total scores ranging from 0 – 40. The AUDIT was originally developed as a screening measure, but previous research has supported the use of the AUDIT as a continuous measure of alcohol use in a South African sample (Pitpitan et al., 2012). This measure has demonstrated strong sensitivity and specificity in a South African sample (Myer et al., 2008).

*Intimate partner violence.* Current physical IPV was assessed using a 5-item measure adapted from the World Health Organization's measure assessing violence against women in 10 countries worldwide (García-Moreno, Jansen, Ellsberg, Heise, & Watts, 2005). For the current study, both men and women completed the measure and reported on the amount of violence perpetrated by their partner. Respondents reported the frequency with which their partner engaged in the violent behaviors towards them over the past 6 months, ranging from 1 (*never*) to 4 (*many times*). Items assessed included the following behaviors: slapping, pushing, hitting, choking, and using a weapon. Responses to each item were dichotomized (yes/no), and a total continuous score was created for both men and women.<sup>3</sup>

*Mistrust.* In order to assess individual mistrust with respect to one's partner engaging in outside sexual relationships, a one-item question was used asking participants, "*How likely do you think it is that your main partner is having sex with someone else?*" A 4-point likert response option scale was used with the following response options: 1 (*definitely is*), 2 (*probably is*), 3 (*probably not*), and 4 (*definitely not*). The item was reverse coded so that higher values indicated a greater level of partner mistrust.

*Relationship inequity.* Relationship equity was measured using the 8-item mutual decision-making subscale of the Sexual Relationship Power Scale (Pulerwitz, Gortmaker, & DeJong, 2000). Items on the scale ask about which partner has more decision-making power in regard to a number of relationship domains, including when to have sex, whether to use condoms, how much time to spend together, and whose friends to spend time with. Each item has 3 response options: 1 (*the respondent's partner has more say*), 2 (*both partners have equal*

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<sup>3</sup>Latent variables were attempted for men and women's reports of IPV at the individual level and couple level. However, given the small frequencies endorsed for each manifest variable the latent variable proved difficult to create. Moreover, a decision was made to create a continuous rather than dichotomous IPV variable because it subsequently facilitated model estimation in the structural models.



say), or 3 (*the respondent has more say*). Participants in the current study responded to these items reflecting on the past 6 months of their relationship.

The original measure was designed to assess women's power and uses a total continuous score, where higher scores are indicative of the woman's greater power in the relationship. A study examining relationship equity in South African women used a modified version of this scale by creating separate subscales for men's dominance in decision-making, women's dominance in decision-making, and mutual decision-making (Ketchen, Armistead, & Cook, 2009). For example, any items for which women report their partners have more say would become items on the men's dominance subscale. Therefore, the 8 items are separated into three subscales (respondent has more power, respondent's partner has more power, or mutual decision-making) depending on the participant's responses to each item. A similar approach was adapted for the current study because the construct of interest was relationship inequity. Therefore, items endorsed as either *respondent has more power* or *respondent's partner has more power* represented inequity in decision-making; each item falling in either of these categories was assigned a value of one, and a total score for relationship inequity was created, with higher values representing greater inequity.

*Relationship satisfaction.* Five items assessing different facets of relationship functioning were assessed including whether one's emotional needs were met, satisfaction with one's partner, and relationship hopes and expectations. This measure of relationship functioning was previously shown to exhibit good psychometric properties for both men and women in a previous publication using the same data (Belus, Kline, Carney, Myers, & Wechsberg, under review).

*Sexual satisfaction.* A one-item measure of sexual satisfaction was available, which asked respondents the extent to which they enjoyed sex with their partner over the past 3 months.

Respondents rated their sexual satisfaction on a 5-point likert scale from 1 (*always*) to 5 (*none of the time*). Responses were reversed scored so that higher values indicated more sexual satisfaction.

### **Data Analytic Plan**

Multinomial regression analyses using structural equation modeling (SEM) were conducted in order to test the hypotheses of interest for Aim 1 using Mplus Version 7 (Muthén & Muthén, 2012). Multinomial regression analyses are used when an outcome variable is nominal (categorical). For the current investigation, there were four categories of sexual concurrency (none, male monoconcurrency, female monoconcurrency, and biconcurrency), therefore making multinomial regression analyses the appropriate analytic strategy. In addition, conducting the analyses using an SEM framework allowed for the creation of latent (unobserved) variables, known as a measurement model, as well as model-building, known as a structural model. Figure 1 provides a statistical representation of the hypotheses in Aim 1.

All constructs that included more than two items were initially modeled using latent variables. Therefore, latent variables were attempted for the following constructs: divisive relationship milieu, relationship inequity, relationship satisfaction, IPV, and alcohol use. There are several advantages to creating latent variables where possible, since this approach takes into account measurement error and leads to a more accurate modeling of the effects (Gonzalez & Griffin, 1997). Moreover, because some latent variables are dyadic constructs that include both men and women's scores to create the variable (e.g., couple IPV, divisive relationship milieu), it allows for the covariance between each partner's own error terms, which can bias parameter estimates if not accounted for (Ledermann & Macho, 2009). All latent variables were created using confirmatory factor analysis.

Moreover, using a number of available fit indices, the overall fit of the measurement models was assessed. All the observed items used to create latent variables were measured using ordinal, likert-type scales. Due to the categorical nature of the variables, the weighted least squares mean and variance adjusted (WLSMV) estimator was used. WLSMV is an appropriate estimator because it was designed specifically for categorical (i.e., non-continuous) data and corrects for bias in the parameter estimates and standard errors (Muthén, Du Toit, & Spisic, 1997). It assumes that there is an underlying latent response distribution for the observed categorical data. In order to estimate this latent response distribution, tetrachoric and polychoric correlations (i.e., correlations between the categorical indicators) from the observed data are used. Bivariate frequency tables with an empty cell can create problems for model estimation and accurate results (Wirth & Edwards, 2007). Therefore, some items were recoded in order to eliminate empty cells in the bivariate distributions. Specific details on which items were recoded can be found in the section describing the results of the measurement models.

A number of fit indices were used to evaluate the measurement models. The Chi-Square test statistic was used to evaluate the null hypothesis, which states that the means and covariances put forth in the model are equal to the means and covariances in the population. Larger Chi-Square values signify greater misfit of the model, and a “significant” Chi-Square value (i.e.,  $p < .05$ ) suggests that it is unlikely that a large Chi-Square value would be found if the null hypothesis were true (i.e., if the model-implied values were equal to the population values). Therefore, a non-significant ( $p > .05$ ) Chi-Square value is desired. Another index used to assess model fit is the root mean squared error of approximation, or RMSEA, which is a measure of the amount of error of approximation per model degree of freedom. The RMSEA rewards model parsimony, takes sample size into account, and has a known sampling distribution, which

means confidence intervals and inferential tests can be conducted on this index. Values over .10 indicate poor fit, whereas values below .08 suggest moderate fit, and values below .05 indicate excellent fit (M. W. Browne & Cudeck, 1993).

Another index of model fit is the comparative fit index (CFI), which is considered a relative goodness-of-fit index. Potential values fall between 0 and 1, with higher values representing improved fit relative to a restrictive baseline model where none of the variables in the model are related to each other. There is no sampling distribution or universal cutoff value for the CFI, but values closer to .95 and above have been taken to indicate good fit. Finally, the weighted root mean square residual (WRMR) is more of an experimental fit index used for categorical outcomes, with values closer to 1 (or below) suggesting good fit (Yu, 2002).

In instances where the measurement model did not fit appropriately, the program's modification indices were examined to gain insight into possible changes to the model. All changes to the model based on modification indices also needed to be consistent with the substantive theory for the construct. In addition to the above indices, the factor loadings from the latent variable to the indicators (the manifest items that were observed) were also examined to assess model fit. The factor loadings represent the extent to which the observed items are influenced by the underlying latent variable; said another way, factor loadings demonstrate the extent to which the observed items represent the underlying variable. It is recommended that standardized factor loadings of .70 or higher be considered adequate (Schumacker & Lomax, 2004).

Once the measurement model was established, the substantive hypotheses were evaluated with the structural model. The model-building capacity using an SEM framework was an important function for Aim 1 in the current investigation because of the inclusion of both

measurement and structural evaluations. More specifically, as can be seen in Figure 1, the desired model was analytically complex. At times, measurement and structural analyses became analytically intractable within the same model (i.e., the model did not run) and modifications were made. One common way to reduce model complexity is to remove the measurement part of the model and substitute the latent variables with factor scores. Factor scores are estimates of the true factors but do not take into account the measurement error of the variables, which can result in biased parameter estimates (DiStefano, Zhu, & Mindrila, 2009). In order to combat this limitation, substantive models were typically first run using latent variables followed by the use of factor scores. If the pattern of results between the two model results was consistent, then factor scores were used in more complex analyses.

As mentioned earlier, the structural model evaluating the substantive hypotheses required multinomial regression in order to predict the nominal sexual concurrency dependent variable. This model can only be estimated using the robust maximum likelihood estimator, known as MLR, which produces standard errors and the Chi-square statistic that are robust to non-normality (Muthén & Muthén, 2015). There are no absolute fit statistics when using MLR with categorical dependent variables. Therefore, the fit indices described above (i.e., Chi-square test, RMSEA, CFI) do not apply here. One way to gain a crude understanding of the fit is to dichotomize the outcome (i.e., any sexual concurrency in the relationship versus none) and use the WLSMV estimator, which provides the fit statistics described previously. Details of model fit for all final models reported in the paper using a dichotomous outcome and the WLSMV estimator are found in Appendix A. The final specified model is presented in Figure 2 and described below.

## Results

### Measurement Models

As mentioned above, the first task was to create latent variables for each construct that involved three or more observed variables. Below are a description of the latent variables that were created and the results of the final models. The standardized factor loadings, variances, and covariances for all measurement models are found in Appendix B.

Alcohol use. Ten observed items were initially used to create a latent variable for men's alcohol use; eight items used 5-point likert response options, and two items had 3-point likert response options. Based on the bivariate frequency tables, all items except one had response options condensed.<sup>4</sup> The initial measurement model using these recoded variables suggested that the model had poor fit. Specifically, model fit indices were as follows:  $\chi^2(35) = 273.70, p < .001$ , RMSEA = .154 (CI = .14 - .17), and CFI = .84, and WRMR = 1.81. The modification indices suggested that the variable assessing frequency of drinking over the past year was correlated with a number of other variables. When this happens, it may be an indication that the inclusion of a particular variable is problematic for the model (e.g., high collinearity with other variables). In this particular case, two items were dropped: the item assessing the frequency of drinking in the past year and the item assessing the frequency of 5 or more drinks on one occasion. Given that this sample of men was selected for high levels of drinking, these items may not have been particularly discriminatory or have provided enough unique information. In addition, one subsequent modification was made adding a residual covariance between the two

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<sup>4</sup>Response options were condensed from a 5-point to a 4-point scale for six items and from a 5-point to a 3-point scale for one item. The two items that were coded on a 3-point scale were recoded into dichotomous responses.

dichotomous items.<sup>5</sup> The final model showed appropriate fit indices:  $\chi^2(25) = 48.78, p = .003$ , RMSEA = .06 (CI = .03 - .18), CFI = .98, and WRMR = .76.

For women, one hundred and twelve female participants in the sample reported either not drinking alcohol in the past year or never having drunk alcohol in their life. Women who reported either one of these scenarios did not provide responses to the individual alcohol-related symptoms (as it was assumed they would respond at the lowest possible response options). In order to use all available data from these women in subsequent analyses and not bias the results by excluding these women, they were assigned the lowest possible response option value for each of the ten items. This resulted in a sample size of  $n = 286$ . Similar to men, seven items had response options condensed in order to reduce the number of empty cells in the bivariate frequency table.<sup>6</sup> The initial test of model fit using all 10 items in the analysis indicated moderate model fit. Specifically, the fit indices were:  $\chi^2(35) = 99.71, p < .001$ , RMSEA = .08 (CI = .06 - .10), CFI = .99, and WRMR = .99. Based on the modification indices, a residual covariance was added between two items (average number of drinks on one occasion and frequency of 5 or more drinks), which resulted in an overall better fitting model. The final model fit indices were:  $\chi^2(34) = 68.04, p = .001$ , RMSEA = .06 (CI = .04 - .08), CFI = .99, and WRMR = .77.<sup>7</sup> Final results for men and women's alcohol use latent variables are found in Appendix Table B1.

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<sup>5</sup>The two items requiring a residual covariance asked whether someone was injured as a result of the respondent's drinking and whether a concerned other suggested cutting down on alcohol. The items may have required a residual covariance for substantive reasons (these were the only items explicitly asking about how one's drinking may have impacted others) and/or for measurement reasons (both items were the only ones rated on a dichotomous scale assessing whether the behavior happened in the past year or not).

<sup>6</sup>Response options were condensed from a 5-point to a 4-point scale for five items. The two items that were coded on a 3-point scale were recoded into dichotomous responses.

<sup>7</sup>Model fit indices were very similar when the 112 women who did not complete the measure were excluded from the sample.

Relationship inequity. Eight dichotomous items were used to create a latent variable for relationship inequity for men ( $n = 285$ ). The initial CFA showed a model fit with opportunities for improvement. Specifically, the model fit indices were:  $\chi^2(20) = 63.21$ ,  $p = .001$ , RMSEA = .09 (CI = .06 - .11), CFI = .97, and WRMR = 1.13. A residual covariance was added between two items that asked about equity in decision-making regarding condom use and engaging in certain sexual acts, which improved model fit significantly. Fit indices for the new model were:  $\chi^2(19) = 38.64$ ,  $p = .005$ , RMSEA = .06 (CI = .03 - .09), CFI = .99, and WRMR = .86.

For women, a similar picture emerged. The initial model showed moderate model fit,  $\chi^2(20) = 64.29$ ,  $p < .001$ , RMSEA = .09 (CI = .06 - .11), CFI = .97, and WRMR = 1.15. With the addition of one residual covariance between two items that asked about equity in decision-making related to spending time together and the type of activities done together, there was a significant improvement in model fit. Specifically,  $\chi^2(19) = 48.18$ ,  $p < .001$ , RMSEA = .07 (CI = .05 - .10), CFI = .98, and WRMR = .99. Final model results for men and women's relationship inequity latent variables are presented in Table B2.

Relationship satisfaction. Five items measured on either a 4-point or 5-point likert scale were used to create latent variables for men and women's relationship satisfaction. For men, all but one item had response options condensed.<sup>8</sup> Results of the initial CFA indicated a good fitting model:  $\chi^2(5) = 8.64$ ,  $p > .05$ , RMSEA = .05 (CI = .00 - .11), CFI = 1.00, and WRMR = .42. For women, the initial model using the same condensed response variables as men did not fit as well:  $\chi^2(5) = 22.11$ ,  $p = .001$ , RMSEA = .11 (CI = .07 - .16), CFI = .98, and WRMR = .73. One item assessing how much women love their partners was removed from the sample, which greatly

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<sup>8</sup>Response options were condensed from a 5-point to a 3-point scale for three items and from a 5-point to a 3-point scale for one item.



improved model fit:  $\chi^2(2) = 1.63, p > .05$ , RMSEA = .00 (CI = .00 - .11), CFI = 1.00, and WRMR = .21. Results for men and women's relationship satisfaction latent variables are presented in Table B3.<sup>9</sup>

*Divisive relationship milieu.* In order to capture the broader relationship milieu, a second-order latent variable was created using men and women's relationship inequity latent variables (described previously) and men and women's mistrust of their partner (measured as manifest variables). Model fit statistics indicated that the model fit well overall:  $\chi^2(132) = 171.02, p = .01$ , RMSEA = .03 (CI = .02 - .05), CFI = .98, and WRMR = .94. Detailed results of this model are presented in Table B4. The table shows that the standardized factor loadings for the second-order latent variable are quite low (range between .21 - .48), which suggests that relationship inequity and partner mistrust may not represent the concept of divisive relationship milieu particularly well. The reason for this may be the type of observed variables used to capture this construct. A construct that is believed to have an effect on both members of the couple is known as a common fate model. Common fate models for couples are best represented with manifest items worded with "we" or "us" because this captures the theoretical construct that is operating at the dyadic level (Ledermann & Kenny, 2012). In the current investigation, items assessing partner mistrust were operationalized at the individual level (i.e., "How likely do you think it is that your partner is having sex with someone else?"). Given that the second-order latent variable for divisive relationship milieu did not appear to be capturing the intended construct, the relevant substantive hypotheses were tested using the individual predictors (i.e., the two latent variables

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<sup>9</sup> The latent variable measurement models for men and women's relationship satisfaction were previously shown to fit well using the same dataset but with only half the sample in a study exploring relationship functioning (Belus et al., under review).

for men and women's relationship inequity and the two manifest variables for men and women's mistrust).

### Structural Models

Baseline model. Prior to testing the substantive hypotheses of interest, relevant covariates were first examined in an empty model (i.e., a covariate-only model) to determine their relevance to the current sample. Covariates that were not significant in the baseline model (using a more liberal cutoff of  $p < .10$ ) were not included in subsequent analyses. The covariates included in the baseline model were variables that were shown in previous research to be predictive of sexual concurrency in various sub-Saharan African samples. For both men and women, age, age at sexual debut<sup>10</sup>, living in an informal settlement, and awareness of a partner's HIV status were included. For men only, cohabitating with one's partner was identified as a covariate. Finally, the HIV statuses of both partners (based on biological test results) were also included as covariates because prior research has shown that relationship dynamics can differ based on HIV status of the partners (Rispel, Cloete, & Metcalf, 2015). Results from the model show that women's age, women's HIV status, men's report of cohabitating with their partner, and living in an informal settlement for men<sup>11</sup> were all predictive of couple-level sexual concurrency. See Table 3 for details. These four covariates were retained in subsequent analyses.

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<sup>10</sup>Note that past research has identified both age and age of sexual debut as predictive of sexual concurrency for men only. However, because most sexual concurrency research has been conducted with men, there is not adequate prior research to support that these variables are unrelated for women. Therefore, age and age of sexual debut for women were included as covariates in the baseline model.

<sup>11</sup>Men and women's reports of living in an informal settlement were both predictive of sexual concurrency in the baseline model ( $p < .10$ ). However, only one of these variables could be retained for future analyses because they were not completely independent due to the fact that some couples in the sample lived together (and were therefore reporting on the same outcome). Men's report of living in an informal settlement was ultimately retained because it met a more conservative statistical cutoff ( $p < .05$ ).

*Hypothesis 1a.* This hypothesis examined the effect of male and female alcohol use as predictors of sexual concurrency, controlling for men and women's IPV in addition to the above-mentioned covariates (women's age, women's HIV status, partner cohabitation, and living in an informal settlement for men). Specifically, this hypothesis predicted that higher levels of men's alcohol use would predict male-only sexual concurrency, higher levels of women's alcohol use would predict female-only sexual concurrency, and higher levels of both partners alcohol use would predict biconcurrency (all relative to the no sexual concurrency group). Latent variables for men and women's alcohol use were used, as previously described.<sup>12</sup> Continuous total scores of the manifest items were used to represent men and women's report of IPV due to the analytical complexity involved in having four latent variables in one model. More specifically, numerical integration is required for these analyses due to the use of the MLR estimator with categorical indicators for a latent variable. Moreover, covariances between categorical variables with the use of the MLR estimator requires an additional degree of numerical integration for each added covariance, quickly adding to the analytic complexity.<sup>13</sup> Therefore, the practical limits of modeling measurement and structural models with numerical integration were taken into account when determining final model specification.

Results for Hypothesis 1a are presented in Table 4. As hypothesized, male alcohol use was a predictor of male monoconcurrency, female alcohol use was a predictor of female

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<sup>12</sup>The final measurement models for men and women's alcohol use both had one residual covariance between two indicators. Due to the use of MLR and numerical integration required for covarying residual variances with categorical variables, only the covariance for women's variables was retained. An attempt was made to add the residual covariance for men's indicators, however, the model proved to be analytically intractable.

<sup>13</sup>Numerical integration is required when latent variables are used in a model with a maximum likelihood estimator and a nominal outcome. This is due to the fact that there is no closed form expression to estimate the posterior distribution, in which case numerical integration must be used to estimate the model. With regard to complexity, two dimensions of integration is considered to be "moderate", three to four is considered "heavy", and five or more is considered "very heavy" (Muthén & Muthén, 2015).

monoconcurrency, and both male and female alcohol use were predictors of biconcurrency. In all cases, more alcohol use was associated with an increased likelihood of engaging in sexual concurrency relative to the no sexual concurrency group. More specifically, a one point increase on the underlying latent variable of men's alcohol use was associated with a 1.64 increase in the odds [95% CI 1.19 – 2.26] that men would be in a male-only concurrency relationship and a 2.33 increase in the odds [95% CI 1.06 – 5.16] that men would be in a biconcurrency relationship, both relative to a relationship with no sexual concurrency. For women, a similar pattern was revealed. A one point increase on the underlying latent variable of women's alcohol use was associated with a 3.31 increase in the odds [95% CI 1.56 – 7.03] that women would be in a female-only concurrency relationship and a 4.23 increase in the odds [95% CI 1.65 – 10.86] that women would be in a biconcurrency relationship, relative to a relationship with no sexual concurrency. Additionally, alcohol use and IPV were not significantly associated for men, as predicted; however, there was a significant positive correlation between alcohol use and IPV for women.

Finally, with regard to the covariates, men cohabitating with their partners was a significant predictor and women's HIV status was a marginal predictor of male-only concurrency, whereas women's age was a significant predictor of biconcurrency; all were associated with decreased odds of the relevant sexual concurrency outcome. More specifically, men who were cohabitating with their partners had a .48 decrease in the odds [95% CI .24 – .95], and women who were HIV-positive had a .56 decrease in the odds [95% CI .29 – 1.11] of being in a male-only sexual concurrency relationship, both relative to the no sexual concurrency group. Similarly, a one-year increase in women's age was associated with a .80 decrease in the odds

[95% CI .68 – .94] of being in a biconcurrency relationship, relative to a relationship with no sexual concurrency.

Hypothesis 1b. This hypothesis investigated the role of trauma history as a potential explanatory variable in the association between alcohol use and sexual concurrency. First, lifetime trauma history was examined as a predictor of one's own alcohol use (e.g., women's trauma history was a predictor of women's alcohol use). As shown in Table 5, trauma history was a positive predictor of current alcohol use for both men and women, such that having a history of traumatic experiences was related to greater alcohol use currently. Alcohol use was still associated with sexual concurrency in the current model, consistent with results from Hypothesis 1a. To further explore the relationship between trauma history, alcohol use, and sexual concurrency, the direct effect of trauma on sexual concurrency was added in the model (though not originally part of the prediction) but was not a significant predictor of sexual concurrency directly. Although trauma did not have a direct effect on sexual concurrency, it is still possible for an indirect effect to exist. In the current model, however, it was not possible to examine the indirect effect of trauma on sexual concurrency through alcohol use due to the nominal variable coding of the dependent variable sexual concurrency (i.e., nominal variables cannot be used as an outcome in a mediation model).

To further explicate these findings, a mediation model examining the indirect effect of trauma history predicting sexual concurrency through alcohol use was run separately for men and women. In each model, sexual concurrency was dichotomized (i.e., yes/no), which means that individuals included in the sexual concurrency group were from both monoconcurrency and binconcurrency relationships. Table 6 reports the unstandardized regression estimates from both men and women's models. Results for both sexes revealed that alcohol use is indeed a significant

mediator between trauma history and sexual concurrency, such that having a trauma history is related to a greater level of current alcohol use, which in turn is related to an increased probability of engaging in sexual concurrency. Again, IPV was unrelated to alcohol use for men; nor was men's trauma history a significant predictor of men's report of IPV, contrary to prediction. However, both of these associations held for women, as predicted; there was a significant positive covariance between women's IPV and alcohol use, in addition to women's trauma history predicting women's report of IPV.

*Hypothesis 1c.* This hypothesis examined the effect of relationship risk and protective factors on sexual concurrency. Specifically, relationship inequity, mistrust, relationship satisfaction, and sexual satisfaction were used as explanatory variables in the current model.<sup>14</sup> Relationship inequity for men and women were modeled as latent variables whereas factor scores were used to represent relationship satisfaction. Results for this model are presented in Table 7. For male-only sexual concurrency, men's relationship satisfaction was a significant predictor of this outcome. More specifically, a one-point increase in men's relationship satisfaction was associated with a .71 decrease in the odds [95% CI .51 – .99] of being in the male-only sexual concurrency group relative to the no sexual concurrency group. Moreover, women's HIV status and men's cohabitation were both associated with a decreased risk of being in the male-only sexual concurrency group; women who were HIV-positive had a .48 decrease in the odds [95% CI .24 – .97], and men who were living with their partners had a .47 decrease in the odds [95% CI .24 – .92] of being in the male-only sexual concurrency group relative to the no sexual concurrency group.

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<sup>14</sup>See Table B5 for results of Hypothesis 1c using the divisive relationship milieu construct.

For female-only concurrency, the only significant predictor of this outcome was women's mistrust of their partners. Specifically, a one-point increase in women's mistrust was associated with a 2.07 increase in the odds [95% CI 1.12 – 3.83] of being in the female-only sexual concurrency group relative to the no sexual concurrency group. Women's mistrust was also predictive of biconcurrency in the same direction; a one-point increase in women's mistrust was associated with a 2.29 increase in the odds [95% CI 1.29 – 4.07] of being in the biconcurrency group relative to the no sexual concurrency group. Finally, men's mistrust and men's sexual satisfaction were marginally predictive of an increased likelihood of biconcurrency. A one-point increase in men's mistrust was associated with a 1.72 increase in the odds [95% CI .92 – 3.23], and men's sexual satisfaction was associated with a 3.48 increase in the odds [95% CI .89 – 13.60] of being in the biconcurrency group relative to the no concurrency group. No other predictors were significant in these models. IPV for men was negatively associated with men's relationship satisfaction, whereas IPV for women was negatively associated with relationship satisfaction and sexual satisfaction and positively associated with relationship inequity.

*Hypothesis 1d.* The final hypothesis examined both individual and relationship predictors of sexual concurrency by combining the explanatory variables used in previous models. Results from this model are presented in Table 8 and show similar findings from the individual models reported previously. Predictors of male-only concurrency were men's alcohol use, men's relationship satisfaction, women's HIV status, and men's cohabitation with their partners. Men's alcohol use was associated with a 1.78 increase in the odds [95% CI 1.23– 2.56] of being in the male-only concurrency group relative to the no sexual concurrency group. The other predictors were associated with reduced odds of being in the male-only concurrency group relative to the no sexual concurrency group: relationship satisfaction was associated with a .71 decrease in the

odds [95% CI .50 – .99]; women's HIV status was associated with a .46 decrease in the odds [95% CI .23 – .94], and men's cohabitation with their partners was associated with a .43 decrease in the odds [95% CI .21 – .89].

On the other hand, female-only concurrency was positively predicted by women's alcohol use and mistrust of their partners. Women's greater alcohol use was associated with a 3.55 increase in the odds [95% CI 1.52 – 8.28] and women's mistrust was associated with a 2.13 increase in the odds [95% CI 1.07 – 4.27] of being in the female-only sexual concurrency group, relative to the no sexual concurrency group. Predictors of biconcurrency were similar to female-only concurrency model with women's alcohol use (OR= 2.74 [95% CI 1.17 – 6.44]), and women's mistrust (OR= 2.11 [95% CI 1.10 – 4.02]) related to an increased risk of biconcurrency relative to the no sexual concurrency group. Additionally, women's age was associated with a .81 decrease in the odds [95% CI .68 – .97] of biconcurrency relative to the no sexual concurrency group. Finally, men's IPV was negatively correlated with men's relationship satisfaction and women's IPV was negatively correlated with women's relationship satisfaction. In addition, women's IPV was positively correlated with women's relationship inequity.

Overall, the findings across the various analyses suggest that individual and relationship variables predict sexual concurrency. Men and women's alcohol use increased the risk of monoconcurrency and biconcurrency. Moreover, there was an indirect effect of trauma history on sexual concurrency through alcohol use for both sexes. Additionally, relationship dissatisfaction for men was associated with an increased risk in male-only concurrency, whereas men's sexual satisfaction and men's mistrust were both associated with a marginal increased risk for biconcurrency. Finally, women's alcohol use and mistrust of their partners predicted both female-only concurrency and biconcurrency.



## Discussion

This study sought to examine the impact of individual and relationship factors on couple-level sexual concurrency in Black South African couples in committed relationships of at least one year. In the current study, approximately 60% of couples had neither partner engaged in sexual concurrency; 30% were involved in male-only concurrency; 5.5% were engaged in female-only concurrency, and approximately 5% were engaged in biconcurrency. The only prior study that examined data at the couple-level with regard to sexual concurrency was with Kenyan couples, and the investigator reported similar levels of sexual concurrency in these four categories (62.4%, 31%, 4%, and 2.6%, respectively; Kwena, 2014). In the current study, alcohol use, trauma history, relationship inequity, and mistrust were all hypothesized to increase the likelihood of sexual concurrency, whereas relationship satisfaction and sexual satisfaction were expected to be protective against this outcome. It was also hypothesized that individual and relationship factors would differentially predict monoconcurrency versus biconcurrency, such that individual factors would be more predictive of monoconcurrency and relationship factors more predictive of biconcurrency. Overall, all variables proposed had some predictive ability across the various models. Findings are discussed below across three different domains: (a) relevant variables for each type of sexual concurrency; (b) relevant variables for men versus women's engagement in sexual concurrency; and (c) proximal versus distal factors associated with sexual concurrency.

### Important Factors for Male-Only Sexual Concurrency

For couples with male-only sexual concurrency as compared to couples with no sexual concurrency, men's alcohol use increased the likelihood of this outcome, whereas men's relationship satisfaction, cohabitation with partners, and women's positive HIV status were

related to a decreased likelihood of male-only sexual concurrency. With regard to men's alcohol use, greater alcohol use was associated with an increased likelihood of engaging in sexual concurrency, consistent with previous research conducted with South African youths (Z. Kaufman et al., 2014). Alcohol use has been proposed as a major factor increasing risk-taking behavior in South Africans, particularly with regard to sexual behavior (Kalichman et al., 2007; Morojele et al., 2006). The current study provides yet another piece of evidence that high levels of alcohol use are associated with deleterious risk-taking behaviors in South African men.

In addition, men's relationship satisfaction was predictive of male-only sexual concurrency, with the pattern indicating that men who are in more satisfying and healthy relationships are less likely to be in male-only sexual concurrency relationships. This is consistent with findings from a study with Zambian couples showing high relationship satisfaction was related to fewer outside sex partners (Vamos et al., 2013). Previous qualitative research suggests that South African men (and women) engage in sexual concurrency as an emotional safety strategy to ensure their emotional needs are being met (Harrison et al., 2010; L. Parker et al., 2007; Swartz et al., 2013). These previous studies have also suggested that outside partners serve as a safety net in the event that the primary relationship ends; in other words, men can avoid being single or lonely altogether because they have another partner as a backup. The relationship satisfaction construct assessed in the current investigation addresses emotional needs being met by one's partner and relationship hopes and expectations. Therefore, this study finding is consistent with previous qualitative research supporting the role of men's emotional experience within their intimate relationship as a potentially important predictor for sexual concurrency.

Additionally, the couple cohabiting and having an HIV-infected female partner both reduced the likelihood of being in a male-only concurrency relationship, relative to couples with no sexual concurrency. Cohabitation was a protective factor against outside sex partners for men, consistent with previous research showing Zambian men who did not live with their partners were over two times as likely to engage in sexual concurrency relative to men living with their partners (Sandøy et al., 2010). This finding is unsurprising, given that couples who do not live together have an increased opportunity to engage in behaviors outside of their partner's awareness. In support of this interpretation, South African men who were cohabitating with their significant other reported greater intimacy and trust in their relationship (Conroy et al., 2016). On the other hand, women's HIV status as a predictor of male-only sexual concurrency was unexpected, with the finding that couples in which the female partner had an HIV-positive diagnosis were less likely to be in male-only sexual concurrency relationships. Previous studies that have examined women's HIV status as a predictor of male sexual concurrency have demonstrated conflicting findings. One study found Kenyan men's belief that their partner was HIV-positive increased the likelihood of men's own sexual concurrency (Westercamp, Mattson, & Bailey, 2013), whereas a study with Ugandan men did not show an association between these variables (Kasamba et al., 2011).

In terms of understanding the current finding, one possibility is that men who were aware that their partner was HIV-positive may have been more cognizant of the possibility of transmitting HIV to another woman if he engaged in sexual concurrency. However, this finding did not hold true in subsequent analyses when an interaction term was added between women's HIV status and men's awareness of his partner's status (interaction term was  $p > .05$ ). Research with Malawian married couples has found that women who were HIV-positive, but not HIV-

positive men, were significantly less likely to disclose their HIV status to their spouse (Anglewicz & Chintsanya, 2011), which may have been a dynamic present in the current sample. An additional attempt was made to better understand women's HIV status as a predictor of male-only sexual concurrency by replacing women's HIV status with the couple's HIV status (coded as HIV-negative concordant, HIV discordant, HIV-positive concordant). It was found that couples who were serodiscordant had a .35 decrease in the odds of being in the male-only concurrency group [95% CI .16 – .78] relative to couples with no sexual concurrency. Cell sizes were too small to examine serodiscordance based on which partner was HIV-positive (i.e., whether the male or female partner was HIV-infected). However, the two findings taken together suggest that women who were HIV-positive and partnered with an HIV-negative male were less likely to be in the male-only sexual concurrency group. This suggests that there may be a unique dynamic among these couples, which should be elucidated in future research.

Overall, male-only sexual concurrency appears to be characterized by couples who are not cohabitating, the female partner is HIV-negative, men have higher levels of alcohol consumption and are more dissatisfied in their intimate relationship.

#### Important Factors for Female-Only Sexual Concurrency

In contrast to male-only sexual concurrency, female-only sexual concurrency was predicted by a somewhat different set of variables. Specifically for couples with female-only sexual concurrency as compared to couples with no sexual concurrency, women's alcohol use, women's mistrust, and men living in an informal settlement increased the likelihood of this outcome, whereas women's positive HIV status was related to a decreased likelihood of female-only sexual concurrency. With regard to women's alcohol use, women who used more alcohol had a greater likelihood of being in a female-only concurrency relationship, consistent with past

research and study hypotheses. Similar to men, past research has primarily examined alcohol use in women as a predictor of other sexual risk-taking behaviors (Kalichman et al., 2007). In addition, other studies have demonstrated that greater alcohol use in women was related to an increased likelihood of female sexual concurrency per se (Z. Kaufman, et al., 2014; Kenyon & Colebunders, 2015).

Similarly, women who were mistrustful of their partners' fidelity were more likely to be in female-only sexual concurrency relationships, relative to no concurrency couples, also consistent with a number of previous studies in South Africa and sub-Saharan Africa (Kenyon & Colebunders, 2015; Maughan-Brown, 2013). Unlike the majority of previous studies on this topic, however, the current study has the ability to compare a woman's belief about her partner's behavior with her partner's actual reported behavior. The women in this group included those who were with partners who did not engage in outside sexual relationships (as per the male partner's report), suggesting that women's perception of partner behavior, and not actual partner behavior, is an important factor to understand. It may be the case that a number of the women who had strong beliefs about their partner's engagement in outside sexual relationships was due to their previous experiences in which partners have been unfaithful, either the current partner or a previous one. Given that many Black South Africans perceive outside partnerships to be pervasive within their communities (W. Parker et al., 2007; Pettifor, MacPhail, Anderson, & Maman, 2012; Swartz et al., 2013), particularly with men, this may become a woman's default belief regarding her partner. Moreover, some past research has found that individuals for whom their first romantic partner engaged in sexual concurrency were at an increased likelihood to engage in sexual concurrency themselves in a later relationship (Xu et al., 2010; cf. Kenyon & Colebunders, 2015). Therefore, it is recommended that future research on this topic examine

previous confirmed experiences with partner sexual concurrency in both present and past relationships to better understand historical influences and ongoing relationship behavior on sexual concurrency.

Moreover, two demographic factors were related to couples wherein the female partner only engaged in sexual concurrency. First, couples in which the men lived in an informal settlement were more likely to be in a female-only concurrency relationship. Previous research found that living in an informal settlement was related to an increased likelihood of one's own sexual concurrency for both men and women (Kenyon & Colebunders, 2015). Because income was not a predictor of sexual concurrency in Kenyon and Colebunders (2015) study (or in most other studies, e.g., Carter et al., 2007; Sandøy et al., 2010; Xu et al., 2010), the authors concluded that living in an informal settlement increased the likelihood for sexual concurrency due to more tolerant community norms pertaining to this issue. If this were true, however, we would expect to see a higher likelihood of male-only sexual concurrency, which was not observed in the study. As a result, this finding could suggest that income or poverty level of one's *partner* is important, at least for women. This would be consistent with theories that suggest women's engagement in sexual concurrency is to acquire material goods beyond one's basic needs, such as luxury items or items related to status (Jana, Nkambule, & Tumbo, 2008; Leclerc-Madlala, 2003). Future research should continue to examine the effects of a partner's income on sexual concurrency to help support or refute theories of economic motivations for sexual concurrency.

Finally, couples in which the female partner was HIV-positive had a reduced likelihood of being in a female-only concurrency relationship relative to couples with no sexual concurrency. Only a few previous studies have examined HIV status as a predictor of sexual concurrency in women and found it was unrelated to women's reports of their own concurrency

(Kasamba et al., 2011; Steffenson, Pettifor, Seage, Rees, & Cleary, 2011). One possible explanation for this discrepancy is that previous studies may have focused on women who were newly diagnosed with HIV as part of the study; in such instances, women would be previously unaware of their HIV status, which in turn would not have had an effect on their past behavior. The study conducted by Kasamba and colleagues (2011) with Ugandan adults aged 15 - 60 showed that over 60% of women in the study had not been tested for HIV in the past year. Although data on women's HIV testing in the past year were not available in the current investigation, over 90% of the women in the sample had a previous (lifetime) HIV test and in contrast, over 70% of women who were HIV-positive in the current study were already aware of their HIV status (as reported in Doherty et al., 2016). This suggests differences between the studies in terms of participants' level of awareness of their own HIV status, which may help to explain the role of women's HIV status as an influence on their past behavior.

Integrating these findings, female-only sexual concurrency appears to be characterized by couples wherein the male partner lives in an informal settlement, and the female partner is HIV-negative, has higher levels of alcohol consumption, and has higher levels of mistrust in her partner.

#### Factors Related to Biconcurrency

Finally, biconcurrency was predicted by a number of overlapping variables that predicted male-only and female-only sexual concurrency, as well as unique variables that were not predictive of other types of concurrency. Specifically for couples engaging in biconcurrency as compared to couples with no sexual concurrency, men and women's alcohol use, men and women's mistrust, men's sexual satisfaction, and women's positive HIV status increased the likelihood of this outcome, whereas women's age and the couple's cohabitation were related to a

decrease in the likelihood of biconcurrency. With regard to alcohol use, men and women's greater alcohol consumption was related to an increased likelihood of biconcurrency, consistent with male-only and female-only concurrency results. This suggests that both men and women's drinking patterns are independently important for understanding sexual concurrency. In the final model that included individual and relationship variables, however, men's drinking was no longer a predictor of biconcurrency, although women's mistrust was a significant predictor. It is therefore possible that women's mistrust of their partner's faithfulness in biconcurrency relationships relates to the male partner's alcohol use. Previous research has documented South African women's concerns about male partner alcohol use and their subsequent risky sexual behavior (e.g., Fox et al., 2007).

Contrary to the female-only sexual concurrency findings, women's HIV-positive status was related to an *increased* likelihood of being in a biconcurrency relationship relative to couples with no sexual concurrency. Previous research in South Africa has shown that HIV-positive men and women engage in high levels of increased sexual risk-taking behaviors, particularly when they have not disclosed their status to their partner, their HIV status is discordant from their partner's status, or their partner's status is unknown (Simbayi et al., 2007). Although statistically investigating these possibilities in the current data was challenging given the small sample size in the biconcurrency group, the descriptive data support these ideas. Specifically, of the five women in this group who had an HIV-positive diagnosis, one was in an HIV-concordant relationship and was aware of her partner's HIV status; the other four women, however, were with HIV-negative partners, but none of these women knew their partner's status. This further supports the idea that disclosure of HIV status is a central issue affecting couples that must be addressed. Currently, however, there is only limited research and guidance on how to help couples effectively navigate



this daunting task, particularly in sub-Saharan Africa (Conserve, Groves, & Maman, 2015; Kairania et al., 2010).

Moreover, men's sexual satisfaction was a marginally significant positive predictor of binconcurrency, suggesting that men with higher sexual satisfaction were more likely to be in biconcurrency relationships relative to couples with no sexual concurrency. Two studies in Kenya examined sexual behavior within the relationship as a risk factor for outside sex relationships, with mixed findings. Xu and colleagues (2010) examined frequency of sex as a proxy for sexual satisfaction but found this was unrelated to sexual concurrency in men. Kwena (2014) found mixed results in his study: a global measure of men's sexual satisfaction was not predictive of men's sexual concurrency, but a measure of men's unmet sexual desire needs was a predictor. Specifically, a couple's sexual desire discrepancy was predictive of men's engagement in sexual concurrency, such that couples in which men only were denied sex by their female partner (but not couples in which females only were denied sex or there was mutual sex denial) were over two times more likely to engage in sexual concurrency relative to couples in which there was no discrepancy between couple's level of desire.

The current study adds to the existing discrepancy by suggesting greater sexual satisfaction for men was related to an *increased* likelihood of being in a biconcurrency relationship. An important difference with the study by Kwena (2014) is that the current investigation did not examine desire or discrepancy of sexual needs but rather, when sex did occur, the extent to which partners were satisfied with the sexual activity. The descriptive data on the sexual frequency for the four concurrency groups show that couples in the biconcurrency group had the greatest amount of sex in the past month; although not statistically different from any of the other groups (perhaps due to the small sample size), it may suggest that the men in this

group have a more voracious sexual appetite, which is a reason why they seek out additional relationships. This interpretation could actually be consistent with the finding by Kwenya (2014), even though initially the findings appear to be discrepant. The hypothesis of men having a strong sexual desire appears to be consistent with other descriptive data in the current study that shows women in biconcurrency relationships have lower relationship satisfaction and perceive greater relationship inequity in comparison to women in male-only sexual concurrency relationships. Therefore, it may be the case that the men in biconcurrency relationships who have greater sexual desire influence the amount of sexual activity in the couple's relationship, which may be related to women's report of lower relationship satisfaction and greater perception of relationship inequity. Future research should investigate these hypotheses to better understand the interplay of men and women's desire for sex, satisfaction with existing sexual activity, and how these factors relate to relationship satisfaction and inequity.

In contrast to the variables discussed already, the couple's cohabitation status and women's age were both related to a decreased likelihood of biconcurrency in comparison to couples who were not engaging in sexual concurrency. The finding that cohabiting couples were less likely to engage in sexual concurrency was also consistent with the finding for male-only sexual concurrency. As discussed above, couples who live together may likely be more aware of their partner's behavior because individuals have fewer opportunities to hide or cover up secretive partnerships. Finally, older women showed a decreased likelihood of being in a biconcurrent relationship, which suggests that biconcurrency may be somewhat of a developmental phenomenon; as women gain maturity through age, they make different decisions about who to engage in sexual relationships with. Although some past research has primarily found women's age unrelated to their engagement in sexual concurrency (Kasamba et al., 2011;

Kenyon & Colebunders, 2015; Xu et al., 2010), most of these studies have examined sexual concurrency in younger women and teens (under age 25). Consistent with a developmental hypothesis related to sexual concurrency, older women (and men) tend to engage in more healthful behaviors, such as recently testing for HIV and having fewer sexual partners overall (Shisana et al., 2014).

Taken together, biconcurrency appears to be characterized by couples who are not cohabitating, both partners engage in higher levels of alcohol use, the male partner has higher levels of sexual satisfaction (and perhaps unmet sexual desire needs), and the female partner is younger, has a diagnosis of HIV, and is more mistrusting of her partner.

#### Factors for Men versus Women's Engagement in Concurrency

In addition to identifying patterns of predictors within each type of sexual concurrency, there are also patterns that emerge across sexual concurrency type based on whether concurrency involved the male or female partner. The major similarity between men versus women's involvement in sexual concurrency was the role of alcohol use. Greater alcohol use was related to both men and women's engagement in sexual concurrency across the three different types of concurrency, suggesting that it plays a significant role for both partners. Aside from alcohol use, relationship variables appeared to be important predictors for men's engagement in sexual concurrency, whereas level of mistrust in partners was most important for women.

Men's involvement in sexual concurrency appeared to be related to dissatisfaction with their intimate relationship. Men's relationship dissatisfaction was a predictor of male-only sexual concurrency, whereas sexual satisfaction (but perhaps unmet sexual needs) was a predictor for men's involvement in biconcurrency relationships (though only marginally significant). Given that none of the relationship variables were at all predictive of women's engagement in sexual

concurrency, this garners support for the potential role of relationship variables in influencing men's behavior.

If true, this pattern would suggest that one of the reasons why men seek outside relationships is because they have unfulfilled needs in their intimate relationship. The scientific investigation of intimate relationships in South Africa, or sub-Saharan Africa more broadly, has been very limited to date, proffering few explanations for the current findings. However, data from my own qualitative work with South African men (see Study 2) suggested that men's engagement in high-risk and harmful behaviors, such as alcohol use, IPV, and sexual concurrency, was due to men's broad dissatisfaction with life, limited hopefulness for change, and poor coping strategies. With this in mind, it is possible to make sense of the current findings by suggesting that men's dissatisfaction with their relationships is part of a broader dissatisfaction with life due to the poverty, disease, and violence that permeate such communities, with perhaps little reason to feel hopeful about future change. Moreover, the strategies chosen to combat such dissatisfaction (i.e., alcohol, violence, outside sex partners) often provide an antidote to the problems in the short-term—gaining status, money, or reprieve from negative feelings (Jewkes & Morrell, 2010; Swartz et al., 2013). Future research is needed to substantiate this conjecture and clarify whether the results are specific to relationship dissatisfaction or are part of a broader picture of life dissatisfaction. If findings do support the notion of broader life distress, this interpretation would suggest that individual and couple-based interventions that help men (and women) learn more adaptive coping strategies for dealing with ongoing environmental stressors could be beneficial for individual and relationship functioning.

On the other hand, women's involvement in sexual concurrency (either in female-only or biconcurrency relationships) was related to alcohol use and mistrust with an approximately equal

impact of both variables in each concurrency group. These findings together do not support the hypothesis put forth in this paper that monoconcurrency would be more related to individual factors and biconcurrency would be more related to relationship factors. It is important to note that the relationship factors examined did not capture the couple's relationship milieu as was intended. As discussed earlier, the latent variable *divisive relationship milieu*, which was intended to capture dynamics at the couple-level, in fact was not well-represented by the indicators mistrust and relationship inequity. Although these dyadic variables were still used in the analyses, they did not capture the couple's interaction patterns or milieu as was hoped. Therefore, other researchers are encouraged to explore dyadic variables measured at the couple level, such as couple cohesion, time spent together, or dyadic communication patterns (e.g., mutually constructive communication) to better understand their relative impact on monoconcurrency versus biconcurrency.

Further examining the finding that a similar pattern emerged for women's involvement in *any type* of concurrency suggests that alcohol use and mistrust are key factors related to women entering into outside sexual partnerships. In particular, women with higher mistrust were more likely to engage in sexual concurrency irrespective of whether their partners were actually engaging in their own concurrency. In biconcurrency relationships, women's mistrust was for good reason—their partners were indeed engaged in outside sexual relationships. In female-only concurrency relationships, however, women's partners were not actually having sex outside the relationship; yet, male partners were perceived to be engaging in this behavior. Results from the female-only concurrency group could be seen as providing support for the post-hoc justification theory of mistrust (i.e., that individuals claim their partners are unfaithful as a way to reduce cognitive dissonance with their own actions; Ferrand et al., 1998). An alternative interpretation is

that women are responding to what they believe to be true (i.e., that their partner is indeed engaged in outside relationships) rather than post hoc rationalizations of their behavior. On the other hand, results from the biconcurrency group lend support to theories that suggest that the mistrust is justified and one's own engagement in sexual concurrency is either revenge (Vera Cruz & Maússe, 2014) or is a result of partners with similar behavioral patterns attracting each other (Mah, 2010). Regardless, it appears important that interventions focused on reducing sexual concurrency target beliefs about partner behavior and mistrust within the relationship, especially as a strategy to reduce women's engagement in outside sexual relationships.

#### Distal versus Proximal Factors Related to Concurrency

In addition to examining the factors discussed above as predictors of sexual concurrency, this study also examined distal factors that may play a potential role in this behavior. In particular, it was expected that men and women with a trauma history would engage in greater levels of alcohol use in the present as a coping mechanism, which in turn would be associated with a greater likelihood of engaging in sexual concurrency. Separate models were examined for men and women (not factoring in the type of concurrency), and the expected pattern of mediation was observed for both sexes. This finding is consistent with previous research that found alcohol use to be a mediator between past trauma and current sexual risk-taking behavior in South African men and women (Icard et al., 2014; Pitpitani et al., 2012). However, the current study extends past research by being the first to examine sexual concurrency per se as the outcome in a mediation model with past trauma and current alcohol use. Moreover, findings from this study suggest that trauma history does not have a direct effect on sexual concurrency per se, which is encouraging because interventions can be used to alter maladaptive thoughts, feelings, and behaviors in the present, as well as alter alcohol consumption.

Additionally, the current study found an association between past traumatic experiences and current report of IPV victimization for women, but not for men. Although prior research has generally found an association between these variables for both sexes, childhood trauma in men has been shown to predict men's perpetration of IPV but not their victimization (Gass et al., 2011). Because the current study used a measure of IPV victimization, not perpetration, this may explain the lack of an association for men. Overall though, it appears that a history of traumatic experiences has the potential to influence sexual relationship behavior later in life for both men and women through the use of heavy alcohol, and this finding should be taken into account in interventions designed to address alcohol use or sexual concurrency.

### Implications

Overall, study findings point to a number of individual and relationship factors that appear to promote and mitigate different types of sexual concurrency. Results of the study should inform couple-based HIV prevention interventions and other programs targeting concurrent partnerships in South Africa. Many couple-based HIV prevention efforts lack focus on the couple's relationship per se, as noted by other researchers (e.g., El-Bassel & Wechsberg, 2012). Recently, however, there has been a growing trend for these interventions to include relational constructs. For example, the Zambia Partner Project includes relationship constructs such as relationship consensus and social support; relationship consensus, or the couple's ability to come to agreement on various topics, was predictive of improvements in the couple's use of condoms after the intervention (Chitalu, Mumbi, Cook, Weiss, & Jones, 2016). The Couples Health CoOp (from which the current study data were drawn) also focuses on a number of relational constructs including sexual pleasure and trust (Wechsberg et al., 2015), both of which were found to be predictors of concurrency in the current intervention. Based on current study findings, future

interventions should continue fostering healthy relationship dynamics by not only providing psychoeducation about risk factors for negative outcomes (e.g., relationship dissatisfaction or dissolution) but also providing couples with skills to enhance their relationship. For example, one strategy could involve helping couples become more intentional about showing care to their partners (in a culturally appropriate way), which for US couples who are in therapy, this is often an important intervention strategy (Epstein & Baucom, 2002).

Additionally, study findings suggest the importance of understanding historical factors in influencing current sexual behavior. Interventions targeting HIV sexual risk behaviors (whether targeting sexual concurrency or other risky behaviors) for both individuals and couples could potentially benefit from helping contextualize individual's engagement in these behaviors. Past HIV prevention efforts have used the 'ABC campaign' of abstain, be faithful, and use condoms, which researchers have found to have unintended consequences of increasing difficulty in acknowledging HIV risk as well as increasing secrecy of outside relationships (Parikh, 2007). It has recently been suggested that South Africa should revive the ABC campaign in order to reduce HIV risk (Shisana et al., 2014), although others researchers believe this approach would not be appropriate given changes in South Africa's epidemic over the last 20 years (Burman, Aphane, & Delobelle, 2015). In addition, campaigns such as ABC do not contextualize an individual's behavior and help them understand reasons for initially engaging in the potentially harmful behavior. Research has shown that people are more likely to make recommended health changes when they have a greater understanding of the cause of the problem (e.g., Degmečić, Požgain, & Filaković, 2007). Given this finding, it is recommended that associations between past traumatic experiences and current coping behaviors be made explicit for individuals and



couples in HIV prevention programs so that people can better understand potential origins of their behavior and perhaps be more willing to acknowledge their risky behaviors in the present.

#### Limitations and Future Directions

Findings for the study must be considered in light of this investigation's limitations. First, the sample recruited for this study were males with high alcohol consumption who frequented shebeens. Although high alcohol use in South African males has been documented as a problem across the country (World Health Organization, 2014) as well as in Cape Town and the Western Cape province more specifically (Herman et al., 2009), the demographic characteristics of these men do not represent the country at large. Additionally, the study focused on Black South Africans, and findings may not apply to other at-risk racial groups within South Africa. For example, individuals from the Coloured community also face significant disadvantage, yet as a racial group they have a unique history and identity that needs to be taken into account (Adhikari, 2005). For example, there are distinct demographic factors associated with sexual concurrency and sexual risk-taking behaviors for Black and Coloured South Africans (Kenyon, 2013). Future research should examine whether the risk and protective factors identified in the current study apply to other vulnerable groups in South Africa. Additionally, this study focused exclusively on heterosexual couples, but individual risk factors and relationship dynamics in same-sex couples or in couples with nonconforming gender identities may be different and should be investigated in future research. For example, men who have sex with men and gay men are identified as growing at-risk populations in the South African HIV epidemic (Lane et al.,

2011); therefore, culturally-sensitive couple-based HIV prevention interventions should be as available to these groups as they are to heterosexual couples.

Additionally, this investigation attempted to minimize biased results through the use of latent variables; however, not all variables of interest were represented as such due to the analytical complexity and limited sample size. Factor scores were used instead to represent some of the variables. Although factor scores are based on the latent variable constructions, they do not account for the measurement error and therefore may bias the results (DiStefano et al., 2009). In addition, the latent variables used in the structural (predictive) models were not always identical to those established in the measurement model,<sup>15</sup> which may have resulted in some inaccuracy in capturing the construct of interest. Additionally, another important limitation is that the data used for this study were cross-sectional in nature, which limit conclusions about causality. The mediation model explored suffers from the same limitation, although there is some temporal precedence in using trauma history as a predictor of sexual concurrency in the present. However, some individuals may have been in ongoing or peritraumatic situations, such as being in an abusive relationship, which may have occurred contemporaneously with other behaviors, such as alcohol use. Future research should attempt to mitigate these limitations by using longitudinal data to evaluate whether any of the findings are causal in nature or simply correlational.

Finally, the current study was limited in its ability to reach conclusions regarding the role of relationship factors on sexual concurrency due to construct measurement difficulties. More specifically, one major goal of the study was to capture the dyadic milieu of couples, which was

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<sup>15</sup>Each covariance between categorical indicator variables adds one dimension of integration when using the MLR estimator. Therefore, it was not analytically feasible to capture all covariances between indicator variables that were found to produce the best fit in the measurement models.

thought to provide unique information about couples' sexual behavior and engagement in sexual concurrency. However, the latent variable that was created to capture relationship divisiveness did not account for much variance in its indicators, suggesting the lack of an appropriate measurement model. Future research is needed to better understand central concepts of adaptive relationship functioning in South African couples, which in turn may provide insight into factors associated with maladaptive relationship functioning, including but not limited to HIV risk behaviors. Toward this end, there have been an encouraging number of recent studies focusing on dyadic variables and processes in South Africa and other sub-Saharan countries, including intimacy (Conroy et al., 2016), relationship quality and satisfaction (Conroy et al., 2016; Pasipanodya & Heatherington, 2015; Vamos et al., 2013), and factors associated with relationship dissolution (Mackelprang et al., 2014). Future studies should continue to explore the relevancy of relationship variables as they relate to HIV risk behaviors as well as general individual and relationship well-being.

Despite these limitations, this study contributes to the literature on couple-based HIV prevention by providing a unique conceptualization of sexual concurrency and exploring modifiable factors at the individual and relationship level for South African couples. The overall findings suggest that different factors are important in predicting sexual concurrency depending on the type of sexual concurrency as well as whether the person engaging in the behavior is male or female. It is hoped that future research will further substantiate the findings in this study, particularly with regard to conceptualizing sexual concurrency at the couple-level, with the ultimate goal of translating findings into more effective couple-based interventions.

## **CHAPTER 3: STUDY 2 TO ADDRESS AIM 2 AND AIM 3**

### **Methods**

#### Participants and Procedure

In order to investigate the second and third aims, qualitative research methods were employed; specifically focus group discussions (FGDs). Eligible participants for the FGDs were men and women who participated in the original CHC intervention during 2010-2012 and provided their consent to be contacted for future research studies. Each FGD addressed the long-term effects of the CHC as well as adaptive relationship functioning more broadly (i.e., both Aim 2 and Aim 3 were addressed in each FGD). Separate FGDs for men and women were conducted to increase participants' comfort with disclosure of relationship details. A total of eight FGDs were conducted (four for each gender) with 4 – 8 participants in each group. A total of 27 men and 23 women participated in the FGDs. The Institutional Review Board (IRB) placed restrictions on subsequently collecting demographic information on the sample; therefore, this information (e.g., age, couple status, etc.) was not collected systematically for the current investigation. However, during the FGDs, participants informally reported that some were with the same partners as during the intervention whereas some individuals reported being in new relationships.

Recruitment of eligible participants included men and women who completed the CHC intervention (99 couples) and provided consent to be recontacted. A subset of these participants (28 men and 28 women) was randomly selected as an initial point of contact for recruitment. Participants who agreed to be in the study who were well-connected within the community

helped recruit other participants who were previously in the CHC intervention through the use of snowball sampling. Because participants were originally recruited from the same communities and often knew each other, this strategy was successful. Interested participants were screened in private locations within the communities to ensure they met study eligibility criteria; specifically, they had to be willing to share their experiences in a group as well as consent to the focus group being audio-recorded. Participants who agreed to take part in the study were scheduled for an FGD and were consented immediately prior to their participation in the group. The FGDs took place at the field site in the community of Delft, Cape Town, South Africa. Each FGD was approximately 2 hours in length and followed a semi-structured format (see Appendix C for interview guide). All participants were English-speaking but had varying levels of comfort communicating in English. Therefore, the South African staff translated questions and responses to the local language (isiXhosa) for some participants. All participants received a grocery voucher for ZAR100 (approximately \$6.65USD) for their participation in the study. The study was approved by an IRB in the United States and the South African Medical Research Council.

### **Data Analytic Plan**

In order to analyze the transcribed data and identify themes from the FGDs within a grounded theory framework, guidance provided by Charmaz (2006) was followed. Specifically, transcripts from the FGDs were first read multiple times in order to become familiar with the data. Codes, which were ultimately combined to represent broader categories and themes based on the content discussed by participants, emanated from the data themselves. Because the researcher has an active role in creating the codes and, therefore, in influencing the data that emerge, this form of grounded theory is referred to as *constructivist* (Charmaz, 2006). Thus, theories and results that emerge are not independent of the researcher because it is the researcher

who has a role in constructing them. This is in contrast to the more traditional positivist approach to grounded theory that does not fully acknowledge the role of the researcher in influencing the findings; the positivist approach suggests that the process is more objective. Transcripts were coded twice, with the first round of coding using a line-by-line coding strategy. Line-by-line coding helps to keep the initial codes as closely tied to the data as possible (Charmaz, 2006). As more transcripts became available for coding, some of the earlier codes and categories were altered to reflect a greater understanding of the discourse. Two independent coders (the current principal investigator and an undergraduate research assistant) completed the final coding of all transcripts. The two coders independently read the transcripts, met to discuss emerging themes, and conducted the coding based on initial impressions. Any discrepancies in codes were discussed and a consensus was reached as to the appropriate codes. Because qualitative coding of transcripts is an iterative process (i.e., the codes applied to earlier transcripts may change as more transcripts are coded), interrater reliability is generally not calculated (but see Hruschka et al., 2004 for a discussion of the merits of interrater reliability for qualitative coding).

The individual codes from the data were used as the building blocks to creating larger categories, which in turn were examined for larger concepts or themes. Finally, these concepts and themes were put together to form a theory, specifically for Aim 3 (Saldaña, 2009). Saldaña (2009) created a useful diagram displaying the relationship between the various elements of qualitative analysis. A codebook was maintained throughout the process that included the name of the code, a definition of the code, and example text that supported the code. The data analytic software ATLAS.ti Version 7 was used to support these analyses. Specifically, this software allows the user to examine frequency of codes, co-occurrence of multiple codes, and the extent

to which codes are densely connected to other codes in a network. All of these tools aid the researcher in organizing and managing the data in support of uncovering existing themes.

### **Results of Long-term CHC Follow-up (Aim 2)**

Participants were asked to address three primary areas related to the long-term follow-up of the CHC intervention: (a) content and skill areas they most remembered learning about; (b) longer-term changes and challenges to using the skills since participating in the workshop; and (c) recommendations for workshop improvement. A diagram of these domains and the related themes is provided in Figure 3.

#### **Most Salient Content and Skills Learned**

Both men and women reported learning skills and content in three primary domains: communication and problem-solving, safe and healthy sexual behaviors, and bad consequences of alcohol. Within these domains, there was both convergence and divergence between men and women on the facets they reported to be salient; these similarities and differences are highlighted throughout.

*Communication and problem-solving.* Both men and women discussed communication skills, specifically listening and understanding one's partner and self-disclosure, as some of the most salient aspects of the intervention. Listening to one's partner was viewed as a way to show respect, by giving the partner the opportunity to express him or herself. Listening to one's partner was incompatible with dogmatically pushing one's viewpoints onto one's partner.

It's always better to talk with your partner, and not only talking, but to listen at what she's going to come up with, to give you that sort of respect of hearing, or listening to what she wants to say as well. Not only talking more about being pig-headed and telling yourself that you are a man in this relationship, so whatever you are saying or whatever you come with you must go. (Male participant, FGD #2)

The other major salient aspect of communication was becoming more active with self-disclosure to their partners. Participants learned that it was important to talk about their problems with their partner, rather than just keeping their feelings to themselves and making assumptions about how their partners would respond.

You will have something to say to your partner, but you don't want to say it, because you know that he's going to say – he's not going to be on the same path with you. But what we've learned here is to sit down with your partner. You say – even if you don't know what he's going to say, or back to what you're saying – sit down. I tell him what I feel. And then at some point, he had something else also to say to me, but he now felt comfortable just because we sat down and then we talked. That's why I can say, that's why I'm still in this relationship with my partner. Yes. Because we got to understand each other in a very good way. (Female participant, FGD #5)

As demonstrated by the quote, mind-reading often occurred regarding how one's partner would respond in a given situation, which inhibited self-disclosure and perpetuated feelings of discomfort between partners. However, participants discussed that, ultimately, sharing made them feel more comfortable with their partner and helped them get to know each other better.

It's about communication. The more I communicate with her, the more I find that to be a help. To be more, like, to be all free when she opens up to me also, so that I can start to know what she really [is like] deep down, what kind of things that are hurting her. So that I can help her more freely open up... (Male participant, FGD #2)

Moreover, salient communication behaviors for men also included more adaptive problem-solving strategies. Men reported learning that physically violent behaviors were an inappropriate means to solve problems. Instead, they learned that verbal discussions would help them solve problems more effectively. Encouragingly, no men discussed keeping in their negative feelings as an alternative strategy to solving problems or disagreements in the relationship.

What I remember from the workshop, it's the importance of treating your partner with respect. Even if you have a fight, you don't have to be violent. But you need to communicate and try and find a solution to whatever problem you're having. (Male participant, FGD #3)



Safe and healthy sexual behaviors. Within the domain of sex, both men and women discussed the saliency of learning that alcohol affects one's ability to engage in safe sexual behaviors, particularly with regard to outside sex partners and condom use.

And alcohol when you are drinking alcohol, you get drunk you do something that you... maybe you find another partner on top of that partner you already have, and then you go and sleep with the other partner and then that partner maybe doesn't want to use condoms. (Female participant, FGD #8)

This was a fairly common narrative, mostly from men but also reported by some women, which involved having sex with an outside partner when being under the influence of alcohol. In some instances, participants were unable to remember whether a condom was used and, therefore, whether they had the potential to infect their partner with HIV or an STI. The workshop appeared to help men and women coalesce these experiences into a uniform narrative. Moreover, the workshop not only highlighted to them the importance of using condoms with outside partners, but also with main partners. "I have learned how not to abuse alcohol and to use a condom all the way, even if I have one partner because you don't know what he is doing behind your back." (Female participant, FGD #7). An important tenet of the workshop was encouraging couples to consistently use condoms and not equate condom use with mistrust.

Additionally, there were some unique facets that emerged as important and salient for men versus women in the domain of sex. Men primarily remembered the importance of being faithful to one partner and the role that outside partners play in increasing HIV risk. "I saw it as an advantage that it's not good to have more than one partner...because it's easy to get some disease, because it's not all of us who uses condoms." (Male participant, FGD #1). On the other hand, women learned how to communicate with their partners about sex or sexual-related issues, including HIV. These topics were often difficult to discuss, but women appeared to embrace the idea that it was important to have open conversations about these topics with their partners.

We were not comfortable to speak about sex before the workshop, but after the workshop, we were free to talk to each other. Negotiated the condom use, on how to make sex pleasurable in everything that we've learned. And, in here it helped us a lot, then compared to us then before. (Female participant, FGD #5)

Negative consequences of alcohol. In addition to learning how alcohol interferes with sexual decision-making, both men and women recalled learning how ubiquitous alcohol is within their communities. Men specifically discussed the availability of alcohol and the extent to which peers and community members used alcohol, which made it difficult to distance oneself from the substance.

And the other thing we talked about, because it was the first time that I was in the group, and we were talking about, like, in the communities that we live in people are, we are so close to drugs, we are so close to alcohol. And people tend to use alcohol and they tend to mistreat their partners. That's the first thing that I've learned. In this town the youth that we're surrounded, like our friends, our colleagues, tend to use alcohol. (Male participant, FGD #1)

For women on the other hand, they primarily remembered the impact that alcohol has during pregnancy on the unborn baby. For example, “When you drink when you are pregnant, it can damage a baby, according to... come out before time. And it can affect the baby in the brain; it can damage the joint system of the body.” (Female participant, FGD #7). Women reported not having this knowledge prior to the workshop, but since the workshop, taking it upon themselves to teach this fact to other women within their communities.

### Long-term Changes and Challenges

With regard to long-term changes, men and women most commonly reported significant shifts in their intimate relationships since participating in the workshops, albeit in different capacities. For men, most sustained changes occurred in their ability to use more effective communication skills, the speaker and listener skills as well as adaptive problem-solving skills, as discussed earlier. But the improvements noted were not limited to communication skills—

changes in communication were often part of broader changes in the importance men placed on their intimate relationships and intimate partners.

One of the reasons why I still maintain my relationship with my partner is that I've realize that before, if I want to hang around with friends I would hang around with friends and drink and not care about her, and not spend time with her. But now if she phones me, if she wants to spend some time with me I prioritize her. And, that's the reason why I stick to her. (Male participant, FGD #3)

As this quote shows, men began to prioritize their female partners more and understand that relationships require effort. Men's newfound commitment post-workshop not only influenced how they conceptualized their role as a partner, but also their role as a father.

I have a small baby, well, I have a baby. So, before the workshop I used to drink a lot and spend all the money, and not really care about my kid. But now, I know for sure that I need to take care of my kid. I need to set money aside to take care of her needs. (Male participant, FGD #4)

Even men who reported that they were already in an adaptive relationship before the workshop, appeared to benefit from the intervention's focus on enhancing relationships.

Before we attended the program, we were, like, we were those kind of partners who would talk through things before we do anything. But, after we attended the couples [program], it was after the program, it bettered more our relationship. Because we would discuss things before, we would talk through things, we would do things together. The activities, like, we would just chill around, play together, like, just to build a bond. Because we didn't have time for each other but we managed to make time for each other...because that's what made me, the program, really give to me more knowledge that I had. (Male participant, FGD #1)

Overall, the most notable shifts for men since participating in the workshops were in how they viewed their intimate relationships and the ways in which they communicated with their partners. Men also noted reductions in their alcohol use and risky sex behaviors, as well as increases in egalitarian gender roles, although these were all to a lesser degree than changes in direct relationship behaviors and beliefs.

For women, the most notable long-term changes occurred in their sense of empowerment

to be treated well by their intimate partners. Women reported speaking up more when they observed behaviors from their partner that were harmful to their own health or behaviors they were uncomfortable with, such as partner abuse (physical or verbal) or secretive behavior.

I would say, yes it did change a lot because before [the workshop] I was like whatever the boyfriend says is okay, but now I'm like, 'okay, no it is not okay.' I must have a voice because they say a good relationship makes a good community and then a good community makes a good father. [The workshop] did change [me] because before I was scared to speak up. Even if he's older or drunk. Even if he is wrong, I don't get acknowledged that he is wrong. But now if what he says is wrong, I speak up. It's 50-50. (Female participant, FGD #8)

As this quote demonstrates, following the workshop this woman no longer passively agrees with what her partner says. Instead, she asserts herself in order to be in an equitable relationship, even in situations where her partner may be more dominant. Additionally, women also spoke of becoming more empowered to leave relationships that were not meeting their needs.

Most of them [women from the community who were in the workshop] broke up with their boyfriends. Because when you trust someone, you ask that person if he is not answering you and he is abusing you, it goes altogether. You tend to leave that relationship because there is no trust, there's no honesty, there's no love. So you move on with your life. That's how, like, because you [are] educated. That's how trust is being done. (Female participant, FGD #6)

As noted by this female participant, some of the women in her community who participated in the workshops were no longer with their partners because they had ended maladaptive relationships. This sense of empowerment that the women felt may have developed from the specific skills learned on how to communicate and ask for one's needs to be met; it is also possible that the workshop may have shifted women's standards as to what constitutes a healthy relationship. Finally, consistent with changes in women's sense of empowerment, they also noted long-term improvements in their ability to talk about sex with their partners and use condoms with their partner.

Although there were notable long-term changes for both men and women since

participating in the workshop, there were also areas that were less amenable to change. Here, both genders noted that alcohol use was an area that required further intervention. Some men did report improvements in this area, but many men and women said it was still a problem in their own lives and within their communities, affecting both their individual and relationship functioning. Alcohol affected men's individual functioning often through fueling their anger, which at times led to violence with other men in their community.

So, there are times where I act out of character. For instance, when I'm angry. I go outside because I still use drugs, I abuse alcohol. I continue to use alcohol. In order to get money, I get into the thug life and hustle and get money. I don't want to say that it's right. It's not right. I want someone who can help me. It only happens when I'm drunk. (Male participant, FGD #3)

Alcohol use also caused relationship problems for men because many of their female partners do not approve of their drinking habits, which creates conflict for the couple.

Yes, I'm drinking each and every weekend, knowing that my behavior is still good. But, the problem is at home. I clearly understand that that person there at home needs me. She needs that quality time to spend. Now, if I go get drunk, she's already disappointed, my relationship goes down. Because, there's nothing I can do with her. By tomorrow morning, it's like I'm still in front of a magistrate, I've got to answer to that. (Male participant, FGD #3)

For women, a similar picture emerged where alcohol use impacted their individual functioning, such as non-adherence to their ART medication and poor decision-making (e.g., not using condoms with a new partner). It also resulted in relationship problems, such as relationship arguments and relationship dissolution. "I also have the same problem with alcohol. I ended up breaking up with my partner because of alcohol and I lose control when I am drunk." (Female participant, FGD #8)

### Workshop Recommendations

Participants in the FGDs collectively reported a strong desire to have these workshops continue in the community. The topics desired were primarily those already covered in the

workshop, such as the role of alcohol and safe sexual behavior. When asked about whether the workshop would be better to continue in a couples format or complete separately by gender, men and women overwhelmingly reported that conducting the workshops with couples would be most effective. For men, participating in the workshop with their partners would ensure that both members of the couple heard the same information; partners would be held accountable to each other, and each person would better understand their partner's perspective.

So, the skills that we've learned in the workshops, such as communication skills, problem-solving skills, they are needed in our communities. And, my thinking would be, it needs to be in couples so that you don't really have one side being educated around these issues and one is left out. So I think that the two guys [members of the couple] are in the same room and be able to learn. And when they need to communicate, one understands where one comes from. (Male participant, FGD #3)

A few men wanted the workshops to continue as separate groups for each gender because they were shy and/or uncomfortable sharing information with their partner. However, other men understood the merits of both formats (separate by gender and as a couple) and saw that without participating as a couple, the goal of having couples interact more adaptively would be hard to achieve.

Look, for me it's about both ways. The workshops with you, the mens apart from the women and the workshop, you know, with partners in. The reason why... I get the point that the other men are shy to open up in front of their women, or in front of women, but that is what we are trying to solve in a way. So for me, I think, we can do men's only here. It's nice to talk in front of other men, that is why even in our areas you'll see a group of men just sitting, and some – some has some chatting, or even through beers. So it's nice to talk with another man, you see. But again, should you stop there, that problem of men not being able [to talk], because they end up resulting to violence...you see, because they can't deal with their problems, because they can't talk. Now, you want for us, or for you guys to solve that problem, men must learn to sit with their women and being able to talk with them, and being able to listen to them. (Male participant, FGD #2)

The overall sentiment was that it was important for men and women to participate together so that they can better understand each other and be comfortable in the process of both listening and sharing.

Moreover, many women also preferred the couples format instead of workshops divided by gender. Women also felt that participating as a couple would increase the likelihood that both partners would be on the same page and better understand each other. Additionally, women also noted that if their male partners did not participate in the intervention, they would be less apt to believe the information if it only came from the female partner.

[If] I have this partner who hasn't attended the program, then when like, I prefer that partner to have the information from the horse's mouth, from the professionals, because when we [women] like dishing out all the information, he will never trust you. Instead, he will make like more chaos. (Female participant, FGD #7)

Many women felt that their partners disregarded their perspectives, especially if they were not employed. However, they felt that men would be willing to listen to new information if it came from professionals or from other men. Furthermore, the women who preferred to have the intervention separated by gender believed that their male partners would be too shy to talk in a group with other women (consistent with what some men reported) or because their male partners held different viewpoints from their own, making it too challenging to have the intervention in a couples format.

Finally, participants felt that the workshop could be very useful in addressing some of the community's most challenging problems. Throughout the discussion, men and women noted many structural issues in the community, such as unemployment or lack of community resources, but a major theme that emerged was teenage pregnancy. Teenage pregnancy was identified in each FGD as a major problem plaguing the community. Participants noted that alcohol and drug use was a major factor contributing to teenage pregnancy.

You see, like, where I come from in my community, like, eish, I'm very worried about the youngsters. Because, they are exposing many things to them, there's drug-alcohol abuse, and then, they get in a relationship in the early stages. So I think, interventions like this then can work, especially starting from schools. Because there's too much teenage

pregnancy. Some of them are from primary [school], right to standard four and standard five, and then they go to high school with babies. (Male participant, FGD #2)

Participants thought that the couples intervention could be used to prevent teenage pregnancy in their communities by working with teenage couples, teaching them about alcohol, safe sex, and HIV.

Overall, the FGDs revealed that the CHC intervention had the greatest impact on relationship knowledge and skills for both men and women and that these changes were some of the most robust over time. Communication skills were reported by all participants to have been central in improving their relationship functioning. In addition, men also noted shifts in how they viewed and prioritized their partners, whereas women became more empowered to ask for healthier relationship behaviors as well as end relationships that were not meeting their needs.

### **Results of Adaptive Relationship Functioning (Aim 3)**

The FGDs investigated facets of couple's adaptive functioning, using Maslow's (1943) hierarchy of needs as a framework for domains of interest. Participants were asked questions pertaining to these specific domains of intimate relationships (see Figure 4). In addition, participants were asked directly what they considered to constitute healthy romantic relationships and reflected on specific relationship role models that they have observed within their communities. Both of these findings are presented below. Based on the FGDs, a model of adaptive relationship functioning for these couples was developed and is presented later in this section.

#### **Facets of Adaptive Relationship Functioning**

Safety. Participants were asked about the ways in which intimate partners can facilitate feeling safe in a relationship, both physically and emotionally, and somewhat surprisingly, almost all responses focused on the emotional aspect of safety. Although physical violence in



relationships was mentioned throughout the FGDs, it was not discussed in the context of safety per se. Rather, men discussed trust as a key aspect to feeling emotionally safe. Spending time together and being available were often viewed as the way to facilitate building trust. “So spending a lot of time with your partner, it builds trust. Because if he is away, she might not be sure what you are up to.” (Male participant, FGD #4). Also, another participant said, “And she must be able to reach me, every time she calls. Even if it's twelve at midnight, I should be available every time. Because, if it's voicemail, she'll assume that I'm with another person.” (Male participant, FGD #2). As evidenced by these quotes, being unavailable was often met with suspicion from men and women about their partner’s faithfulness to the relationship. However, the process described here through which trust is built (i.e., knowing where or what one’s partner is doing at all times) may actually be counterproductive to building trust over the long-term.

Moreover, men also talked about being heard and listened to by their partners as important for emotional safety, which was also echoed in the women’s FGDs.

First, they must also listen to us when we talk because men don’t listen to us. They don’t value us as women, just because we are sitting there, we are unemployed doing nothing. So they don’t listen to us, they don’t care what we think, especially if a man knows that you love him. (Female participant, FGD #7)

Women not only wanted to be heard, but also wanted their male partners to take initiative to ensure they were physically and emotionally safe. For example one woman said, “And if he can check, if maybe you go to work, and ask how you're feeling, are you okay, to check up on you...” (Female participant, FGD #6). Finally, women reported that they would feel safe in the relationship if they received unconditional support from their partner, for example, getting tested for HIV together.

Love and belonging. The focus of this domain was on the ways in which partners show each other that they care. There was some overlap in the themes that emerged with the domain of

safety, given that safety focused on the emotional component. Nevertheless, a theme that emerged within this domain was the importance of partner thoughtfulness. For example, many men and women discussed buying something for their partner as a token of their love and care, even if they did not have many financial resources, “I might not have the materials but it's important to show her that I love her and give whatever I can give, whatever I can afford to give.” (Male participant, FGD #3). Women also mentioned doing small tasks for their partner “just because,” or for no particular reason. For example, one participant said, “When he's from – sometimes, when he's from work, you're already boiling water so that he can bathe and soak.” (Female participant, FGD #5).

Another facet of showing care discussed by both genders was supporting one's partner in whatever area of their life they are having difficulty in. One woman said, “To support each other [is] to show that you love. For example as a woman, I've got a problem, my partner would come and intervene and try to resolve the problem with me.” (Female participant, FGD #7). In order to be successful in the role of supporter, however, listening to one's partner was necessary.

By listening to every problem she has. You can say that, ‘come pick me up’ by being there. It is just to show her that whatever problem, whatever needs she wants, you are also there to support her. And, even though she's in an emotional problem with her family, you are there to keep her comfortable of what problems she has. Assisting her in every way, so that you can show that she can trust your word. (Male participant, FGD #1)

Finally, men and women discussed verbal and physical affection as indicators of love. Verbal affection primarily referred to participants telling their partner how much they cared about them, as well as verbalizing feelings of love. As one man said, “And letting her know that you care and that you love her. Now, like, tell her your words, and then that, ‘Woman, I will be here for you and I love you.’” (Male participant, FGD #2). Physical affection also emerged as important, such as giving a massage, holding hands, hugging, or kissing. However, displays of

affection in public, in particular physical affection, was controversial within these communities. Men and women described cultural norms for Xhosas that depict public displays of affection as disrespectful to the community elders. However, most of the participants within the FGDs believed that public displays of affection would actually promote positive relationship functioning.

Because, we're embarrassed to hold each other's hands, we Black people. So you people [in the community] are going to say now, 'What is she doing?' I think it's good to see, so that the people – they can see that there is love there. These people, they love each other...We don't do that most of the time. But I think it's good to do that. It shows that you are happy. So that if, like, most of the people, they can do that, I think the abuse will be much less...When you're holding hands, kissing each other, hugging each other, it shows love...because if you're loving each other, the abuse is much less. And you don't even abuse each other, you're always loving each other. Not to feel ashamed. Not to feel it's a taboo. Because it's a religion. It's like you're going to – 'Oh, that girl doesn't have respect, how can she do that in front of us?' If we can educate our old people about that, I think everything will be fine. (Female participant, FGD #6)

As this woman described, abuse was seen as incompatible with public displays of affection. A number of participants voiced their desire to change such traditional community beliefs.

*Esteem.* This facet focused on how individuals feel in their intimate relationship—the emotions that emanate from being in a healthy relationship as well as how an individual feels about him or herself. The two major emotional responses to being in a healthy relationship were feeling happy and special. As one participant said, “You feel special, you feel you are like a queen because there is someone who is loving you and then everything in your life is great.” (Female participant, FGD #7). As this quote shows, not only were individuals happy because the relationship itself was good, but there was a cascade effect that being in a healthy relationship made other parts of their life better as well. This was echoed by a male participant who said, “You feel happier. You get confidence. Because everybody understands how good you are so

you don't stress, you're just cool. I've got no worries. It's something great, that's all that I can say.” (Male participant, FGD #3).

Additionally, mutual respect between partners is conceptualized as part of esteem and was a theme that emerged for women in the FGDs. When describing what it meant to have respect in the relationship, most women talked about being spoken to in a non-aggressive way (e.g., no shouting or name-calling), having their opinion valued, and talking through problems with their partner. No physical abuse was also described as an indicator of respect, though to a lesser degree. One woman described respect in the following way, which captured many of these sentiments, “He would never raise his voice. He will never lay a hand on me, always wants your... voice of opinion. Always sharing discussions and how do you feel about this... that one respects.” (Female participant, FGD #8). In addition, some women also noted that respect, in terms of listening to their partner, went both ways.

Communication is the best thing in the relationship to understand each other. When you understand each other everything goes very good. Because, it's kind of disrespecting your boyfriend if he doesn't like the thing and you're pushing him. Because, sometimes, that is where the abuse starts, when someone doesn't like the thing and then you keep on doing that, he gets angry. So if your boyfriend doesn't want that because you, like, talk to him, to each other. I know him, he knows me. He knows where I'm standing, I know where he is standing. (Female participant, FGD #6)

Although a major goal of working with couples is to teach them that violence is *never* acceptable, the sentiment of this woman's response that listening and understanding the needs of one's partner is incumbent on both members of the couple, *is* consistent with a dyadic conceptualization of relationship success.

Growth. This domain focused on the ways in which partners help individuals grow in a variety of domains. Three different ways were discussed in which partners or the relationship produce change. The first way was the partner and/or the relationship served as a motivator per

se for the individual to become more responsible; in this situation, however, the partner does not do anything actively to shift the individual's behavior. Only men discussed this type of growth, where the partner's role was more passive.

But we like to provide for women who are around us. So if you're not working and you've got a girlfriend, that only forces you to try harder to get a job, so that you can be able to maybe, take her out or once in while do something nice for her....And then, again, like most of us here, we are Xhosas you see. You find that a guy – we are from the Eastern Cape, not from here within Western Cape....But now, his woman is also going to Eastern Cape to her home. Now the guy starts to get interested to get to Eastern Cape...(Male participant, FGD #2)

As the male participant described in this situation, there is motivation to work harder and gain financial resources. Moreover, he also described men becoming motivated to build closer relationships with their family by visiting them more often, as a result of being in a relationship.

The second type of growth occurred in relationships in which the partner actively provides support for the endeavors of the individual. For example, one man spoke about trying to find employment and the role his girlfriend played in that process, “If she tells you that there's a place somewhere that's hiring, and offers you like fifty rand for a taxi fare to go there, then that's a good relationship for me. Because she's trying to help me grow.” (Male participant, FGD #2).

The quote highlights the role of instrumental and informational support in helping the man achieve his personal goal of finding a job. Men and women also discussed ways in which emotional support from a partner contributes to their individual growth.

And when maybe there are things in the location and your partner motivates you, and say, ‘Wow, you were brilliant,’ when you were talking there, maybe you were doing a speech. Your partner says, ‘Yoh, yoh, yoh, you did that’...so [you get that] motivation from your partner. (Female participant, FGD #6)

In this example, the female participant described receiving compliments from her partner as a source of support that encourages her to continue the activities she is already engaging in. In both of these situations, the role of the partner was in supporting an endeavor that was already

being pursued by the individual. This is in contrast to the final role of partners, in which they actively encourage behavior change in the individual to adopt healthier or more adaptive behaviors; women primarily discussed this type of growth. For example, this woman discussed the active role her partner had in reducing her maladaptive behaviors.

My boyfriend teaches me how to behave. I used to be someone who was angry, violent and aggressive. Now I have calmed down because he is always encouraging me to talk about everything instead of using the physical fighting, shouting and swearing and screaming. (Female participant, FGD #7)

The partner in this situation played a more active role in shaping the woman's behavior by encouraging her to engage in new specific behaviors or activities. In addition to encouraging reductions in violence, drinking less and finding employment were two other domains in which women reported their male partners encouraged change.

Healthy intimate relationships. When participants were asked to reflect on what constituted healthy relationships within their community, three major domains emerged: spending time/engaging in activities together; ability to communicate and solve problems well and without violence; and trust, respect, and no outside sex partners. Moreover, high alcohol use was discussed as being deleterious for relationships, so this domain is discussed here as well. With regard to the first domain, couples who spend time together, regardless of the activities they engage in, are seen as having a healthy relationship. There was a sense of "coupleness" and togetherness that both men and women described as being important. This included engaging in fun activities, such as going to the movies, as well as couples shopping together or doing chores together. The latter category of doing tasks together appeared to demonstrate to others that the couple was a unit.

And they're always are attached to each other, doing things with one another, always doing things together. Wherever you see the lady doing the same chores as the [man] – they're helping each other around. They're bonding with each other there. (Male

participant, FGD #1)

Unsurprisingly, communication and problem-solving skills emerged as an important dimension in healthy relationships. Participants described couples who were able to be open with each other, as a way of getting to know their partner better and understand each other's needs. For example, a male participant responded that communication was one of the most important factors in a healthy relationship, "I would still say good communication and good understanding of one another. Yes, you must also understand her, like what she wants, she needs, what she's happy with, when she's not happy with you." (Male participant, FGD #2). Moreover, as part of this domain, minimal arguments and effective problem-solving behavior came up frequently.

It would be much better if the men who are working, like during the month end, to sit down with you as a partner. Not only do things his way, just to communicate, to brainstorm about what to do, what to buy with the money. Instead of going out there not supporting you, not looking up to you, not to discuss anything, what to buy and where to go. (Female participant, FGD #7)

As this quote demonstrates, effective problem-solving and planning involves incorporating one's partner's perspective and needs, which relates to the couple's communication. Finally, participants often stated that "fighting" was a sign of an unhealthy relationship, and this referred to strong negative verbal communication, such as shouting, as well as physical acts of violence. For example, here is one participant describing a bad relationship,

When you see people fighting every day, shouting, screaming. And whenever you see them, these people are arguing, they're fighting physically. They're fighting when they talk to each other. They don't get happy. Every day you see them fighting, fighting, fighting. (Female participant, FGD #6)

In addition, trust, respect, and infidelity were often discussed in tandem; trust and respect were viewed as symbols of a healthy relationship whereas the presence of infidelity was a negative indicator. As mentioned earlier, respect was often equated with listening to one's

partner and communication. Moreover, participants saw a clear intersection between infidelity, respect, and trust.

And we as men, we tend to forget that, like, when we want respect, when you respect your partner, we tend to forget that by cheating to your girlfriend you're not respecting her. We always think that respect is all about just giving her the time, and then just doing the right thing. But, by cheating, and by not giving her time and by just, like, shouting at her when you talk to her, that's not, you're not respecting her. (Male participant, FGD #1)  
When the bad relationship – when your boyfriend has got another relationship, and then he is accusing you of something that you are not doing. That is not a good relationship. (Female participant, FGD #6)

As these quotes demonstrate, having outside partners was considered disrespectful and a harm to relationship trust. Interestingly, although respect and infidelity emerged as a theme in the FGDs from men and women, several male participants commented on the fact that men often do not perceive their extradyadic relationships to be a sign of disrespect.

Finally, a large amount of alcohol use was perceived to be a major factor in maladaptive relationships. Participants' comments were either about male alcohol use or couples wherein both partners consumed alcohol together. As a result of the alcohol use, common problems that emerged were arguments, physical abuse, and difficulty maintaining a functional home life.

A bad relationship is whereby the both of you, male and female partner, will go to the shebeen drinking too much alcohol. You don't take care of your house. Instead, maybe you might find your house is on fire, you were not home. Nobody is like, looking after your house. So that is a bad relationship. (Male participant, FGD #4)

Alcohol use intersected with many of the other maladaptive behaviors discussed, such as unsafe sex, violence, outside sexual partners, and mistrust. Alcohol use was often viewed as the root problem for many issues.

Due to alcohol abuse, when you are both in the shebeen and you are both drinking alcohol, there would be that jealousy. You would end up accusing your partner that he or she is cheating, while she or he is not cheating on you. (Male participant, FGD #4)



### Model of Adaptive Relationship Functioning

Based on the themes that emerged from the FGDs, a model of relationship functioning for Black South African couples living in similar communities is proposed, as shown in Figure 5. The model is comprised of three domains: individual, relational, and community. Within the relational domain, the model proposes that there are four major relationship components involved in healthy relationships: active relationship building behaviors, emotional support/display, communication, and problem-solving. Each of these components leads to a short-term and long-term relationship outcome. The relationship components themselves are influenced by psychological factors in both members of the couple, which is the individual domain. Moreover, there are a number of community and cultural factors that negatively and positively influence couples' relationships (either by influencing individual psychological factors or the relationship components themselves). It is important to note that within each domain (i.e., individual, relational, community) the facets are presented as unique, independent factors, although in reality there is intersection among them. Each of these domains is discussed in more detail below, beginning with relationship components and their associated outcomes.

*Relationship components and associated outcomes.* The four relationship components that emerged as central to adaptive relationship functioning in this model arose from discussions of healthy relationships or the facets of relationship functioning based on Maslow's hierarchy. Quotation evidence to support these ideas was given earlier in this section, but the relationship components and their linkages to the short- and long-term outcomes are discussed here.

Engaging in active relationship building behaviors was the first relationship component that appeared to be fundamental to creating a healthy relationship in this context. This domain encompasses behaviors where there is intentional effort to enhance one's relationship and

includes behaviors such as the couple spending time together and prioritizing the relationship. Spending time together, especially doing tasks, was discussed as a critical aspect for the couple to function as a unit. Moreover, creating time for one's relationship was evidence that the relationship was an important part of one's life. Additionally, healthy relationships were viewed as ones where there was openness about the relationship to other people (e.g., a man inviting his girlfriend to spend time with his friends). All of these instances facilitated building a connection or a bond between partners in the short-term. That is, men and women reported feeling closer to their partner because they have engaged in a shared experience. As participants described signs of a mature relationship, couples who thought about their future together or demonstrated relationship commitment were mentioned, although most participants did not directly link this outcome to building a connection or bond. However, researchers have posited that relationship commitment develops in part because of the emotional attachment between partners (Stanley, Rhoades, & Whitton, 2010). Therefore in this context, it appears reasonable that as partners engage in behaviors that facilitate attachment to each other, they will also begin to consider their level of commitment and potential future together as a couple.

The second relationship component of emotional support/display, like active relationship building, also represents a component that can facilitate intimate relationships. This facet comprises the emotional component of relationships. Although active relationship building results in feeling connected, emotional support/display is where partners show each other how they feel. The behaviors included in this domain are showing affection and providing emotional support to one's partner. Affection, both verbal and physical, was described as a potent communicator of one's love, in spite of community norms that disfavor this behavior. In addition, receiving ongoing support in a variety of ways, particularly through showing

understanding and affirming one's experience, was an indicator that one's partner cares. In the short-term, the emotional support/display communicates to partners how each person feels about the other. Couples for whom both partners know how the other feels can make more informed decisions about their relationship future, over the long-term. For example, a couple where both partners know they care about each other deeply may decide to actively make longer-term relationship plans. Research suggests that uncertainty in the relationship, for example not knowing how a partner feels, can activate self-protective emotional strategies including disengagement from the relationship (Hazan & Shaver, 1994). Therefore, partners who communicate their feelings to each other through verbal and non-verbal means are likely decreasing relational uncertainty; this in turn allows partners to continue engaging in their emotional attachment, which as mentioned earlier, facilitates relationship commitment.

The third relationship component in this model is communication, and it appeared as one of the most prominent themes throughout the FGDs. Communication is comprised of two components: sharing personal thoughts and feelings with one's partner and listening to one's partner. In the short-term, both of these components lead to knowing the "ins and outs" of a partner's life, from the mundane logistical aspects to a more in-depth understanding of who one's partner is on a deeper level. Men and women described learning about their partner's needs, wants, and hopes, once they understood how to communicate more effectively. However, if individuals decide not to disclose personal information with their partner, knowing who one's partner is in the short-term cannot take place. Moreover, if sharing takes place but listening does not, that deeper understanding will also not be achieved. The long-term outcome of sharing and listening in this model is two-fold: develop comfort with one's partner and also gain trust. Especially for men, being uncomfortable disclosing or sharing with one's partner was a factor

that prevented them from engaging in conversations with their partners. However, comfort often evolves from repeated practice, which is why it is placed as a long-term outcome. In addition, trust was a desired relationship outcome but was often described as being achieved through ascertaining a partner's whereabouts. Although this component facilitates certainty about a partner's activities, it does not facilitate trust per se (which must occur in the absence of certainty; Larzelere & Huston, 1980). However, trust can be achieved in the long-term if partners learn about each other's lives, both logistically and on a deeper level, to see if enough evidence emerges about one's trustworthiness.

The final relationship component in this model is problem-solving. Men and women considered relationships adaptive when a couple used verbal discussions to solve problems. Moreover, it was viewed as necessary to incorporate both partners' perspectives into generating solutions to their problems, through the use of negotiating and compromising. In particular, the more common dynamic discussed was for male partners to force their ideas onto their female partners, or to ignore the input of their female partners altogether. However, if couples decide to use verbal discussions as a means to solving problems, and incorporate the perspective of both partners, from the participants' perspective, the short-term outcome would be no violence (insofar as violence is used to solve problems or assert one's position in a given relationship). Relationship violence, which was often discussed in the context of alcohol use, was consistently described as an indicator of an unhealthy relationship, and included both verbal and physical forms of abuse. In the long-term, taking both partners' opinions into account and eradicating verbal and physical violence promotes respect. As was discussed in the FGDs, the concept of respect meant being heard, having one's opinion valued (especially for women), and no use of relationship violence. The concept of respect is not often discussed in research with western

couples, but a dating violence prevention program called *Expect Respect* designed for at-risk youth in the United States, including ethnic and racial minorities, highlights the intersection of these same concepts as being critical for healthy relationships, namely respect, no violence, and adaptive problem-solving (Ball, Rosenbluth, & Aoki, 2008).

*Individual psychological factors.* Throughout the FGDs, the role of the individual partners arose as factors that influence how the relationship functions. There were some similarities in the factors that were discussed as relevant for both genders, namely, traditional beliefs about gender roles, presence of an abuse history, and a ‘living for today’ mentality. In addition, strong negative emotions and poor coping strategies were relevant individual factors noted by men discussing themselves, whereas low self-esteem was a factor discussed by women regarding their own well-being. It is important to note that the individual psychological factors identified here are not exhaustive by any means; instead, they represent ideas that emerged from the FGDs.

Traditional beliefs about gender roles emerged throughout the FGDs from both men and women, with men expected to be the dominant figure in the relationship, the financial provider and the decision maker, and women expected to be subservient to their needs. Although there was also a discourse around gender role norms shifting to be more equitable, there were still many examples of traditional beliefs about gender that likely impact relationship functioning. For example, a female participant noted that women are looking for a partner who can be the provider in the relationship, “Because what they [women] want now, they just want some guy that has everything, money, a car, everything. They don’t want to start from the start up to... they just want the professionals.” (Female participant, FGD #7). This belief that the male partner should be the provider can make it difficult to promote problem-solving that incorporates both

partners' perspectives due to the inequity in power that this role differentiation promotes. In addition, it was also evident throughout the transcripts that for a number of men, there is the expectation that women should agree or listen to their perspective and when things do not go well in the relationship, there was a tendency to blame the women.

It depends to your partner or who you are with. If you talk to her, like, and then if she listens to you, and you warn her about the things that you see on the shebeen, maybe she will learn something. Or she doesn't learn, it depends on her. But, the way you are showing her, you must show her that you are speaking now, you are speaking as a man. You are showing her and telling her as a man, and she must take that place as a woman. (Male participant, FGD #1)

Again, beliefs such as these would make it difficult to enact open communication and adaptive problem-solving.

Men and women also mentioned that a history of abuse, whether it was a previous romantic relationship or witnessing parental abuse, impact their present-day emotions and how they interact and respond to their partner. For example, one woman described the result of witnessing parental abuse.

And my father used to beat my mother in front of me. That picture won't fade, won't be out of my mind until today, so I will be angry, I will be aggressive. I will be that child who has got anger for the rest of my life. (Female participant, FGD #7)

Having strong negative emotions, in particular anger, came up often for men, but less so for women. Men revealed that it is hard for them to talk about their internal experiences. As a result, they often rely on other maladaptive coping strategies, including silence, alcohol use, and violence, which impacts open communication, effective problem-solving, and positive emotional displays.

And most of the time we tend to forget that men do also need to be treated [well], because we always think that men always abuse the ladies but then the men always just keep their – we always, like, we don't like to disclose. We don't want to disclose what's, like, the problem that's eating us or the problems that we have and maybe that's why we mistreat the ladies or we mistreat our partners through the difficulties that we go through,

or the misuse of the alcohol and misuse of the drugs. (Male participant, FGD #1)

Women on the other hand discussed low self-esteem or feeling poorly about themselves as having an impact on how they behave in their relationship. One female participant noted the association between staying in a bad relationship and a woman's self-esteem.

You have relationships that we see in the community. You can see that, oh, they are in the relationships just because they've been, maybe, for years. Or they're stuck in the relationships, because of another partner is not working, and then the other one is working. And then, you tend to stay there because maybe, the woman is not working and the guy is working. Even though the guy is unfaithful or the guy is rude to the person, but they stay because maybe they're not working... I see it a lot in the relationships, in the community. And then people, the ladies, they tend to maybe get pregnant, just because they want to stay in the relationship. Hoping for better days. But still it's not on...and then you waste your time. Yes. In the community, there are very bad relationships that I see. Yes. Because of people not knowing or not feeling comfortable. Or, like, the ladies have low self-esteem. Yes. Because of not knowing other relationships, other than that. Or not knowing best. (Female participant, FGD #5)

Low self-esteem may impact a woman's ability to actively build the relationship. If the relationship is not going well but the woman feels powerless to promote activities that will enhance the relationship, it makes it difficult to improve relationship functioning.

Finally, the idea emerged that men in the community are unhappy with their lives, feel hopeless about the future, and therefore resort to behaviors that bring them happiness in the short-term. The common ways of bringing short-term joy were having a lot of sex partners (including outside of the primary relationship) and alcohol use. This idea also emerged for women, though to a lesser degree.

You get people that are only living for today. But then, if you see that, okay, this person is living for today, that what's happens in our areas, we're just going to give her that today [pursue a short-term sexual relationship with a woman who is only living for today]. And then, like he said, it boosts their ego knowing that 'I've been there, and I've been there, and I've been there.' You see. For them it's just a game. You see. It's just a game, which they are being just for making themselves happy. You know there are lots of people who are not happy. So, it's just to make yourself happy for a second then. (Male participant, FGD #2)

As evidenced by this quote, some of the behaviors that bring happiness in the short-term are likely to be incompatible with building an adaptive relationship over the long-term.

Community and cultural factors. Another prominent domain discussed throughout the FGDs was community and cultural factors, most of which serve as barriers to adaptive individual and relationship functioning, although a few factors emerged as opportunities for individual and relationship enhancement. As shown in Figure 5, a number of the cultural factors identified have already been discussed, including the ubiquitous nature of alcohol, community norms regarding public displays of affection, teenage pregnancy, and gender role norms. In addition to these factors, participants discussed high rates of unemployment and poverty that the communities face. With the stress of unemployment as well as not having other stimulating activities to occupy people's attention, people in the community spend time in the shebeen consuming alcohol.

And [during] the program most of us were unemployed so when we used to attend the programs, there were those incentive vouchers, they were really helpful to us because we were able to go to like the shops to buy a piece of chicken or to do whatever is important to feed our families. But now since there is nothing to do, we end up like going to the shebeens, drinking too much alcohol because of the stress, it drives us there. (Female participant, FGD #8)

Another community factor that emerged was the intentional interference of community members in relationships they perceive to be going well, such as spreading rumors or gossiping about the relationship or the individual partners. For example, one participant noted, "But your neighbors will talk about the two of you. If you are in a good relationship, they will try to break you...they hate seeing people happy." (Male participant, FGD #3). For most people, this outside negative influence is an added stress and can lead to relationship dissolution.

However, not all factors in the community and cultural domain negatively affected relationship functioning. Men and women also described a community where, because many



people know each other fairly well, it can facilitate positive intervention by others. For example, one male participant described how community members become interested in participating in interventions because they know someone from their community who is attending.

Like in our communities, you would find people like, if there's no other person from my community going there [to an event], I would not go there. If they see that there's another person in the community that is going there, then he [another community member] will follow me just because he knows me. He knows me that, 'Oh, I know that guy and he stays there, he already goes there to the groups, to the meetings, so let me just go and check what is so interesting that makes him go there.' (Male participant, FGD #1)

Finally, as participants described their desire for more interventions in the future, they noted that many members of their community who had not participated in the workshops also had a desire to learn new skills and information. Participants described a general openness to listening to individuals who are perceived to be experts, but that same openness does not exist when the information comes from peers within their own community, especially women. As one female participant described:

Because, sometimes most of the people in the location they know me, and I'm talkative. When I'm telling them [what I learned], like, they will laugh or they say 'No, she can't tell us what to do.' When the other people [outside people running the workshop] come, they will listen and they will see that, 'No, this is what was taught to us.' (Female participant, FGD #6)

As evidenced by this quote, members of the community are willing to listen and change behavior if what they learn comes from experts. The openness to outside perspectives is encouraging, but this also suggests a need to ensure that individuals from within these communities receive the necessary training to become perceived experts to promote sustainable change.

## **Discussion**

The goal of this qualitative study was to investigate the long-term effects of a couple-based HIV prevention intervention, the CHC, and better understand what adaptive intimate relationships look like for Black South African couples living in townships outside of Cape

Town. Both of these aims were designed to ultimately improve the efficacy of couple-based HIV prevention programs in reducing HIV transmission and enhancing intimate relationships. Results of each of these aims are discussed in turn below.

First, participants reported that the three major areas of the workshop that were most salient to them, four to six years after participating in the intervention, were communication and problem-solving skills, learning how to engage in safe and healthy sexual behavior, and the negative effects of alcohol use. These domains map onto those that were the focus of the CHC, suggesting that the intended main goals were communicated effectively (Wechsberg et al., 2015). Although these three areas were remembered exceptionally well a number of years later, participants reported a differential impact of the intervention in these areas. The most notable long-term changes, according to both men and women, occurred in their relationships, albeit in different ways.

Men reported behavioral shifts in the way they communicated with their partner, primarily listening to their partners more and trying to solve problems using a more collaborative approach. More striking, however, were the cognitive shifts that men described in the ways they viewed their intimate partner and relationship. After the workshop, many men noticed that they prioritized their relationship more; instead of going out with friends, men willingly chose to spend time with their partners. This shift also extended to prioritizing their role as fathers as well. This latter finding is consistent with the limited research on South African men as fathers that describes a good father as someone who devotes quality time and is able to provide emotional support (Ratele, Shefer, & Clowes, 2012).

For women, cognitive and behavioral long-term changes were also experienced in their intimate relationships but in different ways. The cognitive changes occurred in women's

standards about what was an acceptable way to be treated. Behaviorally, this translated into women voicing their opinions more often and a willingness to discuss sex with their partners. Similar changes have been found in women-only programs targeting HIV and IPV reduction as well as empowerment in South African women (e.g., Kim et al., 2007; Wechsberg, Luseno, Kline, Browne, & Zule, 2010). For example, the IMAGE study provided rural women with a microfinance intervention and an individual empowerment-based curriculum and found that these women reported greater confidence to leave abusive relationships and greater comfort in discussing sex with their partners (Kim et al., 2007).

Despite these long-term changes, there was consistency in participants' reports that alcohol use was very much still a concern. Although some men noted longer-term changes in this domain, many said it was still a problem. Men and women noted that continued alcohol use impacted their individual functioning, primarily through difficulties in self-control and decision-making. This is consistent with Morojele and colleagues' (2006) model of alcohol use that suggests one of the major ways in which alcohol use impacts functioning is through impaired decision-making. In addition, alcohol use also continued to cause relationship problems, such as arguments stemming from one partner not wanting to drink alcohol as much or because both partners were drinking and getting into fights due to jealousy or other issues. A review of brief interventions targeting alcohol misuse in sub-Saharan African shows that treatments can reduce alcohol use in the short-term (Peltzer, 2009), but such interventions for heavy alcohol users are only minimally efficacious (e.g., Anderson, Chisholm, & Fuhr, 2009; Kalichman et al., 2008). Research suggests that policy changes, such as advertising and taxation on alcohol, can be effective at reducing the burden of alcohol (Anderson et al., 2009).

Finally, with regard to recommendations for the workshop going forward, there was a

strong preference among both men and women to see workshops continue working with couples, rather than each gender individually, because they felt it was necessary for both partners to have the same information for the couple to be able to shift behaviors. This recommendation is unsurprising, given the notable long-term shifts described by participants in how they understood and viewed relationships. Moreover, it was also encouraging to have consistency among men and women's desire for couple-based interventions. Moreover, men's preference for continued opportunities for couple-based interventions contrasts with some of the ways in which South African men are portrayed in terms of their masculinity. There has been much research documenting the difficulties of recruiting men for HIV prevention purposes in sub-Saharan Africa, with the role of masculine identity getting in the way of seeking services (Hensen, Taoka, Lewis, Weiss, & Hargreaves, 2014). However, Rosenberg and colleagues (2015) showed that when male partners of HIV-positive women in Malawi were offered "family-focused services," 75% subsequently attended a clinic appointment. This suggests that framing services as couple or family-based may be more appealing to men if they are able to identify a need in their partner.

Finally, the other major recommendation that emerged from the workshop, unexpectedly, was a call for help on a major community issue—teenage pregnancy. Participants discussed the intergenerational transmission of social problems in their communities and how many young children are not cared for by their families. Men and women viewed alcohol use as a major cause of teenage pregnancy. Teenage pregnancy was typically described as occurring in teenagers around 15 years of age, but they also noted very young adolescents also becoming pregnant, such as those as young as 12 years old. Participants recommended a couple-based intervention to curb unsafe sexual behaviors and alcohol use in this population, given that many of these unexpected pregnancies do occur in the context of adolescent committed relationships. Previous research has

documented the risk behaviors of South African teens, including early sexual debut and multiple partners (Shisana et al., 2014). Although interventions for this population have typically focused on individual- and policy-level changes, researchers have recommended working with couples (Reddy, Sewpaul, & Jonas, 2016). Therefore, working with young couples may be an appropriate avenue for this population.

The other major set of findings from this study relates to understanding intimate relationships in South African couples. Overall, views of healthy relationships were very similar between men and women. Healthy relationships were described as those where partners felt respected and able to trust each other; the couple spent time together engaging in activities, and used good communication and problem-solving skills, which involves openness to self-disclose and willingness to listen to one's partner. Finally, outside sex partners and high alcohol use were viewed as having deleterious effects on intimate relationships.

A model of adaptive relationship functioning was put forth based on the themes that emerged regarding relationship functioning. The model, presented in Figure 5, highlights four relationship components that constitute healthy relationships: active relationship building behaviors, emotional support/display, communication, and problem-solving. These components can potentially lead to a number of short- and long-term outcomes, including reduced violence, increased comfort with partner, trust and respect, feeling connected, and relationship commitment. However, these relationship components are affected by individual psychological factors for men and women, including traditional gender role beliefs, abuse history, and adopting a 'living for today' mentality. Moreover, community and cultural factors were also found to influence these relationship components in both positive and negative ways, such as a desire for expert intervention and community norms regarding displays of affection, respectively.

To date, there has been very minimal research on intimate relationships in South Africa. For example, Gevers and colleagues (2013) conducted a quantitative investigation of what factors older South African adolescents (aged 17, on average) thought were important in a ‘good relationship’ and found that communication was important for young women, minimal quarreling was important for young men, and no outside sex partners was important for both genders. Even more encouraging, a recent study with South African HIV-positive pregnant women attempted to better understand the nuances and complexities of their intimate relationships through the use of qualitative interviews (Crankshaw, Voce, Butler, & Darbes, 2016). Some of the main findings that emerged regarding poor relationship functioning included mistrust and low expectations of partner commitment, difficulties in communicating and solving problems, and concurrent sexual relationships, all of which are consistent with some of the main themes that emerged from the current study.

Although the goal of this portion of the study was to understand how healthy intimate relationships operate in South African couples per se (and not conduct a comparative analysis), it is striking to note that there were many similarities between the themes that emerged in the FGDs and the ways that healthy intimate relationships are conceptualized in the United States and other western countries. For example, the predominant models of couple therapy, which are based on theories regarding adaptive relationship functioning, focus on communication and problem-solving skills, positive relationship behaviors, partner support, as well as creating an emotional connection and interpersonal vulnerability (Benson, McGinn, & Christensen, 2012). Therefore, as future research continues to investigate intimate relationships in South Africa, researchers should consider the possibility that existing research with western couples may be applicable, despite the distinct contexts.

Finally, although the current study sought to investigate intimate relationships independent of HIV (i.e., not only understand intimate relationships as they relate to HIV risk), intimate relationships do have important implications for HIV risk and prevention behaviors. For example, a study with Zambian men and women found that individuals were less likely to be tested for HIV if they were in a relationship where they did not get along well with their partner, did feel supported by their partner, or there was fear of abandonment by the partner (Gari et al., 2013). Moreover, a study with Kenyan couples on strategies used to communicate about sensitive topics, including safe sexual behavior and HIV, suggested that most attempts for discussion occurred through indirect means such as gradually disclosing information or using a third party (Miller et al., 2009). Both of these studies suggest that relationship dynamics are critical for the successful uptake of HIV prevention behaviors for individuals who have a significant intimate relationship.

Though the current study makes a contribution to the literature by providing qualitative data on the long-term effects of a couple-based HIV prevention intervention and a model for conceptualizing adaptive relationship functioning for Black South African couples, there are several limitations to this study that must be considered. First, the chosen sample has some inherent biases, which may be reflected in the study's findings. Although the study's second aim required that the sample be comprised of men and women who previously participated in the CHC, it is possible that this fact biased men and women's conceptualization of healthy intimate relationships. The CHC intervention discussed facets of healthy relationships and promoted concepts such as communication, adaptive problem-solving, eradicating violence, respect, and faithfulness, much of which maps onto the concepts proposed by participants in the FGDs. It is possible that participants were blindly reflecting what they thought the interviewers wanted to

hear with regard to relationships. However, there was convergence with the relationship themes that emerged from Crankshaw and colleagues' (2016) study with pregnant HIV-positive women in South Africa, in which their study participants were not providing data as part of a couple-based HIV prevention program. Nevertheless, it is unclear the extent to which the participants' ideas about healthy relationships were shaped by the workshop. Future research should conduct qualitative investigations with men and women who are naïve to couple-based HIV prevention programs to understand the extent to which the proposed framework is broadly applicable.

Additionally, the aim investigating the long-term effects of the CHC did not collect follow-up data from the couples who received a similar intervention but in same-gender groups (i.e., the workshops were conducted separately for men and women). Without this data, it is difficult to ascertain whether the changes described by participants were specific to the couples intervention, the CHC, or whether the results would be similar in any of the active intervention groups. Moreover, it is also possible that the changes described by participants were due to the passage of time (e.g., gaining maturity and therefore valuing relationships more) and not as a result of the intervention. This possibility cannot be ruled out and is a limitation to the interpretation of the current data. Future research should attempt to corroborate these findings by conducting long-term qualitative and quantitative investigations on both control and intervention groups in couple-based HIV prevention programs.

Furthermore, the study sample consisted of men who were recruited specifically for high alcohol use (at least at the time of initial study recruitment), which likely impacts how they (and their female partners) understand relationships. For example, high alcohol use was a theme that emerged when describing unhealthy relationships, though it is unclear whether this factor would have been as prominent in men and women who used alcohol less. Moreover, other important



demographic factors were not specifically evaluated in the groups, such as the couple's HIV status, which can affect relationship dynamics (Rispel et al., 2015). Future research should recruit Black South Africans whose demographic factors are more generalizable to the broader South African population to determine if the current findings remain applicable.

In spite of these limitations, the study does provide novel qualitative data on two understudied areas related to couple-based HIV prevention: the long-term effects of one prevention program, the CHC, and a conceptual framework on the core relational components involved in the development of adaptive relationship functioning. These findings suggest that couples desire relationship-based interventions, are able to experience sustained impact to their relationships over the longer-term, and change in couples' relationships can occur through a number of entry points. Overall, this study reveals the salience of intimate relationships to couples living in a township outside of Cape Town, South Africa, and highlights the importance of continuing to focus on the dyad as the point of intervention for HIV prevention efforts.

## **CHAPTER 4: CONCLUDING COMMENTS**

The overall goal of these two studies was to provide an increased understanding of how to improve couple-based HIV prevention interventions, using existing and newly collected data, as well as quantitative and qualitative methods. Although each study had specific aims associated with it, which have already been discussed in detail above, macro-level themes emerged across the three aims investigated. Each aim revealed the importance of individual, relationship, and community factors in predicting outcomes. For example, Aim 1 revealed that alcohol use, mistrust, and living in an informal settlement community were predictive of sexual concurrency. Aim 2 demonstrated that alcohol use, communication, and community problems with poverty were all factors related to long-term efficacy of the CHC intervention. Finally, Aim 3 showed that strong negative emotions, active relationship building behaviors, and community norms regarding public displays of affection influenced adaptive relationship functioning.

This study did not set out to investigate the intersection of these three domains, yet the data reveal their importance. Interventions targeting HIV and other quality of life improvements have first and foremost targeted individuals. In addition, there is a growing body of research showing the efficacy of intervening at the community-level when targeting issues other than HIV, including maternal and child health (Lassi & Bhutta, 2015) and violence (e.g., Kim et al., 2007). However, to date, couple-based modalities have been somewhat neglected as a possible intervention option when attempting to bring about change in a positive way. The current investigation reveals that relationship factors, along with individual and community factors, can play an important role in understanding behavior, not only related to HIV prevention, but in

other quality of life domains as well. However, if questions regarding the role of intimate relationships are not put forth, then the relevance of these relationships is likely to be minimized. Hopefully this investigation spurs future research to recognize the powerful role of intimate relationships, including in places where many barriers and challenges exist to living a high quality life.

Table 1

*Individual Characteristics of Men and Women in the Sample*

Individual characteristics	Men	Women	Gender
	<i>N</i> = 286	<i>N</i> = 286	differences
			<i>p</i> value
Age, <i>M</i> ( <i>SD</i> )	26.06 (4.77)	24.14 (5.06)	<.001
% Education $\geq$ 10 <sup>th</sup> grade	69.2	79.7	.004
% Unemployed*†	74.7	90.2	<.001
HIV-positive status**	13.0	26.2	<.001
Age sexual debut, <i>M</i> ( <i>SD</i> ) ***††	15.57 (2.64)	16.76 (1.87)	<.001
% Lifetime transactional sex (provided sex)	2.8	1.8	.40
% Lifetime transactional sex (received sex)***	2.1	0	.01
Sexual concurrency past 6 months	35.7	10.5	<.001
% AUDIT problem drinking ( $\geq$ 20)**	13.7	7.7	.02
% Lifetime trauma	16.4	15.4	.73
Housing/informal settlement			
% Walls made of plastic bags	51.1	49.3	.68
% Running water inside	49.3	43.4	.16
% Electricity	51.1	88.1	<.001

*Note.* \**N* = 269 for men. \*\**N* = 284 for men. \*\*\* *N* = 282 for men. †*N* = 254 for women. ††*N* = 285 for women.

Table 2

*Relationship Characteristics by Sexual Concurrency Classification*

	No		Male-only		Female-only		Biconcurrency		
	Concurrency		Concurrency		Concurrency				
	(N = 168)		(N = 88)		(N = 16)		(N = 14)		
Relationship		Men	Women	Men	Women	Men	Women	Men	Women
demographics	N	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Married	286	2.4% (4)	3.6 % (6)	0%	2.3% (2)	0%	0%	0%	0%
Relationship length,	286	40.80	38.49	37.32	35.13	29.13	27.94	34.07	35.36
<i>M (SD)</i>		(36.62)	(26.02)	(27.96)	(22.36)	(9.34)	(9.34)	(22.41)	(21.68)
Living with partner	286	36.3% <sup>†</sup>	30.4%	21.6% <sup>†</sup>	23.9%	18.8%	18.8%	21.4%	21.4%
		(61)	(51)	(19)	(21)	(3)	(3)	(3)	(3)
Couple HIV status	284								
HIV- concordant		62.9% (105)		80.5% (70)		81.3% (13)		64.3% (9)	
HIV+ concordant		10.8% (18)		5.8% (5)		6.3% (1)		7.1% (1)	
HIV discordant		26.4% (44)		13.8% (12)		12.5% (2)		28.6% (4)	

Aware of partner's	236 (M)	42.4%	50.7%	39.7%	53.4%	25.0%	38.5%	58.3%	50.0%
HIV status	238 (W)	(61)	(71)	(27)	(39)	(3)	(5)	(7)	(6)
Received money	283 (M)	.87	2.38	.94	2.74 <sup>a †</sup>	.75	1.63 <sup>†</sup>	1.36	1.50 <sup>a</sup>
from main partner^,	284 (W)	(1.29)	(1.68)	(1.19)	(1.76)	(1.00)	(1.03)	(1.95)	(1.02)
<i>M (SD)</i>									
Sexual behavior									
Number of times had	271 (M)	7.58	8.05	9.17	8.11	5.44	8.69	10.71	10.07
sex last month, <i>M</i>	272 (W)	(6.01)	(6.30)	(7.52)	(6.40)	(3.18)	(6.81)	(7.03)	(9.00)
<i>(SD)</i>									
Frequency used male	271 (M)	35.9%	34.0%	36.0%	42.5%	51.5%	28.1%	32.4%	34.0%
condom last month	272 (W)	(38.43)	(34.72)	(38.21)	(38.67)	(41.33)	(35.65)	(36.44)	(34.27)
Sexual satisfaction,	282 (M)	4.65	4.65	4.61	4.70	4.50	4.56	4.71	4.57
<i>M (SD)</i>	284 (W)	(.53)	(.70)	(.63)	(.65)	(.63)	(.51)	(.47)	(.65)
Other relationship characteristics									
Relationship	268 (M)	19.73 <sup>†</sup>	21.71 <sup>a</sup>	19.01	21.61 <sup>b</sup>	18.31	22.38 <sup>c</sup>	17.64 <sup>†</sup>	18.64 <sup>abc</sup>
satisfaction, <i>M (SD)</i>	274 (W)	(2.55)	(2.52)	(3.38)	(2.63)	(2.92)	(2.03)	(3.59)	(4.36)

Relationship inequity,	283 (M)	2.55	2.23 <sup>†</sup>	3.05	2.13 <sup>*</sup>	2.38	2.63	2.86	3.93 <sup>†*</sup>
<i>M SD</i>	286 (W)	(2.43)	(2.45)	(2.57)	(2.42)	(2.53)	(2.06)	(2.66)	(2.59)
Mistrust, <i>M (SD)</i>	286	1.64	1.83 <sup>ab</sup>	1.70	1.84 <sup>cd</sup>	1.88	2.50 <sup>ac</sup>	2.07	2.71 <sup>bd</sup>
		(.75)	(.85)	(.75)	(.97)	(.62)	(.97)	(.92)	(.91)
Victim of IPV by	284	6.6%	13.2%	16.1%	10.3%	6.3%	6.3%	14.3%	28.6%
partner		(11)	(22)	(14)	(9)	(1)	(1)	(2)	(4)
Alcohol caused	282 (M)	3.1%	5.4% <sup>a</sup>	3.4%	6.9% <sup>b</sup>	0%	12.5%	0%	28.6% <sup>ab</sup>
weekly relationship	285 (W)	(5)	(9)	(3)	(6)		(2)		(4)
problems									
Desire for couples	282 (M)	14.0%	45.2%	17.1%	48.9%	18.8%	50.0%	21.4%	50.0%
counseling	286 (W)	(23)	(76)	(15)	(43)	(3)	(8)	(3)	(7)

*Note.* Comparisons across groups were conducted separately for men and women. Identical letter symbols indicate that two groups were significantly different at  $p < .05$ . Identical non-letter symbols indicate that two groups were marginally different at  $p < .10$ .

<sup>^</sup>Response options for this item range from 0 (*never*) to 6 (*daily or almost daily*).

Table 3

*Odds Ratios for Covariate-Only Model Predicting Nominal Sexual Concurrency (N = 195)*

Predictor	Male-only Concurrency		Female-only Concurrency		Biconcurrency	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Age (M)	.99	[.91, 1.09]	.96	[.79, 1.18]	1.00	[.85, 1.17]
Age (W)	1.00	[.92, 1.09]	1.01	[.81, 1.24]	.85†	[.70, 1.02]
Sexual debut (M)	.90	[.78, 1.04]	.80	[.58, 1.07]	1.12	[.89, 1.41]
Sexual debut (W)	1.07	[.92, 1.26]	1.01	[.62, 1.63]	.92	[.53, 1.61]
Cohabitation (M)	.82	[.35, 1.91]	1.37	[.22, 8.46]	.19†	[.04, 1.02]
Informal settlement (M)	.70	[.34, 1.45]	8.52**	[1.80, 40.25]	.30	[.06, 1.45]
Informal settlement (W)	1.12	[.52, 2.39]	.23†	[.05, 1.04]	.67	[.21, 2.20]
Awareness partner HIV status (M)	.72	[.37, 1.43]	.17	[.02, 1.79]	2.96	[.51, 17.04]
Awareness partner HIV status (W)	1.28	[.64, 2.57]	.67	[.14, 3.09]	1.17	[.31, 4.41]
HIV status (M)	.27	[.05, 1.35]	2.58	[.27, 24.78]	.37	[.06, 2.34]
HIV status (W)	.70	[.29, 1.69]	.12**	[.03, .44]	7.97*	[1.46, 43.41]

*Note.* (M) = men's report. (W) = women's report. OR = odds ratio. CI = confidence interval. † $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .



Table 4

*Hypothesis 1a Odds Ratio for Men and Women's Alcohol Use Predicting Nominal Sexual Concurrency (N = 286)*

Predictor	Male-only Concurrency		Female-only Concurrency		Biconcurrency	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Alcohol use (M)	1.64**	[1.19, 2.26]	.94	[.51, 1.73]	2.33*	[1.06, 5.16]
Alcohol use (W)	1.00	[.73, 1.38]	3.31**	[1.56, 7.03]	4.23**	[1.65, 10.86]
Age (W)	.99	[.94, 1.06]	.92	[.80, 1.07]	.80*	[.68, .94]
HIV status (W)	.56†	[.29, 1.11]	.63	[.15, 2.62]	2.40	[.57, 10.14]
Cohabitation (M)	.48*	[.24, .95]	.60	[.13, 2.80]	.68	[.16, 2.89]
Informal settlement (M)	.77	[.44, 1.34]	2.20	[.69, 7.05]	.72	[.21, 2.47]
Standardized covariances	Estimate	SE				
Alcohol use (M) with IPV (M)	.00	.11				
Alcohol use (W) with IPV (W)	.32***	.05				
Alcohol use (M) with alcohol use (W)	.00	.07				
IPV (M) with IPV (W)	-.02	.05				

*Note.* (M) = men's report. (W) = women's report. OR = odds ratio. CI = confidence interval. † $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 5

*Hypothesis 1b Unstandardized Regression Estimates and Odds Ratios for Men and Women's Alcohol Use and Trauma History*

*Predicting Nominal Sexual Concurrency (N = 286)*

Predictor	Male-only Concurrency		Female-only Concurrency		Biconcurrency	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Alcohol use (M)	1.58**	[1.15, 2.19]	.93	[.50, 1.73]	2.25*	[1.00, 5.05]
Alcohol use (W)	1.08	[.78, 1.51]	3.27**	[1.49, 7.14]	3.61**	[1.68, 11.44]
Trauma history (M)	1.44	[.71, 2.91]	.61	[.08, 4.91]	1.01	[.20, 5.14]
Trauma history (W)	.62	[.25, 1.52]	.50	[.12, 2.08]	.90	[.20, 4.04]
Age (W)	1.00	[.94, 1.06]	.93	[.80, 1.08]	.80*	[.67, .96]
HIV status (W)	.54†	[.27, 1.08]	.60	[.15, 2.43]	2.38	[.55, 10.24]
Cohabitation (M)	.48*	[.24, .96]	.58	[.11, 2.95]	.71	[.16, 3.13]
Informal settlement (M)	.77	[.44, 1.35]	2.08	[.66, 6.56]	.73	[.22, 2.41]
Unstandardized regression estimates						
Predictor	Outcome		Estimate	SE		
Trauma history (M)	Alcohol use (M)		.53**	(.18)		

Trauma history (M)	IPV (M)	.05	(.11)
Trauma history (W)	Alcohol use (W)	1.15***	(.16)
Trauma history (W)	IPV (W)	1.07***	(.25)
Standardized covariances	Estimate	SE	
Alcohol use (M) with alcohol use (W)	.04	(.08)	
IPV (M) with IPV (W)	.01	(.04)	
Alcohol use (M) with IPV (M)	-.02	(.11)	
Alcohol use (W) with IPV (W)	.17**	(.06)	

*Note.* (M) = men's report. (W) = women's report. OR = odds ratio. CI = confidence interval. IPV= interpersonal violence. † $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

Table 6

*Hypothesis 1b Mediation Model for Trauma History, Alcohol Use, and Sexual Concurrency by**Sex (N = 286)*

	Male sexual concurrency			Female sexual concurrency		
Direct effects	Estimate	SE	[95% CI]	Estimate	SE	[95% CI]
Trauma -> alcohol use		(.18)	[.17, .87]	1.14***	(.16)	[.82, 1.46]
	.52**					
Alcohol use -> sexual concurrency		(.15)	[.23, .83]	1.21***	(.28)	[.65, 1.76]
	.53**					
Trauma-> IPV	.06	(.11)	[-.15, .27]	1.07***	(.25)	[.58, 1.56]
Indirect effect						
Trauma-> alcohol use - > sexual concurrency	.27*	(.12)	[.03, .52]	1.37***	(.36)	[.66, 2.09]
Covariates						
Age (W)	-.02	(.03)	[-.08, .04]	-.13*	(.06)	[-.24, -.02]
HIV status (W)	-.34	(.32)	[-.97, .29]	.30	(.51)	[-.69, 1.30]
Cohabitation (M)	-.68*	(.33)	[-1.32, -.04]	-.21	(.60)	[-1.38, .96]
Informal settlement (M)	-.35	(.27)	[-.88, .17]	.39	(.42)	[-.43, 1.22]
Standardized covariances	Estimate	SE		Estimate	SE	
	e			e		
IPV with alcohol use	-.02	(.10)		.15*	(.06)	

*Note.* Estimates reported in this table are unstandardized regression coefficients except where otherwise noted. (M) = men's report. (W) = women's report. CI = confidence interval. IPV= interpersonal violence. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 7

*Hypothesis 1c Odds Ratio for Men and Women's Relationship Inequity, Mistrust, Relationship Satisfaction, and Sexual Satisfaction*  
*Predicting Nominal Sexual Concurrency (N = 286)*

Predictor	Male-only concurrency		Female-only concurrency		Biconcurrency	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Relationship inequity (M)	1.25	[.90, 1.74]	.91	[.45, 1.86]	.68	[.33, 1.42]
Relationship inequity (W)	.91	[.61, 1.35]	1.23	[.53, 2.87]	1.80	[.66, 4.91]
Mistrust (M)	1.10	[.73, 1.65]	1.60	[.91, 2.81]	1.72†	[.92, 3.23]
Mistrust (W)	.91	[.66, 1.25]	2.07*	[1.12, 3.83]	2.29**	[1.29, 4.07]
Relationship satisfaction (M)	.71*	[.51, .99]	.56	[.29, 1.17]	.34	[.08, 1.52]
Relationship satisfaction (W)	.84	[.55, 1.28]	2.13	[.69, 6.52]	.52	[.22, 1.23]
Sexual satisfaction (M)	.96	[.55, 1.69]	.73	[.27, 1.98]	3.48†	[.89, 13.60]
Sexual satisfaction (W)	1.19	[.71, 2.02]	.54	[.21, 1.42]	1.39	[.61, 3.21]
Age (W)	1.01	[.95, 1.08]	.99	[.87, 1.12]	.89	[.75, 1.05]
HIV status (W)	.48*	[.24, .97]	.42	[.08, 2.12]	2.04	[.56, 7.49]
Cohabitation (M)	.47*	[.24, .92]	.70	[.16, 3.09]	.80	[.14, 4.52]

Informal settlement (M)	.81	[.47, 1.42]	2.43	[.65, 9.09]	.76	[.22, 2.65]
Standardized covariances		Estimate	SE			
Relationship inequity (M) with relationship inequity (W)		.07	(.08)			
Mistrust (M) with Mistrust (W)		.01	(.06)			
Relationship satisfaction (M) with relationship satisfaction (W)		-.01	(.06)			
Sexual satisfaction (M) with sexual satisfaction (W)		.02	(.06)			
IPV (M) with IPV (W)		-.04	(.07)			
IPV (M) with relationship inequity (M)		-.02	(.09)			
IPV (M) with mistrust (M)		.11	(.07)			
IPV (M) with relationship satisfaction (M)		-.12**	(.04)			
IPV (M) with sexual satisfaction (M)		-.12†	(.07)			
IPV (W) with relationship inequity (W)		.19**	(.06)			
IPV (W) with mistrust (W)		.13	(.08)			



IPV (W) with relationship satisfaction (W)	-.34***	(.07)
IPV (W) with sexual satisfaction (W)	-.18*	(.08)

*Note.* (M) = men's report. (W) = women's report. OR = odds ratio. CI = confidence interval. † $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

\*\*\* $p < .001$ .

Table 8

*Hypothesis 1d Odds Ratio for All Men and Women's Variables Predicting Nominal Sexual Concurrency (N = 286)*

Predictor	Male-only Concurrency		Female-only Concurrency		Biconcurrency	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Alcohol use (M)	1.78*	[1.23, 2.56]	.92	[.48, 1.76]	2.05	[.84, 5.01]
Alcohol use (W)	1.02	[.73, 1.41]	3.55*	[1.52, 8.28]	2.74*	[1.17, 6.44]
Relationship inequity (M)	1.06	[.74, 1.52]	1.06	[.42, 2.68]	.66	[.26, 1.67]
Relationship inequity (W)	.91	[.60, 1.38]	.89	[.36, 2.19]	1.42	[.55, 3.66]
Mistrust (M)	1.07	[.71, 1.64]	1.40	[.76, 2.56]	1.45	[.79, 2.67]
Mistrust (W)	.83	[.59, 1.16]	2.13*	[1.07, 4.27]	2.11*	[1.10, 4.02]
Relationship satisfaction (M)	.71*	[.50, .99]	.63	[.31, 1.27]	.41	[.11, 1.47]
Relationship satisfaction (W)	.85	[.55, 1.32]	2.07	[.62, 6.90]	.51	[.22, 1.17]
Sexual satisfaction (M)	.83	[.46, 1.49]	.55	[.19, 1.55]	2.04	[.46, 9.12]
Sexual satisfaction (W)	1.16	[.67, 1.98]	.76	[.26, 2.21]	1.92	[.82, 4.51]
Age (W)	1.00	[.94, 1.07]	.94	[.80, 1.11]	.81*	[.68, .97]
HIV status (W)	.46*	[.23, .94]	.35	[.05, 2.65]	1.98	[.43, 9.12]

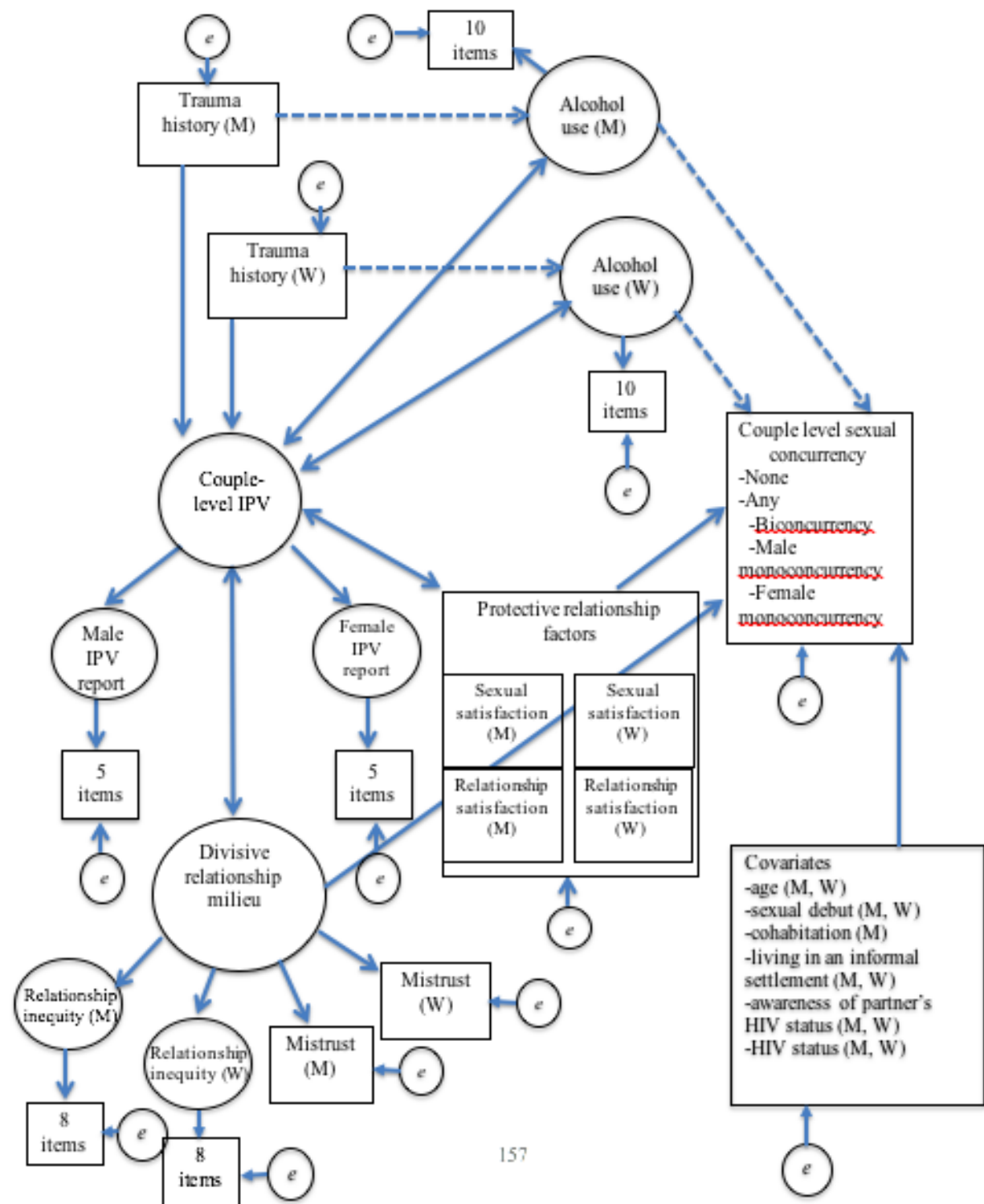
Cohabitation (M)	.43*	[.21, .89]	.75	[.13, 4.16]	1.00	[.18, 5.65]
Informal settlement (M)	.80	[.45, 1.43]	2.50	[.63, 9.97]	.91	[.22, 3.77]
Unstandardized regression coefficients						
Predictor	Outcome	Estimate	SE			
Trauma (M)	Alcohol use (M)	.53**	(.18)			
Trauma (M)	IPV (M)	.05	(.11)			
Trauma (W)	Alcohol use (W)	1.12***	(.16)			
Trauma (W)	IPV (W)	.92***	(.24)			
Standardized covariances		Estimate	SE			
Alcohol use (M) with alcohol use (W)		.04	(.08)			
Relationship inequity (M) with relationship inequity (W)		.06	(.08)			
Mistrust (M) with mistrust (W)		.01	(.06)			
Relationship satisfaction (M) with relationship satisfaction (W)		-.01	(.06)			
Sexual satisfaction (M) with		.02	(.06)			

## sexual satisfaction (W)

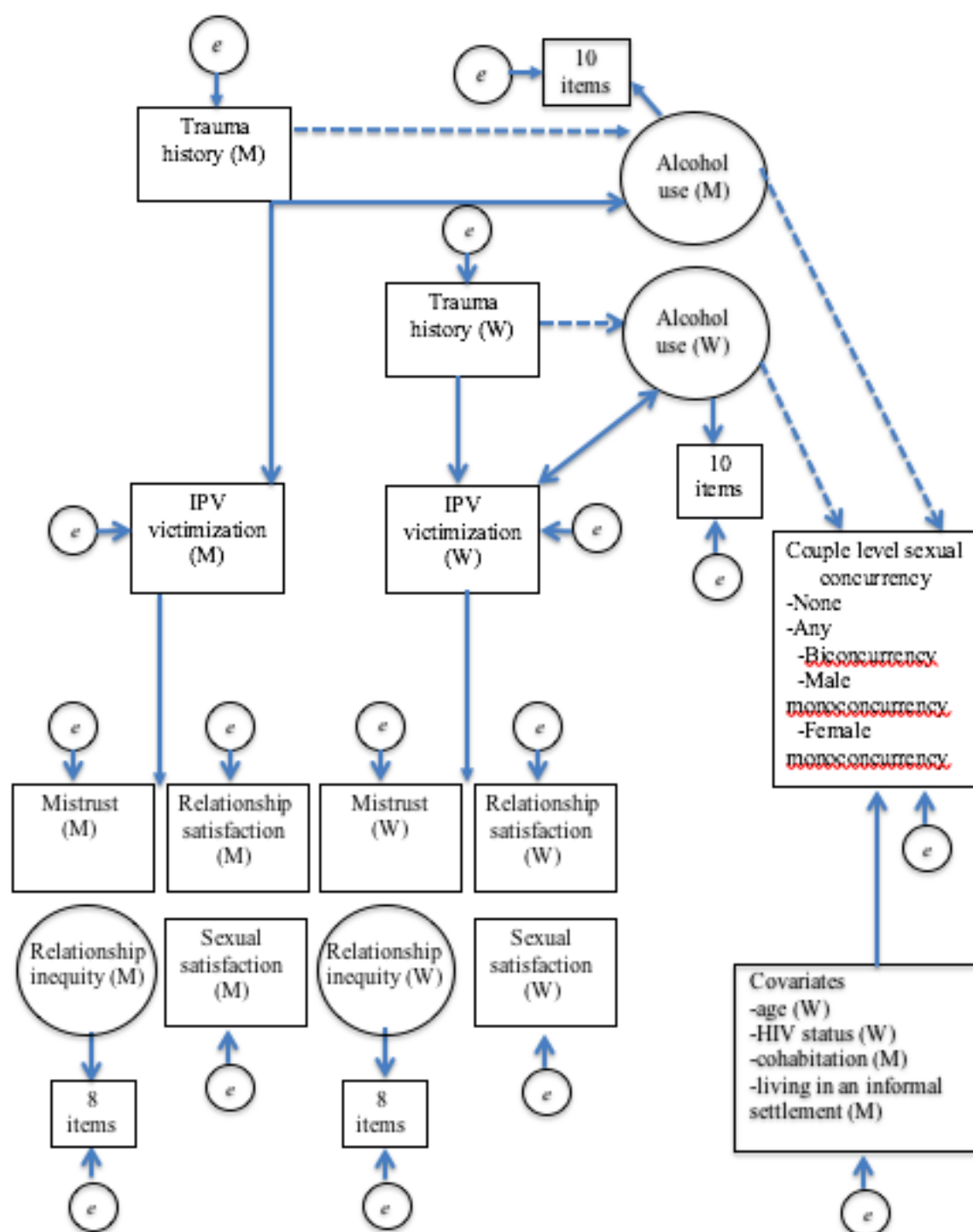
IPV (M) with IPV (W)	-.02	(.06)
IPV (M) with relationship inequity (M)	-.02	(.09)
IPV (M) with mistrust (M)	.10	(.08)
IPV (M) with relationship satisfaction (M)	-.12**	(.04)
IPV (M) with sexual satisfaction (M)	-.12†	(.07)
IPV (W) with relationship inequity (W)	.14*	(.06)
IPV (W) with mistrust (W)	.09	(.08)
IPV (W) with relationship satisfaction (W)	-.29***	(.07)
IPV (W) with sexual satisfaction (W)	-.14†	(.08)

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*Note.* (M) = men's report. (W) = women's report. OR = odds ratio. CI = confidence interval. † $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



*Figure 1.* Hypothesized predictors of couple-level sexual concurrency in South African couples. Variables presented in squares represent observed (manifest) variables and those presented in circles represent unobserved (latent) variables. Dashed lines represent hypothesized mediation paths;  $e$  represents an error term. Note that the error terms within partner covary, though this is not represented in the diagram. M = male; W= women.



*Figure 2.* Final model showing predictors of couple-level sexual concurrency in South African couples. Variables presented in squares represent observed (manifest) variables and those presented in circles represent unobserved (latent) variables. Dashed lines represent hypothesized mediation paths;  $e$  represents an error term. Note that the error terms within partner covary, though this is not represented in the diagram. M = male; W = women.



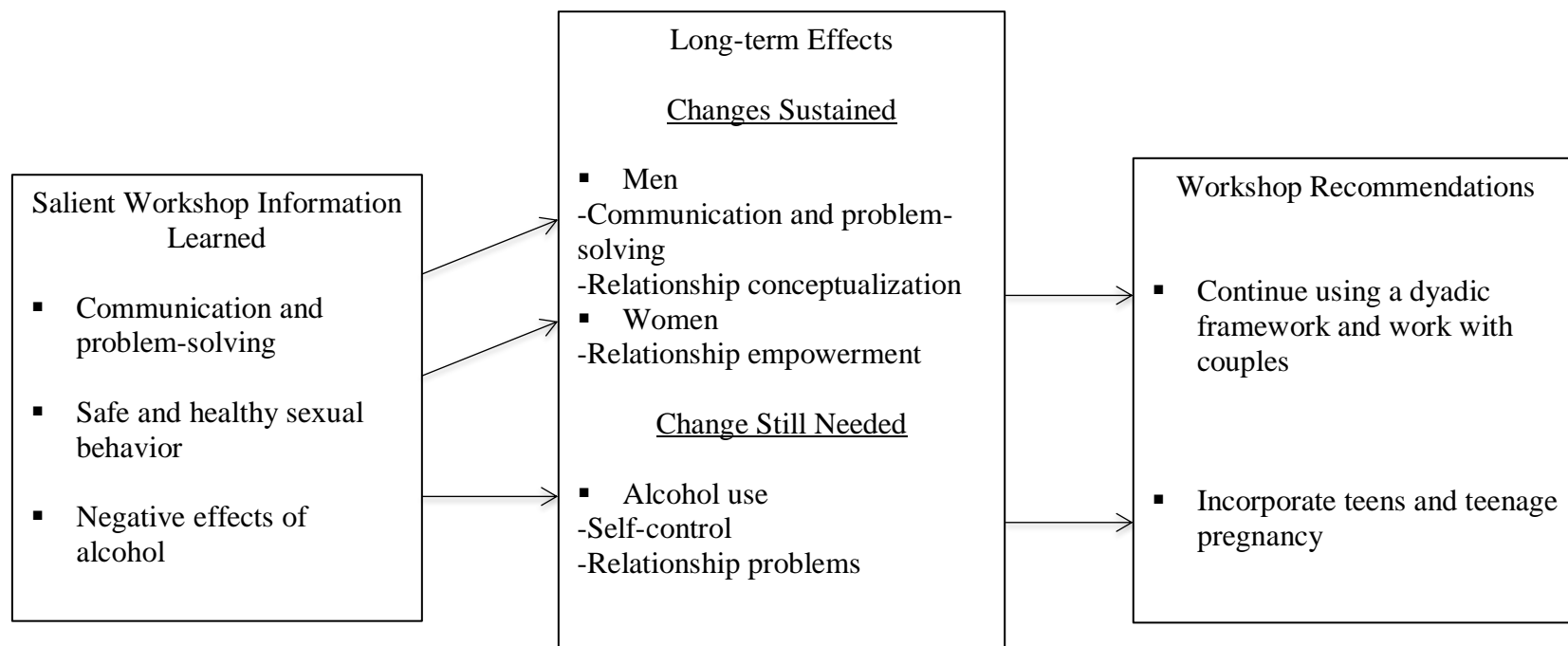


Figure 3. Information learned, long-term effects, and workshop recommendations for the CHC.



*Figure 4.* Hierarchy of relationship needs for adaptive relationship functioning for South African couples, adapted from Maslow (1943).

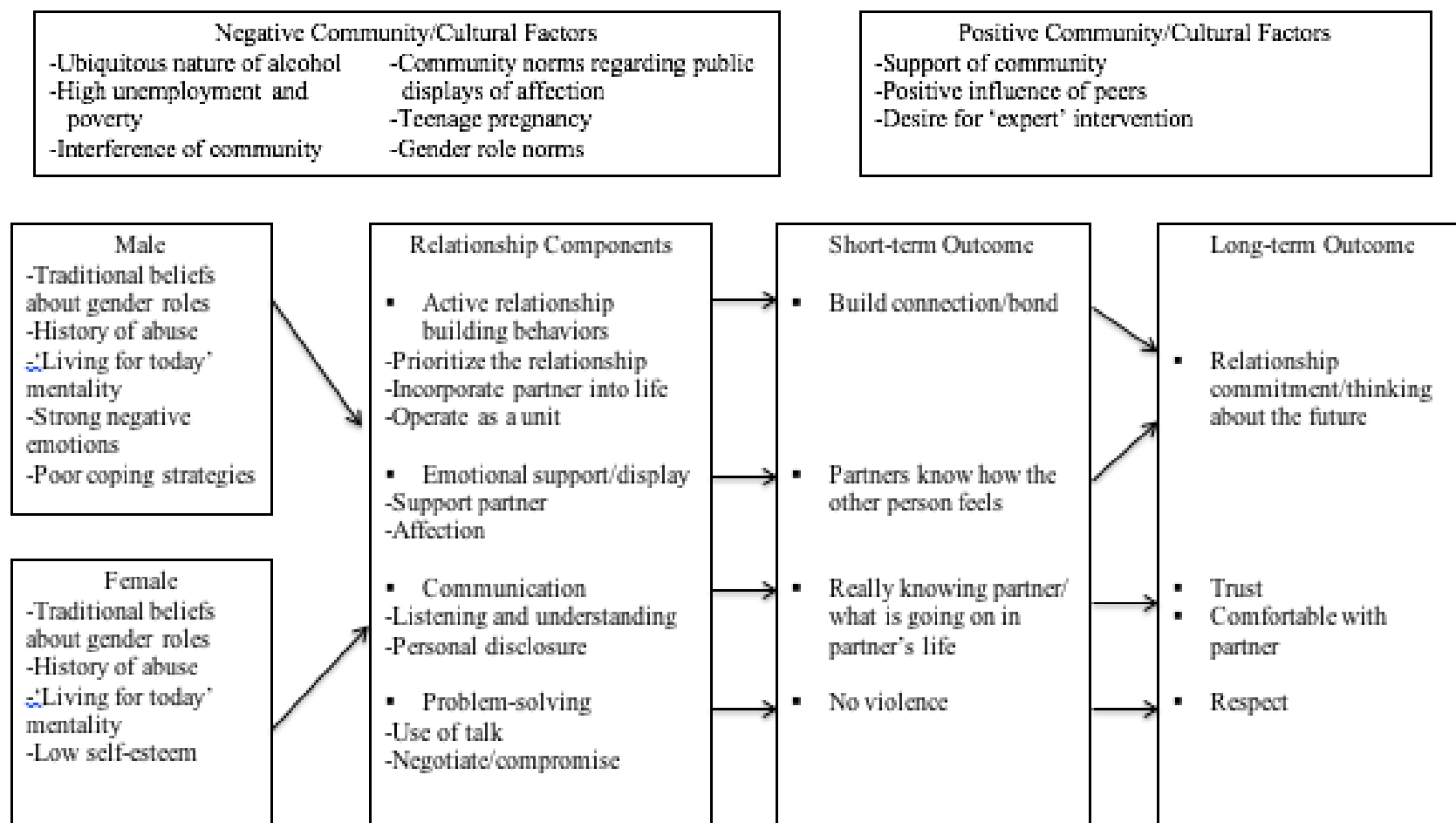


Figure 5. Model of adaptive relationship functioning.

## APPENDIX A: FIT STATISTICS FOR STUDY 1 FINAL MODELS

Table A

*Models Predicting Dichotomous Sexual Concurrency*

Model	RMSEA	CFI	WRMR	$\chi^2$ (df)	<i>p</i>
Hypothesis 1a	.04	.99	1.14	401.16 (262)	<.001
Hypothesis 1b	.04	.99	1.13	448.74 (299)	<.001
Hypothesis 1b-men's mediation	.04	.97	.98	118.37 (78)	.002
Hypothesis 1b- women's mediation	.03	1.00	.89	141.88 (106)	.01
Hypothesis 1c	.04	.96	1.00	449.21 (335)	<.001
Hypothesis 1d	.05	.91	1.59	1965.61 (1117)	<.001

## APPENDIX B: FINAL MEASUREMENT MODELS OF LATENT VARIABLES

Table B1

*Estimated Standardized Factor Loadings from the Confirmatory Factor Analysis for Men and Women's Alcohol Use*

Item	Men			Women		
	Estimate	SE	R <sup>2</sup>	Estimate	SE	R <sup>2</sup>
1. Frequency of alcohol consumption	--	--	--	.91	.02	.84***
2. Average # alcoholic beverages	.34	.06	.12**	.88	.02	.78***
3. Frequency 5+ drinks	--	--	--	.93	.01	.86***
4. Not able to stop drinking once started	.72	.04	.51***	.93	.02	.87***
5. Fail to uphold responsibilities	.84	.03	.70***	.95	.01	.90***
6. Need drink in the morning	.75	.03	.57***	.96	.01	.92***
7. Feel guilty after drinking	.77	.03	.59***	.88	.02	.78***
8. Difficulty remembering events	.88	.02	.78***	.90	.02	.81***
9. Self or others injured due to drinking	.46	.08	.21***	.68	.13	.46**
10. Concerned other suggested cutting down	.63	.05	.39***	.80	.05	.64***
Standardized covariances						
Items 2 and 3				.65***	.06	
Items 9 and 10	.49***	.10				

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table B2

*Estimated Standardized Factor Loadings from the Confirmatory Factor Analysis for Men and Women's Relationship Inequity*

Measure item†	Men			Women		
	Estimate	SE	R <sup>2</sup>	Estimate	SE	R <sup>2</sup>
1. Whose friends to go out with	.48	.07	.23**	.72	.05	.52***
2. Whether to have sex	.66	.06	.44***	.84	.04	.71***
3. What to do together	.88	.03	.77***	.78	.05	.60***
4. How much time to spend together	.90	.03	.81***	.81	.04	.65***
5. When to talk about serious things	.83	.04	.69***	.86	.04	.75***
6. More power in the relationship	.77	.05	.59***	.76	.06	.58***
7. Whether to use condoms	.66	.06	.43***	.76	.05	.58***
8. Types of sexual acts	.69	.05	.48***	.75	.05	.56***
Standardized covariances						
Items 3 and 4				.63***	.11	
Items 7 and 8	.57***	.10				

*Note.* †Each item is the content topic on which participants report their decision-making equity.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table B3

*Estimated Standardized Factor Loadings from the Confirmatory Factor Analysis for Men and Women's Relationship Satisfaction*

Measure item	Men			Women		
	Estimate	SE	$R^2$	Estimate	SE	$R^2$
1. Overall relationship assessment	.56	.04	.32**	.60	.05	.35***
2. Partner meets emotional needs	.79	.03	.62***	.85	.04	.72***
3. Satisfied with partner	.83	.03	.69***	.92	.04	.84***
4. Relationship hopes/expectations	.77	.04	.59***	.68	.05	.50***
5. Love partner	.74	.04	.55***	--	--	--

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



Table B4

*Estimated Standardized Factor Loadings from the Confirmatory Factor Analysis for the Second-Order Latent Variable Divisive Relationship Milieu*

Second-order latent variable—						
Divisive relationship milieu	Estimate	SE	$R^2$			
Relationship inequity (M)	.21	.09	.04			
Relationship inequity (W)	.44	.22	.20			
Partner mistrust (M)	.21	.10	.05			
Partner mistrust (W)	.48	.23	.23			
First-order latent variable—						
Relationship inequity	Men			Women		
Measure item†	Estimate	SE	$R^2$	Estimate	SE	$R^2$
1. Whose friends to go out with	.48	.07	.23**	.73	.05	.53***
2. Whether to have sex	.67	.06	.45***	.85	.04	.72***
3. What to do together	.87	.03	.76***	.77	.05	.60***
4. How much time to spend together	.89	.03	.79***	.81	.04	.66***
5. When to talk about serious things	.83	.04	.70***	.86	.04	.73***
6. More power in the relationship	.77	.05	.60***	.76	.06	.58***
7. Whether to use condoms	.66	.06	.44***	.76	.05	.58***
8. Types of sexual acts	.69	.05	.48***	.75	.05	.55***
Covariances						
Items 3 and 4				.63***	.11	
Items 7 and 8	.57***	.10				

*Note.* †Each item is the content topic on which participants report their decision-making equity.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table B5

*Unstandardized Regression Coefficients for Model with Divisive Relationship Milieu Predicting Dichotomous Sexual Concurrency (H1c)*

Predictor	Estimate	SE
Divisive relationship milieu	.94	2.28
Relationship satisfaction (M)	-.25**	.09
Relationship satisfaction (W)	-.07	.13
Sexual satisfaction (M)	.03	.15
Sexual satisfaction (W)	.11	.14
Age (W)	-.01	.02
HIV status (W)	-.24	.18
Cohabitation (M)	-.41*	.18
Informal settlement (M)	-.09	.15

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

## **APPENDIX C: FOCUS GROUP DISCUSSION GUIDE FOR COUPLES HEALTH COOP FOLLOW-UP**

### **Introduction.** *[Read to whole group]*

Welcome. Thank you for coming today. We are going to talk as a group about your thoughts and opinions about participating in the Couples Health CoOp Study and your experience since then. This will help us create a better program for couples in the future.

Before we begin, we would like to remind you that we will be talking about the study workshops you attended and how this program may have impacted you over the last few years. We are also interested in your thoughts about healthy romantic relationships. We will ask you questions about sensitive or personal topics, including your experience with the Couples Health CoOp and its impact on your life and relationship, as well as some of your experiences with intimate relationships more broadly. But you do not have to provide answers about yourselves or answer at all if you do not feel comfortable.

There are no right or wrong answers. We are interested in hearing about your thoughts and opinions because **you** are the experts. Again, you do not have to share anything personal about yourself during this group.

You can refuse to answer any question or not discuss a specific issue that makes you feel uncomfortable. We value your time and will limit this discussion to no more than one and a half hours.

As discussed in the consent process, the digital recorder is here to allow us to listen to our conversation after the discussion is over and make sure our notes captured all the key points of the discussion. We do not want to miss anything you say. Please make sure not to say your name during the discussion. We do not want to have any information that identifies you on this recording.

To protect everyone's confidentiality, we want to remind you to not reveal what you hear during today's discussion group to anyone outside of the group, nor talk about who is in this group. You all signed a pledge agreeing to this.

### **[Discuss Ground Rules]**

Do you all understand what we are asking of you today? Do you have any questions? *[Once all questions are answered, ask once more if there are questions and then state: "So, let's begin." If there are questions, ask if they have any more questions before proceeding.]*

*[Start the digital recorder at this time.]*

## **Sustainability of Skills Learned**

---

### **General Impact** (Remind them with the logo and handbook cover)

1. What do you remember learning from any of the workshops that you participated in sometime back in 2010- 2012?
2. What did you remember learning the most?
3. Were there certain skills that you remember learning? What were these?
4. Can you remember any of the exercises or activities that you did in the group or as a couple?  
*Probe: After participating in the workshops, what changes, if any, did you notice within your community or your own life? How long would you say this lasted?*
5. Were any of these earlier changes able to be maintained or sustained? Can you share how they may still be helping today?
6. Would you want to see a program like these workshops continue in your community?
7. What impact did participating in the workshops have with others in your community? (e.g., do people communicate with other people better, or work out conflicts)
8. To what extent would you say was the usefulness and helpfulness of the workshops within your own life? What impact did this have on how much you used the skills and content that you learned?

### **Skills and Content**

9. A big part of the workshops was teaching you and your partner how to communicate and solve problems more effectively using the speaker-listener technique. Tell us about how couples like you from your neighborhoods may have used this technique after participating in the workshops.  
*Probe: How frequently have you noticed this? Are there certain topics that work better than others from new communication skills with couples (e.g., might it be easier to talk about sex and condoms use or being faithful)?*
10. Tell us how the problem-solving skills may also have improved relationships between couples.  
*Probe: How often do you think it was easier to use the communication skills and problem solving when issues came up with couples (e.g., deciding how long to stay in the shebeen with friends; dancing with others causing jealousy)?*
11. The workshops also focused on trying to teach couples about specific topics that are especially important for putting couples at risk for getting or transmitting HIV, like alcohol/ drug use and unsafe sex behaviors. Tell us more about how the new information may have impacted use of alcohol and/or drugs in your neighborhood.

*Probe: What about the impact on a partner's drug/alcohol use?*

12. A big issue in the workshops was how to use condoms and practicing safe sex. Since participating in the workshops, have there been any changes with regard to how often women [men] use condoms with their main partner? If it has been a problem and it has not changed, what got in the way?
13. Overall, how do you feel about the workshops, looking back on it?  
*Probe: What was most useful? Least useful? What recommendations do you have for the program?*
14. Tell us your thoughts on participating in another program that focused solely on you and your partner's relationship and ways to make it better.

**Note to the interviewer: the interview questions below are designed to be broad and keep topics general, to see what perspectives the participants raise. The probes are more specific in nature and are designed to elicit more detail in the event the participants are having difficulty with the initial questions.**

### **Adaptive Relationship Functioning**

---

We now want to talk about committed romantic relationships and better understand what makes a good relationship. You can talk about your own experiences if you feel comfortable or talk about what you have noticed in other people's relationships.

15. Describe to us what a good romantic relationship looks like for Black South African couples in your community.  
*Probe: What makes a relationship good or positive? What can you get out of a good relationship? What are the most important qualities of a good relationship? What are the things that you think women [men] look for in a partner?*
16. Can you think of a relationship, either one you've been in yourself or one that you've observed, that seemed very healthy or good? Describe this relationship.  
*Probe: What about the relationship made it healthy? Were there aspects that made it unhealthy? Can you think back to a specific situation in the relationship that you observed; what was each person doing that made the relationship work or that you liked?*
17. Describe to us what a bad romantic relationship looks like in your community.  
*Probe: What makes a relationship bad or negative? [To the extent necessary, can get examples of behaviors, but don't push individuals to divulge specific information about their own relationship]*
18. What can an individual do to make his/her partner feel safe in the relationship?  
*Probe: Thinking about physical or bodily safety, what can a partner do to make a person feel safe in this way? Someone can also feel safe in what they say or do in the relationship, without having to worry about how their partner will respond.*

*What do you think partners can do to create the comfort and safety for each other?*

19. In what ways can a person show that they love and care about their partner?

*Probe: What can partners do to show love and care? What can partners do physically to show love and care? Are there other ways that couples can be physical with each other besides sex that are meaningful?*

20. How do you think women [men] in your community want to feel about themselves when they are in a healthy relationship?

*Probe: What are the ways that being in a romantic relationship can make a woman [man] feel good about herself [himself]?*

21. In what ways can a romantic relationship help a person grow as an individual?

*Probe: In what ways can romantic relationships help a person become a 'better version' of herself/himself? How can a romantic relationship help a person achieve his/her goals?*

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