

**Social-Structural Determinants of HIV vulnerability
in Marriage: Role of gender norms and power relations,
masculinity, social norms and relationship quality
A study from the Ifakara town, Tanzania**

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Prof. Dr. Jörg Schibler

Dekan

Dedication

To the memory of my lovely, adorable late mother Josephine Mgonja

To my lovely father Dr. Allyson Mmanyi

To my precious husband Joseph Mtenga and our lovely children (Gabriel and Gideon)

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List of publications

This thesis is based on the following papers:

1. **Mtenga S**, Pfeiffer C, Merten S, Mamdani M, Exavery A, Haafkens J, Tanner M, Geubbels E. Prevalence and social drivers of HIV among married and cohabitating heterosexual adults in south-eastern Tanzania: analysis of adult health community cohort data. *Global Health Action* 2015, 8:28941.
2. **Mtenga S**, Geubbels E, Merten S, Tanner M, Pfeiffer C. 'It is not expected for married couples': a qualitative study on challenges to safer sex communication among polygamous and monogamous partners in southeastern Tanzania: *Global Health Action* 2016, 9: 323262016.
3. **Mtenga S**, Pfeiffer C, Geubbels E, Funga R, Tanner M, Merten S. Gender differences in exposure to HIV infection through extramarital affairs, and the contextual determinants of extramarital affairs among adults in a rural community-Tanzania: A mixed methods study. *PloS One*. 2016; Manuscript submitted for publication.

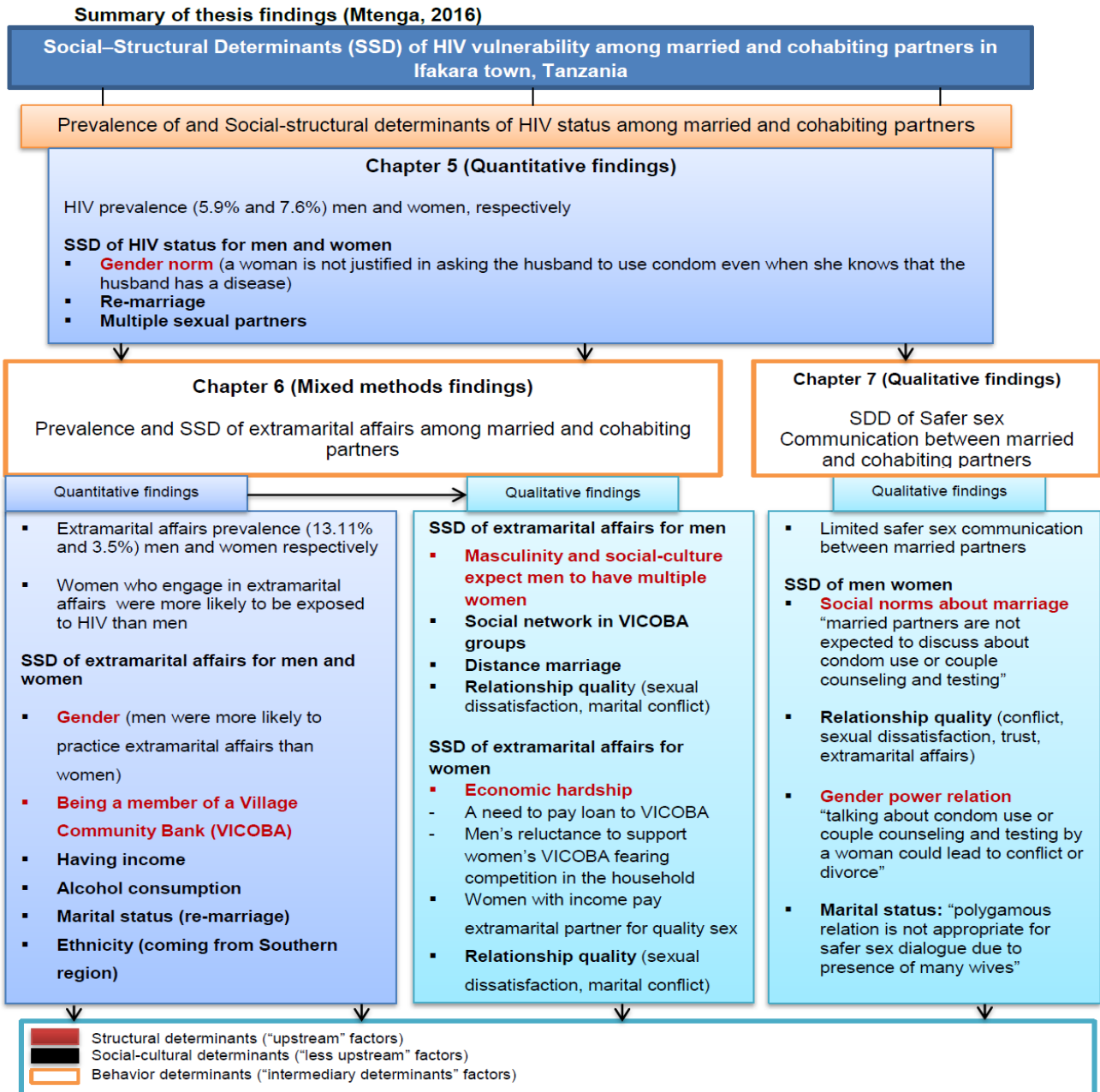
Summary

About two-thirds of global HIV infections are in sub-Saharan Africa (SSA), with 46% of new cases being in Eastern and Southern Africa. Despite remarkable progress in controlling the epidemic through scaling up antiretroviral treatment and universal health coverage in Tanzania, the HIV prevalence varies significantly across the regions, ranging from 1.5% to 14.8% and remains substantial among married men and women (5.4% and 5.2%) as compared to non-married men and women (1.2% and 3.3%) respectively. It has been argued that understanding the social-structural factors (social-economic, power relations, norms, political and legal context) of HIV beyond individual risk behaviors (condom use, number of multiple sexual partners), could inform the underlying drivers of, and interventions to reduce HIV vulnerability and health inequities in a long-term.

This thesis aimed to understand the social-structural determinants of HIV vulnerability among married and cohabiting partners in Tanzania. Guided by the World Health Organization, Commission on the Social Determinants of Health framework, this thesis pursued to provide a more in-depth understanding of how socio-structural factors (social norms, marital status, gender power relations and relationship quality) influence dimensions of HIV vulnerability: a) HIV status b) safer sex communication, and c) extramarital affairs.

The study was nested within the community health surveillance cohort entitled “MZIMA” (meaning being healthy), implemented in Ifakara town in south-eastern Tanzania financed by the “Global Fund Round 4”. The overall implementation of this thesis was supported by the Swiss-Tropical and Public Health Institute. In this thesis, a cross sectional sequential explanatory mixed method approach was employed between 2012 and 2015 which combined quantitative and qualitative methods. The quantitative data was part of the MZIMA surveillance cohort study. The qualitative data was primarily collected using in-depth interviews and focus group discussions to explain and explore further the findings of the quantitative study.

The main conclusions, contributions, recommendations are provided based on the three levels of investigations and their interaction with the social-structural factors to potentially influence HIV vulnerability in marriage. The table below provides a summary of the study findings. We highlight potential new evidence, and the key contribution that this thesis adds on to the existing literature.



Findings in the above table are categorized to highlight the fundamental factors (structural, social-cultural) which within the perspective of the WHO-Social Determinants of Health and the scholars of the drivers of the HIV vulnerability are considered responsible for poor health outcomes including HIV vulnerability. In the context of this thesis, the social-structural and socio-cultural aspects shown in the table above present the potential fundamental drivers of HIV vulnerability among married and cohabiting partners in Ifakara town, Tanzania. The fundamental factors, specifically the 'structural' aspects within the social determinants of health, are referred to as "upstream"

determinants which present important opportunities for improving health, reducing health disparities and increase protection from unhealthy practices. The socio-cultural aspects are considered as interrelated with the “upstream” factors, which influence health outcomes. The World Health Organization refers to the socio-cultural and structural factors together as the “causes of the causes” since they interact, and may indirectly influence the behavioral risk factors by creating conditions that constrain or facilitate healthy practices. In this thesis behavioral factors that are investigated include safer sex communication among married couples and extramarital affairs. Increased knowledge about the social-structural drivers of behaviors linked to the risk of HIV infection aims at guiding appropriate intervention packages for targeting married and cohabiting couples.

The bottom line is that, unlike the biological determinants, the social-structural aspects are amenable for change through structural prevention approaches. It is within this perspective that the interpretation and recommendations provided in this thesis emphasize on the social-structural aspects of HIV vulnerability in marriage.

It is worth pointing out that some of the social-structural ingredients identified in this thesis may also influence HIV vulnerability in non-marital individuals, however, the pace of their influence within marriage may be slightly different since married partners may feel protected based on expectations of mutual monogamy. They have limited independence in their decisions regarding healthy choices and practices, since the marriage potentially obligates them to adhere to the opinion of the partner. Hence they are less likely to use HIV prevention methods such as condoms.

Chapter 5 of this thesis, from the individual responses data base, investigated the social-structural predictors of HIV status among married and cohabiting partners in Ifakara town (findings are presented in the summary table above).

Chapter 6 of this thesis, from the individual responses data base and a qualitative approach, investigated and explored the social-structural aspects that influence extramarital affairs, and the association between extramarital affairs and HIV status among married and cohabiting men and women in Ifakara town (findings are presented in the summary table above).

Chapter 7 of this thesis, from a qualitative design, explored how safer sex communication is practiced in marriage and the social-structural factors that influence safer sex communication between polygamous and monogamous partners in Ifakara town (findings are presented in the summary table above).

What is potentially new evidence from Ifakara town that this thesis provides?

- Married women in Ifakara town who engage in extramarital affairs are significantly more likely to be HIV positive than married men despite higher rates of extramarital affairs among men.
- The social protection groups Village Community Bank (VICOBA) in Ifakara town potentially provide opportunities for men and women to engage in extramarital affairs.
- Norms of masculinity and low relationship quality may lessen the protective effect of economic opportunities (VICOBA) for married women, and might expose them to sexual risk behaviors (extramarital affairs).
- Married women may transact money for “quality sex” and care since they may miss these aspects from their marital husbands.
- Some women in monogamous relations have the agency to initiate safer sex communication to their husbands despite social-structural constraints.
- In polygamous unions, the husband may choose to divorce women if he fails to satisfy them sexually and economically, increasing their economic vulnerability.
- In polygamous unions safer sex communication may be considered inappropriate. Only the younger wives may have the legitimacy to communicate about safer sex with the husband.

What is the main contribution of this thesis?

- This thesis links **epidemiology** (HIV status), **public health prevention strategies** (safer sex communication and abstinence from extramarital affairs) and **social science** theories on the underlying social-structural drivers of HIV infections in marriage. The linking provides insights on the pathways in which agency (married partners) interact to influence low relationship quality, women’s economic hardship, gender norms and power-relations, social norms of marriage, marital status (re-marriage, polygamous) and masculinity and later these social-structural aspects influence various levels of social risk behaviors such as extramarital affairs and safer sex communication.
- Sexuality among women is not homogeneous; some women may actively initiate risk sexual behaviors (extramarital affairs) to meet their sexual satisfaction and others may initiate to meet their economic and social needs.

- Prevailing gender inequality within marriage based on norms of masculinity may not only sustain married women's social and economic hardship, but might lower their safer sex negotiation power, expose them to extramarital affairs, and in turn elevate their risk of HIV infection.
- Norms of masculinity based on religious and social expectations potentially promotes multiple sexual partners among men. Yet, despite the many tangible benefits (power, authority and control over women) that this behavior gives to men, it has negative social and health consequences for both spouses. It destabilizes the peaceful atmosphere and relationship quality in marriage, constrains discussions on safer sex aspects, and often results in both spouses having extramarital partners.
- Consequently in this thesis, it is not exclusively biological sex that predicted HIV status of married men and women; it was also the socially constructed gender norm (e.g. *a woman is not expected to suggest condom use even when she knows that a husband has a disease*).
- This thesis recommends a model which may be adopted to understand HIV vulnerability in marriage. The proposed model is found in section 8.6.1 of the main thesis. The model hypothetically shows how multiple social-cultural, economic and legal aspects as structural aspects interact and intersect to influence HIV vulnerability in marriage.

Further research on couples to corroborate these findings is needed as data on the partner's behavior and HIV status were not available in this study.

To conclude, this thesis accentuates that married or cohabiting couples are a window of addressing social-structural drivers of HIV in Tanzania. Addressing HIV vulnerability in marriage requires multiple approaches which are beyond individual interventions, to address the contextual realities of marriages by challenging the harmful social norms, gender norms, power inequality and norms of masculinity that constraints adoption of safer sex communication, engagement and happy life in marriage. Improving quality of relationship and acknowledging married men and women as active agents of HIV prevention could be a social resource to foster safer sex discussions and practices in marriage.

Some social-structural aspects of HIV vulnerability in marriage such as social norms, gender power relation and masculinity operate across a wide spectrum of human life and in inter-related ways. This may require changes at

policy level: changing the current marriage legal act of 1971 in Tanzania which perpetuates gender discriminatory practices and women's economic hardship by fostering early marriages for girls (15years), and by legalizing men to marry multiple women. Economic empowerment programs should be tailored to address relationship quality in marriage in order to increase their protection effect against risk sexual behaviors particularly among married women. Social protection policies that discourage wife beating and promote the rights of married men and women to communicate freely about their health and sexual needs requires attention. **Health system level:** the choice of HIV prevention interventions including health promotion messages should be informed by the context specific evidence on the underlying HIV vulnerability in marriage. Social-structural indicators such as those that relates to gender equality could be incorporated within the HIV multi-sectoral strategic framework in Tanzania to allow implementation, monitoring and evaluation of broader contextual interventions. Couple-based counseling services for HIV prevention could emphasize on social risk aspects of HIV vulnerability: i.e relationship quality, marital status (i.e polygamous), gender power relation, social norms of marriage and norms of masculinity. Emphasize on HIV testing prior to re-marriage may increase opportunity for HIV prevention in marriage. The public health messages may also emphasize on similar aspects. At the **community level**, influential structures i.e religious leaders, local leaders and political leaders can advocate against the harmful social norms, gender inequality and poor relationship quality in marriage that constrain adoption of safer sex practices in marriage. Pre-wedding ceremonies could be used as venues to emphasize about the significance of relationship quality (fighting against sexual dissatisfaction, extramarital affairs and conflict) and safer sex communication in marriage. Establishing community based marital counseling centers would add value to the HIV prevention efforts targeting married partners. On the **family level**, childhood socialization should embrace the rights of boys and girls to speak freely about their concerns and equal education opportunity. On the **theory part**, the WHO-CSDH could be improved by adopting the social determinants that reflect African context by incorporating the relationship quality, norms of masculinity, marital status and social norms as social determinants of health and health inequity.

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**“Our mission is to build a better world. To leave no one behind.
To stand for the poorest and the most vulnerable in the name of
global peace and social justice.”**

Ban Ki-moon

United Nations Secretary-General

List of abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
ARV	Anti Retro Viral (drugs)
CHCT	Couple HIV Counseling and Testing
CI	Confidence Interval
CSDH	Commission on the Social Determinants of Health
DHS	Demographic and Health Survey
FHI	Family Health International
FGD	Focus Group Discussion
HIV	Human immunodeficiency virus infection
HVCT	HIV Voluntary Counseling and Testing
IFAD	International Fund for Agricultural Development
IDI	In-depth Interviews
LMA	Law of Marriage Act
NMRI	National Medical Research Institute
NMSF	National Multisectoral Strategic Framework
NBS	National Bureau Statistics
NACP	National Aids Control Program
OR	Odds Ratio
PHC	Primary Health Care
PMTCT	Prevention of mother to Child Transmission
RRR	Relative Risk Ratio
SDG	Sustainable Development Goal
SDH	Social Determinants of Health
THMIS	Tanzania Health and Malaria Indicator Survey
TACAIDS	Tanzania Commission for Aids
TasP	Treatment as Prevention
THIS	Tanzania HIV Indicator Survey
URT	United Republic of Tanzania
UNDP	United Nations Development Party
VCT	Voluntary Counseling and Testing
WB	World Bank
WHO	World Health Organization
VICOBA	Village Community Bank

Glossary

Social-structural factors

Building on Giddens' structuration theory the term social-structural is here used to describe underlying economic, legal, policy-related, or any power-related factors on the global, national, local and household-level that influence (constrain or enable) individual behavior affecting HIV infection (for more detailed elaboration see section 2.4).

HIV vulnerability

HIV vulnerability as adopted in this thesis refers to a person's inability to protect him/herself from HIV infection due to specific behaviors (here: extramarital affairs, lack of safer sex communication) that are influenced by the wider social-structural factors.

Married and cohabiting partners

A man and a woman, or a man and several women, who decided to live as married partners. In this thesis married and cohabiting relations were both counted as marital relations as long as the partners consider themselves as a husband and wife (see section 1.6).

1. Introduction

It has been argued that understanding the social-structural factors (socio-economic differentials, unequal power relations, gender norms, political and legal contexts that sustain inequality) of HIV beyond individual risk behaviors (condom use, number of multiple sexual partners), could inform the underlying drivers of, and interventions to reduce HIV vulnerability and health inequities in a long-term. However, social structural approaches to HIV vulnerability are limited in Tanzania. This thesis aims to contribute to a better understanding of the social-structural factors that influence HIV vulnerability in marriage. To achieve this, the thesis investigated the social-structural determinants of HIV status, extramarital affairs and safer sex communication among married men and women in Ifakara town. The first chapter presents an overview of the burden of HIV in adults and in marriage, factors identified in the literature that contributes to HIV vulnerability in marriage, global and national efforts to address HIV in marriage. Subsequently, an overview about the typology of marriage in Tanzania is provided.

1.1. The burden of HIV in adults and among married partners in SSA

HIV remains one of the major health and social problem despite ability to avert its transmission and the associated mortality and morbidity health outcomes. Sub-Saharan Africa (SSA) remains the epicenter for the majority of HIV infections with estimated 24.7 million people currently living with HIV in the region (UNAIDS, 2014). About two-thirds of global HIV infections are in sub-Saharan Africa, with 46% of new cases in Eastern and Southern Africa (UNAIDS, 2016a). In 2013 there were about 1.5 million new HIV infections and 1.1 million AIDS-related deaths (UNAIDS, 2014). Recent global updates indicate that biomedical (access to ART treatment) and other behavior interventions have greatly contributed to the reduction of HIV prevalence globally (UNAIDS, 2014). However, huge variations of HIV prevalence across regions and between men and women in SSA still prevail. HIV prevalence varies from (0.5% in Senegal) to (5.1 % in Tanzania) and (27.4% in Swaziland) (ICF International, 2012), (Fig:1.1). Over 30% of women in Swaziland are HIV-positive, compared to 20% of men (ICF International, 2012), while in countries like Cameroon, Burkina Faso, and Zimbabwe, HIV prevalence has decreased among both women and men (ICF International, 2012). The social variation of HIV prevalence in SSA is further reflected by having more HIV infections concentrated among married and cohabiting couples. The majority of the adult population and sexually active girls aged 15-19 in SSA live in marital or co-habiting relations (Chemaitelly et al., 2012; UNAIDS, 2004). Yet, stable-discordant couples contribute up to 30.4% of the HIV incidence in SSA (Chemaitelly et al., 2014). Earlier studies in Rwanda and Zambia showed that over half of the new infections occurred within marriage or in cohabiting relationships and just under half in Uganda (Dunkle et al., 2008), and in Kenya (Guthrie et al., 2007; Kaiser et al., 2011). Moreover, recent evidence from 18 countries in SSA highlighted the prevailing gender variations in HIV prevalence among married partners as compared to the un-married (Hegdahl et al., 2016). The study also concluded that women continue to carry a greater burden of HIV in SSA (Hegdahl et al., 2016).

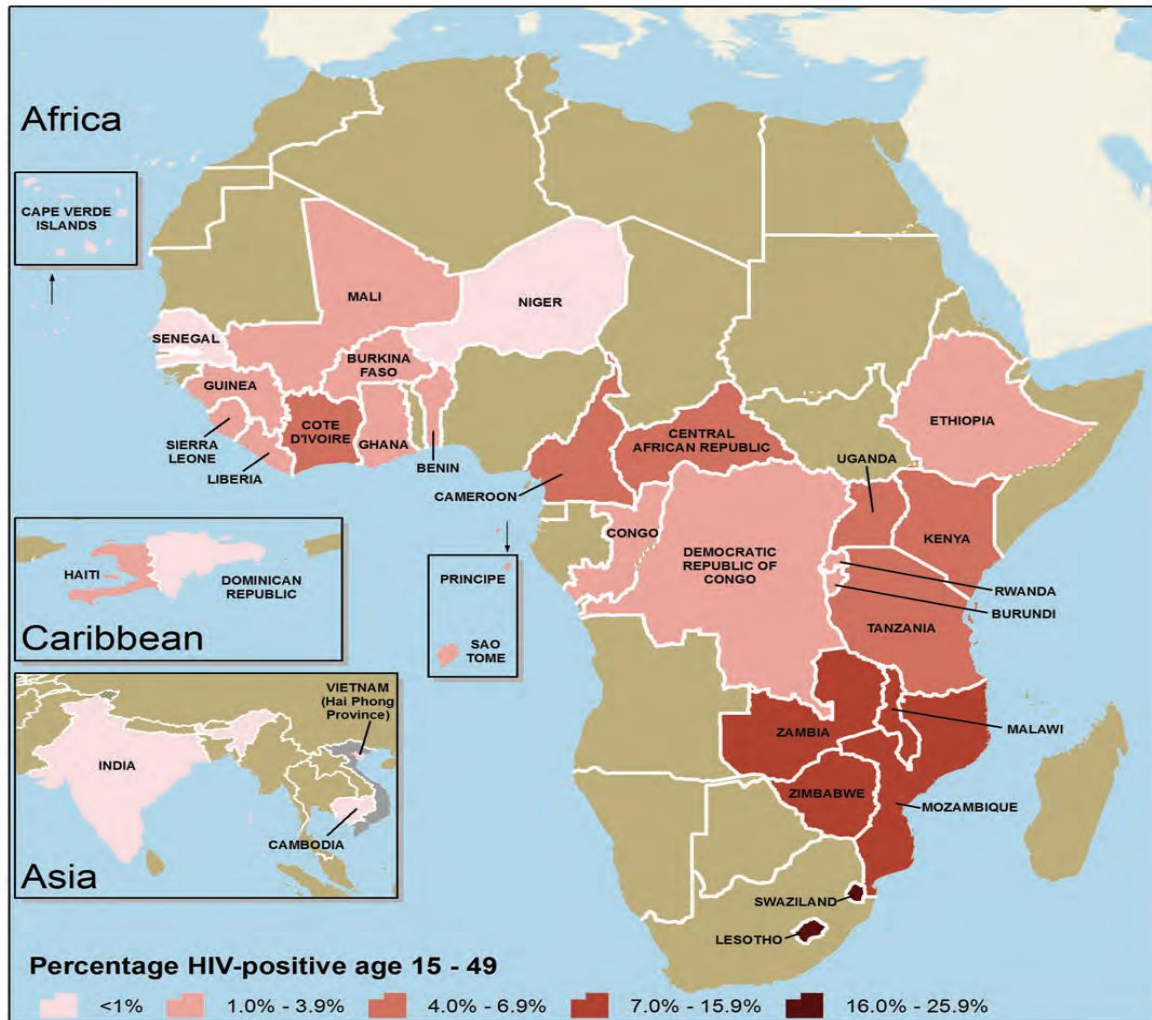


Figure 1-1: HIV prevalence by regions in SSA (ICF-International, 2012)

The exact reason for the observed variations in HIV prevalence is unclear. However the fact that the epidemic continues to disproportionately affect specific regions and population groups does not only challenge the current national and international commitments to address health inequities (UNAIDS, 2015), but potentially indicates that more effort is needed to understand and address the contextual dynamics of HIV transmission within the region. United Nation for AIDS (UNAIDS), declare that “complex and varied social, structural and economic dynamics within countries account for the uneven geographical distribution of HIV” (UNAIDS, 2016b, p. 7).

1.2. The burden of HIV among adults including married partners in Tanzania

Tanzania has a moderate HIV epidemic (ICF International, 2012). HIV in the country varies greatly across regions and social groups. Southern regions have the highest HIV infection rates (Fig: 1.2). The general prevalence among adults of age 15 to 49 stands at 5.2%, with discordant rate of about 5%. HIV prevalence is higher among currently married and cohabiting partners (5.2% and 5.4%) for men and women, respectively (THMIS, et al., 2013). These

rates are higher compared to those of 2003-4 (3.3% and 1.2%) for married women and men respectively (THIS, et al., 2005). HIV prevalence is also higher among previously married partners including divorced and widows as compared to never married and currently married (Fig: 1.3). However, this thesis mainly concentrated on the currently married in order to capture the most up-to-date social dynamics that relates to HIV transmission in marriage. A recent report on the drivers of HIV in Tanzania revealed that marriage is one of the drivers of HIV infection in the country (Maswanya et al., 2010). Likewise, the mode of HIV transmission study for Tanzania showed that among infections acquired in adulthood, stable sexual relationships are the most common transmission route and account for almost 40% of new infections (Case et al., 2012). It is also known that in marriage, HIV is higher among married women as compared to men. A study among the sero-discordance couples in SSA revealed that, women were three times more likely to be HIV positive than men (71% versus 29%) respectively, (Ngilangwa et al., 2015).

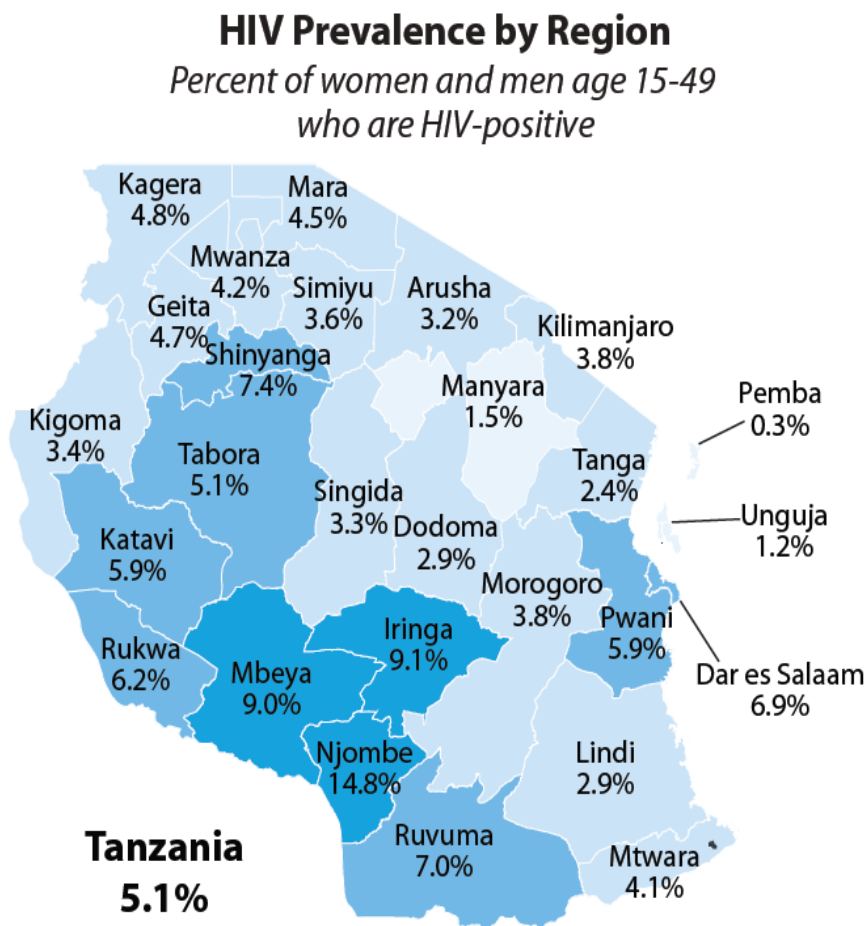


Figure 1-2: HIV prevalence in Tanzania by region (THMIS, 2011-12)

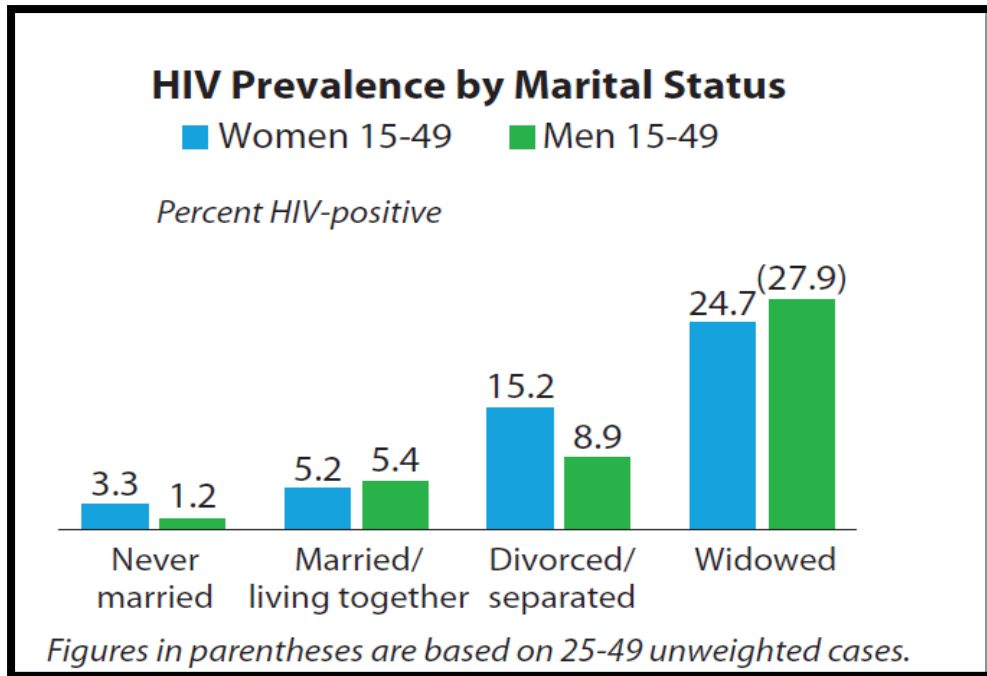


Figure 1-3: HIV prevalence in Tanzania by marital status (THMIS, 2011-12)

1.3. Factors associated with HIV vulnerability among adults focusing on marriage

Unprotected heterosexual contact account for the majority of HIV infections in SSA (UNAIDS, 2012; Ramjee and Daniels, 2013). This is different from other countries including the United States where the main mode of HIV transmission is mainly through men who have sex with men (CDC, 2011). Although the epidemic is generalized in most countries in SSA, there are several key populations which are considered to be at high risk of HIV infection including the sex workers, men who have sex with men, people who inject drugs, transgender people, prisoners, migrants, young women and adolescents (UNAIDS, 2016b).

Extramarital sex is linked to HIV vulnerability among married and cohabiting partners. Evidence in SSA shows that extra-couple transmission accounts for between 27-61% and 21-51% of all infected males and females, respectively (Bellan et al., 2013). Another evidence in SSA revealed that 22.5% (range: 11.1%–39.8%) are infections acquired by one of the partners from sources external to the couple (Chemaitelly et al., 2014). In Tanzania, the report on the drivers of HIV infection indicated that, the proportion of married men and women reporting extramarital sex is significantly higher (70%), and that more than 25% of those who practice extramarital affairs were unlikely to use condoms (Maswanya et al., 2010). The report further indicated that, extramarital sex was among the key determinants of HIV infections in the country (Maswanya et al., 2010). Further evidence from Burkina Faso, Cameroon, Ghana, Kenya and Tanzania found that, re-marriage (being in subsequent marriage) was one of the risk determinants of HIV infections.

The study also revealed that married women who engage in extra-marital sex were less likely to use condoms than single women when doing so (de Walque, 2006).

The use of condom in marriage is substantially low due to social-cultural norms and a belief that use of condom in marriage may imply infidelity or lack of trust between partners (Tolley et al., 2006). A study in Tanzania also revealed that married women were less likely to use condom as compared to the unmarried (Exavery et al., 2012).

Gender inequality and gender based violence have been strongly associated with HIV infection in marriage, and particularly among women (Dunkle et al., 2004; Jewkes et al., 2010; UNAIDS, 2015). In Tanzania, the 2012 demographic and health survey report showed that 44 percent of ever-married women had experienced physical and/or sexual violence from a partner, and 37 percent of ever-married women had experienced spousal violence prior to 12 months (NBS., 2011). Further evidence in Tanzania revealed that women seeking voluntary counseling and testing, who had experienced violence from their partners were more likely to be HIV positive; among women under 30 years, those who had experienced violence were about 10 times more likely to be HIV positive (Maman et al., 2010). Another study by Merten et al in Zambia indicated that women have no rights to talk about HIV aspects in the household (Merten et al., 2016).

Traditional practices such as wife inheritance, and wife sharing, female genital mutilation still prevails in some parts of Tanzania. These practices have been associated with the risk of HIV infection among women (Mwanga et al., 2011). Elsewhere in SSA studies suggest that poor safer sex communication between partners significantly increase the risk of HIV infection among married men and women (Maharaj and Cleland, 2005; Marlow et al., 2010; Mugweni et al., 2015; Sheeran et al., 1999). On the other hand, consistent safer sex communication and negotiation between married partners play a major role in the adoption of safer sex practices in marriage. A study in Uganda found that safer sex communication significantly increased couple counseling and testing uptake among married partners (Muhindo et al., 2015). Another study by Vamos et al in Zambia found that married couples who embark consistently in safer sex communication are more likely to practice condom use and adhere to treatment services (Vamos et al., 2013).

Lower acceptance of couple counseling and testing services has been associated with the risk of HIV infection among married partners in Tanzania. A study in Tanzania found that about half of the married partners have never used the voluntary counseling and testing services (VCT) as couples in their lifetime (Mtenga et al., 2015). Similarly in Uganda a study found that only (30%) of married couples had used couple counseling and testing services (Matovu et al., 2013). In Tanzania and elsewhere, personal attitudes, subjective norms, perceived risk of contracting HIV, have been strongly associated with low uptake of HIV prevention interventions among adults (Abamecha et al., 2013; Kakoko et al., 2006; Sheeran et al., 1999; Vameer et al., 2008).

1.4. Global strategies to address HIV in adults and among married partners

Couple HIV Counseling and Testing services (CHCT) is widely recommended as the main HIV prevention strategy in among stable couples including those in marital relation (WHO, 2012). The benefits of CHCT includes mutual

disclosure of HIV results, mutual agreement on HIV prevention choices, decisions about family planning or child testing services (WHO, 2012).

A study by Cohen et al found that early initiation of antiretroviral treatment by HIV-positive adults is likely to reduce their risk of transmitting HIV to their sexual partners (Cohen et al., 2011). These findings led to new HIV prevention strategy referred to as "treatment as prevention" (TasP). TasP is the method that uses antiretroviral treatment (ART) to decrease viral load and lower the risk of HIV transmission. Therefore, early access to ART is expected to make a major breakthrough towards prevention of HIV infection globally (UNAIDS, 2016b). The HIV prevention treatment strategy: "test and treat" is set by UNAIDS to ensure that by year 2020, 90% of people know their HIV status, 90% of people who need treatment are on treatment, 90% of people suppress their viral loads (UNAIDS, 2016b). Prevention of Mother to Child Transmission (PMTCT) is also considered as an important component for HIV prevention and a priority in sub-Saharan Africa.

Voluntary medical male circumcision (WHO, 2012), and use of vaginal microbicide (Marais et al., 2011) have proved to be effective in protecting adults from HIV infection in SSA. In addition, correct and consistent condom use is considered as a pillar for HIV prevention among adults globally (UNAIDS, 2014).

Structural interventions for HIV prevention have recently gained recognition by the global AIDS initiatives. It is reported that lessons from the past challenges in achieving the UNAIDS targets for the elimination of HIV has opened a new window for more structural targets beyond biomedical and behavior focus (UNAIDS, 2016b). In this context, eliminating gender inequalities by empowering young women and adolescent girls has been currently set as a strategy to fast tracking response to HIV prevention (UNAIDS, 2016b). Investing in the social protection programs is another structural strategy set by UNAIDS to reduce social-economic barriers to the access of HIV prevention interventions and for addressing the social inequalities (UNAIDS, 2015a). With this background, combination prevention approach is currently emphasized to create a synergy between biomedical, behavior and structural interventions for HIV prevention (UNAIDS, 2015b).

1.5. Strategies to address HIV vulnerability in Tanzania

Tanzania is in line with the global HIV prevention initiatives. In recent years Tanzania has had impressive progress in reducing HIV prevalence from 7% to 5.1 %, between year 2003 and 2012. However, HIV prevalence among married partners remains higher than even the nation prevalence (THMIS et al., 2012). Currently, there are limited interventions that focuses specifically on married couples. The common HIV prevention intervention in the general population includes promotion of condoms, abstinence from multiple sexual partners and HIV testing (THMIS, 2012). Universal access to health services including treatment and care programs has been introduced by fostering health policies like the community health funds, and national health insurance programs (Borghi et al., 2013). Antiretroviral treatment (ART) and Prevention of Mother to Child Transmission programs have been well implemented in line with the global policy for treatment as prevention. For instance, by 2013, 500,000 eligible people were receiving ARVs. Currently there are 1209 health facilities that provides HIV treatment relative to three facilities per 100,000 of the

population (URT, 2014). Communication and advocacy are considered central for awareness creation about HIV and Aids and also to created demand for HIV prevention services (URT and TACAIDS, 2013). The Tanzanian Multisectoral Strategic Framework (NMSF) (2013-17) aims support initiatives for prevention of new HIV infections among the key populations groups by addressing the structural determinants of HIV acquisition (poverty, unemployment, social norms) (URT and TACAIDS, 2013).

Acknowledging the alarming HIV prevalence in marriage, stakeholders of HIV prevention in Tanzania have embarked intensively in the promotion of condom use in marriage, abstinence from extramarital affairs, partner's disclosure of HIV status, couple counseling and testing, treatment access and safer sex communication between married partners. A common Swahili slogan which has been used to discourage extramarital affairs in marriage is known as “stay on the main road, divergence is not an option-prevent HIV” (*Kiswahili: “baki njia kuu mchepuko sio dili-epuka ukimwi”*) (Fig: 1.4). Another health promotion message which aims to encourage couples to disclose their HIV status states that; “share with the one you love” (*Kiswahili: “mshirikishe umpendaye”*). “Break the silence, talk to your partner” (*Kiswahili: “Vunja Ukimya. Zungumza na Mwenzi”*) is another health promotion message which has been used by the CHAMPION project in Tanzania to motivate couples to communicate about reproductive health aspects (CHAMPION project, 2016).



Figure 1-4: A balloon bearing a health promotion message, instructing married partners in Tanzania to abstain from extramarital affairs “by remaining in the main road”.

Although individual focused behavior and biomedical HIV prevention interventions are useful for HIV prevention, scholars of the social drivers of HIV vulnerability have argued that these interventions are unlikely to bring a long-term behavior change since they are detached from the context in which the HIV related risk sexual behaviors occur (Auerbach et al., 2011; Parkhurst, 2014). Moreover, the individual focused HIV interventions such as condom use, reduction of multiple sexual partners and HIV testing usually address the individual level risk factors for HIV vulnerability and not the broader social context that support the occurrence of such individual risk behaviors

(Auerbach et al., 2011; Baral et al., 2013; Parkhurst, 2014, Seeley et al., 2012). Increasing evidence suggest that patterning of human sexual behaviors and health practices are deeply embedded in, and shaped by, underlying social-structural aspects (Kippax et al., 2011; Mtenga et al., 2015).

There is recognition that understanding and addressing the contextual determinants (social-cultural and structural) of HIV vulnerability, is likely to bring changes at the population level, which is important for long-term behavior changes related to HIV prevention.

The social-structural drivers of HIV, have been referred to as the “core social processes and arrangements, reflective of social and cultural norms, values, networks, structures and institutions, political, legal systems that operate in concert with individuals behaviors and practices to influence HIV epidemics in particular settings” (Auerbach et al., 2011; Parkhurst, 2014). Within the social determinants of health perspective the ‘structural’ aspects are referred to as “upstream” determinants which present important opportunities for improving health, reducing health disparities and increase protection from unhealthy practices (Bharmal et al., 2015). The social-cultural aspects are considered as less upstream factors but interrelated with the “upstream” factors to influence health outcome. On extreme end the World Health Organization (WHO) refers to the social-cultural and structural factors together as the “causes of the causes” since they interact, and may indirectly influence the behavior risk factors (extramarital affairs, safer sex communication) by creating conditions that constrain or facilitate health practices (World Health Organization, 2010). This categorization is important for designing of intervention packages for addressing HIV vulnerability (Baral et al., 2013). The social-structural barriers are likely to increase susceptibility to HIV infection and undermine prevention and treatment efforts (Gupta et al., 2008a).

The above arguments by the scholars of the social-structural drivers of HIV vulnerability may provide a sound explanations behind the current lower uptake of recommended HIV prevention interventions among married couples in Tanzania, despite available HIV prevention interventions and intensive health promotion messages. Almost 100% of adults in Tanzania know about how HIV is prevented and transmitted. About 70% have seen and heard about the health prevention messages on HIV prevention (THMIS et al., 2012). Yet, the uptake of recommended HIV prevention programs remains low even among the educated (THMIS et al., 2012), and particularly among married men and women. For example, 26% of married men vs 12.4% of never married men reported to have had more than 2 sexual partners in the last 12 months. Also, 26% of married partners vs 12.4% of never married partners reported paid sex in the last 12 months (THMIS et al., 2012). In addition, safer sex communication and negotiation in marriage is limited, extramarital affairs remains substantial, and there is low uptake of condom and couple counseling and testing services in marriage (Exavery et al., 2012; Maswanya et al., 2010; Mbago and Sichona , 2010; Mtenga et al., 2015; THMIS et al., 2012). Despite scaling up of couple counseling and testing services in the country, fewer than 30% of adults (which include married partners) reported ever receiving an HIV test (cited in Njau et al., 2012). A randomized trial in Tanzania found that despite higher prevalence of HIV among married women (10%) couple counseling and testing was lower among them (Becker et al., 2010). Similar evidence in Malawi shows that married couples do not realize that a partner may be infected (Anglewicz and Chinstsanya, 2011). A previous study in South Africa also

showed that although couples' knowledge of condoms and where to obtain them was very high, only 15% of married men and 18% of married women reported consistent or occasional use (Mahara and Cleland., 2005). Most studies which attempted to understand HIV in marriage or extramarital affairs have mainly limited the investigation on a single method (qualitative or quantitative), and mainly focuses on married women or married men (Mbage and Sichona, 2010; Mkandawire et al., 2013; Nyamhanga and Frumence, 2014). A study in Kenya investigated the determinants of HIV among married and cohabiting partners provided richness information only on the behavior and biological determinants, and mainly used a single approach (Kaiser et al., 2011). As such there is insufficient evidence about the social-structural drivers of HIV vulnerability in among married men and women in marriage.

What remains unclear from enormous evidence is whether and how the social-structural aspects (social norms, relationship quality, marital status and gender norms and power relation) shape HIV risk among married men and women at the level of their HIV status, extramarital affairs and safer sex dialogue. A better understanding of the pathways in which the social-structural determinants shape HIV vulnerability requires understanding of multiple levels of HIV risk and application of multiple methods (Baral et al., 2013; Kaufman et al., 2014).

Based on these contexts, this thesis investigates how and whether the above social aspects determine individual level risk aspects 1) HIV status, 2) extramarital affairs, 3) safer sex communication among married men and women in Ifakara town. In the context of this thesis, these individual level risk aspects from here after will be referred to as HIV vulnerability. The aspects have been selected since they form part of the overall HIV prevention messages targeting married couples in Tanzania and elsewhere in SSA.

1.6. The typology of marriage in Tanzania

During the early postcolonial period, customary and Islamic law governed the area of family law in Tanzania. In 1971, Tanzania adopted the Law of Marriage Act (LMA) (URT, 1971). This act integrated customary and Islamic law into civil law but provided women with (somewhat) better civil rights upon marriage and divorce. The Tanzanian provision of s.9 of the Law of Marriage Act, Act No.5 of 1971 defines the term marriage as the voluntary union of a man and a woman intending to last for their joint lives. The appropriate age of marriage as stipulated in the act is **18 years for a man and 15 years for a woman**. The presumption of marriage, section: 160 of the Act states that if the couples have stayed together for two years or more than that they are presumed to be married until proved contrary. A marriage can be polygamous or monogamous. In polygamous marriages, a man has the legal right to change the marriage contract from monogamous to polygamous or vice versa. However, the Marriage Act prohibits a married woman to contract another marriage while the former one still exist. In monogamous marriages a man is legally married to only one woman (URT, 1971). By adopting the Tanzanian marriage act definition, this thesis considers married and cohabiting partners altogether as a man and a woman who decided to live together as a husband and a wife in a joint

Introduction

life, whether in a polygamous or monogamous and whether in official or non-official marriage. The word “married partners” will also include “cohabiting partners”.

2. Conceptual framework

The previous literature showed clearly that despite the ongoing behavior and biomedical interventions and programs to address HIV vulnerability, HIV prevalence remain substantial and the adoption of safer sex practices including couple counseling and testing, abstinence from extramarital affairs, condom use and safer sex communication despite good coverage and promotion. For the purpose of convenience 'social', 'social-structural' and 'social drivers' of HIV vulnerability are used interchangeably hereafter.

This thesis investigated and explored how and whether the social norms, gender power relation and marital life experiences including marital status as the social-structural determinants of health relate to HIV status, safer sex communication, and extramarital practice among married men and women. The thesis further investigated the association between extramarital affairs and HIV status since extramarital affairs is also a social determinant of health. By doing so, this thesis aims at contributing to a better understanding of the social-structural determinants of various levels of HIV vulnerability among married partners in Ifakara town, Kilombero district, Tanzania.

In the following section, the conceptual background of this thesis is presented by illuminating our understanding on the social determinants of health in the context of HIV vulnerability based on recent undertakings around these concepts.

2.1 The WHO Commission on the Social Determinants of Health (WHO-CSDHs) framework

This thesis is approached from the WHO-CSDH perspective (WHO, 2010). Social determinants of health became a debated topic from 2005. This is the time when the WHO-CSDH was established to support countries and global health partners to address the social-structural factors and conditions leading to ill health and health inequities. The WHO-CSDH acknowledge that huge health inequities that exist between and within countries are not biologically created but rather are influenced by the conditions in which people are born, live, grow and age (WHO, 2010). The main emphasize is that despite the importance of health care and health risk behaviors in determining people's health status, it is the social-structural conditions and the environmental context that eventually determines adoption of health practices, choices to behaviors, which ultimately influence the health status (expanded) (WHO, 2010). This view is supported by the livelihood framework which was developed by Obrist et al highlighting the links between social science and public health aspects, and how they explain constraints of access to prompt and effective malaria treatment in rural Tanzania. Contributing to the discourse on the social determinants of health, the livelihood framework highlight about how social-structural elements of household livelihood (including material and social resources) shape the process of access to treatment (Obrist et al., 2007). Likewise the views by the scholars of the social drivers of HIV vulnerability supports the role of social-structural forces in shaping the sexual risk practices among people in a specific context (Auerbach et al., 2011; Parkhurst, 2012; Seeley et al., 2012).

The concepts of “social” and “structure” are not new in literature. They are known from earlier sociological theories of creation and reproduction of social systems i.e structuration theory by Giddens (Giddens, 1984). As such the SDH concept was coined from a combination of earlier social theories including Giddens’s theory of structuration, and the eco-social theory which integrated psycho-social and social production of health models to examine the interaction between social, physical environments with biology and individuals’ context in which they live and work (Krieger, 2001).

Highlights provided in the previous chapter illuminate that HIV vulnerability among married couples is influenced by health system factors (lower acceptability of couple counseling and testing uptake and condom use), behavior factors (limited safer sex communication, engagement in extramarital affairs) social factors (gender based violence). Much of the previous work on the determinants of HIV risk behaviors were mainly based on the prominent psycho-cognitive and behavior theoretical approaches such as the health belief model, theory of planned behavior (Ajzen and Fishbein, 1980), theory of learned behavior (Bandura, 1973) and social action theory (see: <http://www.socialogyguide.com/thinkers/Talcott-Parsons.php>, 2016). These theories assume that there is a rational motive behind each actor’s behaviors based on individual’s knowledge, awareness, positive or negative opinions, and behavior evaluation. Various studies by applying these theories provided useful insights on the individual determinants of health practices including attitude, acceptance, perceived risk, perceived benefit and perceived efficacy (Abamecha et al., 2013; Kakoko et al., 2006; Mtenga et al., 2015; Sheeran., 1999), and have contributed to the design of individual’s level behavior change programs for HIV prevention. However despite their usefulness, psychological and behavior theories have been criticized because of circumstantial limitations; and that most of their constructs i.e perceptions, attitude, intention or self-efficacy do not account for the contextual and environmental aspects that shape risk behaviors. Scholars of the social drivers of HIV vulnerability emphasizes that, behavior approaches to HIV vulnerability potentially overlook that reducing HIV risk, will require changes in broader social-structural environment (economic opportunities, social norms, gender roles, legal freedoms, or combinations of these factors), not just information provision, condom distribution, availability of services alone (expanded) (Auerbach et al., 2011; Bellan et al., 2013; Parkhurst, 2012).

Unlike the previous psychological and behavior theories, the WHO-CSDHs framework appreciate the broader context and environment (health systems, social policies, political context, material circumstances and social economic positions) that impact on equity in health and wellbeing. The framework recommends examining the interface between the multiple social-structural aspects and health along several domains: **Social** economic and political context: governance, macroeconomic policies, social policies, public policies (education, health, social protection), culture and societal values; **Social** economic position (social class, gender, ethnicity, education, income, occupation); **Material** circumstances (living conditions, food availability and working conditions); **Behavior** and biological factors, **Psycho-social** factors (stressors, relationships, social support and coping styles) (Fig: 2.1).

It has been pointed that the WHO-CSDHs framework is expected to serve two major purposes: “guide empirical work to enhance the understanding of the determinants, mechanism and guide policy-making to illuminate entry points for interventions and policies” (WHO, 2010, p. 4). A promising nature of the social determinants of health inequities is that most of the structural factors that influence diseases and health behaviors are modified and not biologically inherited (WHO, 2010). The ‘context’ is considered as an important aspect of the social determinants of health, since this allows the understanding of how social economic position, political, health systems and public policies influence inequities in health outcomes. Likewise, Auerbach et al highlighted on the importance of understanding ‘context’ in addressing the ‘social drivers’ of HIV vulnerability (Auerbach et al., 2011). Hence, in this thesis the concept of social-structural determinants of HIV vulnerability has been used synonymous with the concept of social drivers of HIV vulnerability as used by Auerbach et al (Auerbach et al., 2011).

Although, the WHO framework is not meant to investigate specifically on factors that influence HIV vulnerability, in this thesis several social-structural constructs from the WHO-CSDHs framework were earmarked and adopted to guide the investigation of the social-structural determinants of HIV vulnerability among married men and women by assisting in the selection of the study variables and themes for qualitative study. These constructs are indicated in red stars in figure: 2.1.

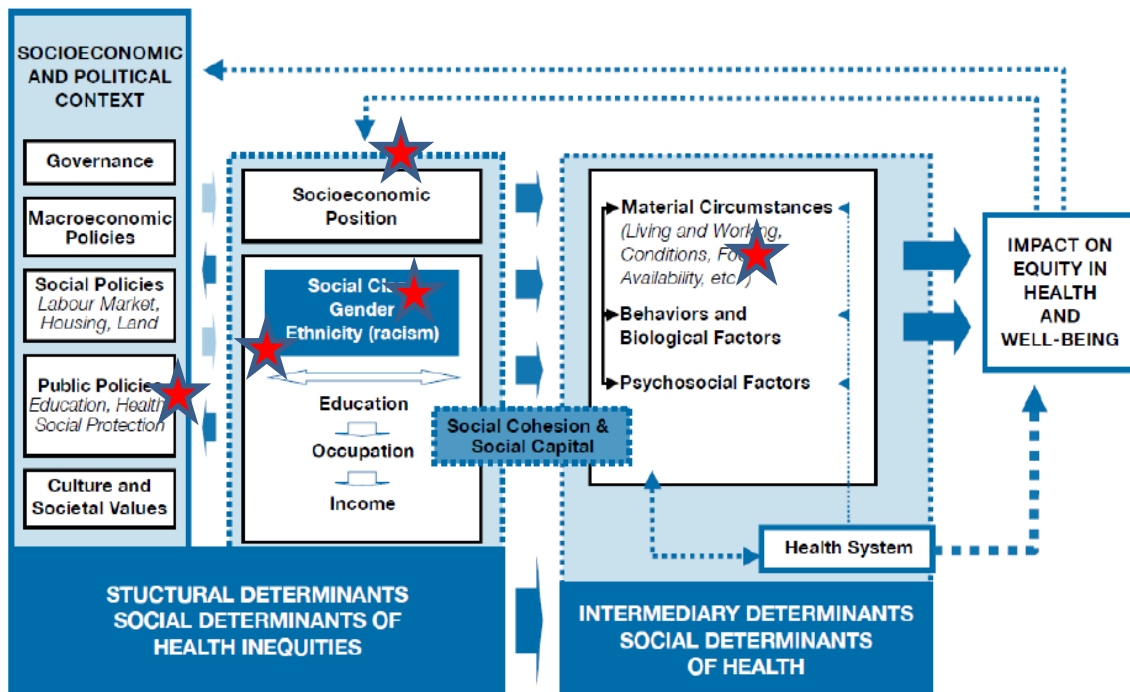


Figure 2-1: Conceptual framework for Action on the Social Determinants of Health (WHO, 2010)

Acknowledging the limitations of the WHO-CSDH framework, based on the literature review and intuition, additional social-structural constructs were explored to improve understanding of safer sex communication and extramarital affairs among married men and women. The red boxes in Figure: 2.2 below present these additional constructs.

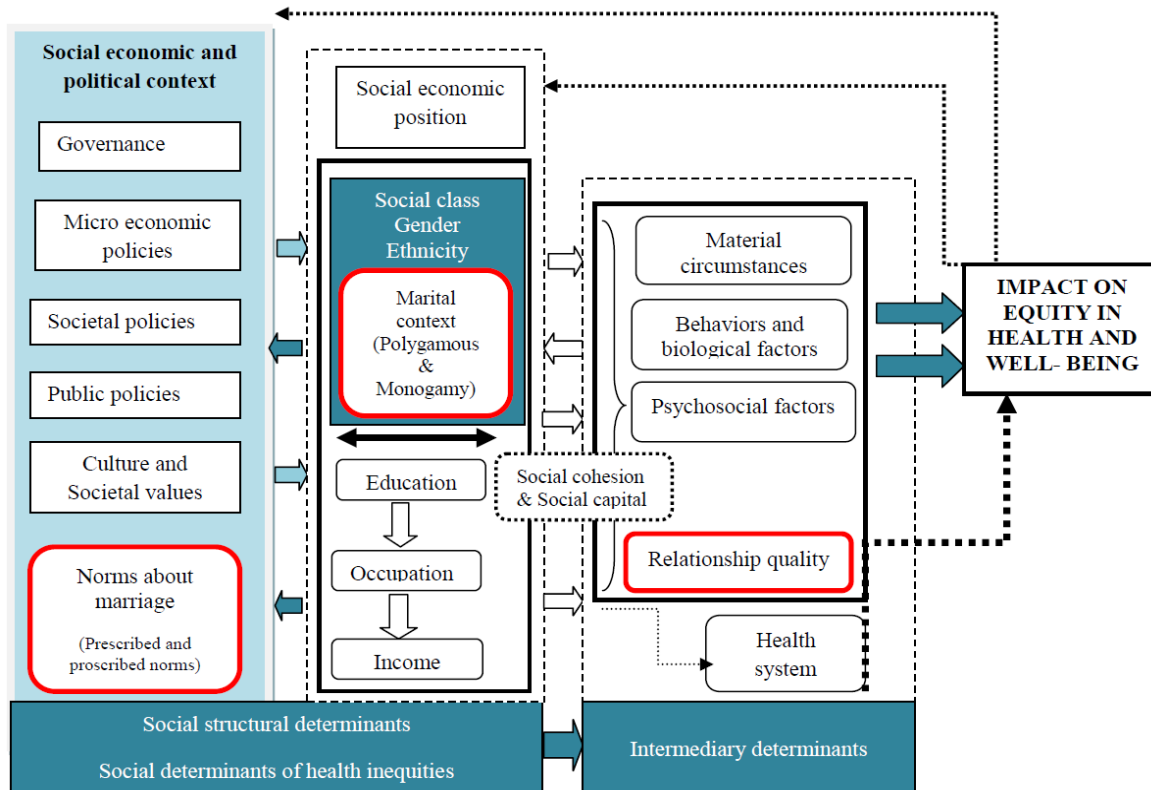


Figure 2-2: Modified WHO-SDH framework used to learn about the social-structural determinants of HIV vulnerability in marriage

2.2 Levels of study investigation within the WHO-SDHs approach

It has been emphasized that a better understanding of the social-structural determinants of HIV vulnerability requires understanding of multiple levels of HIV risk, which requires collection of data from multiple sources on multiple levels of risk to inform combination HIV prevention packages (Baral et al., 2013; Kaufman et al., 2014). Parallel, the WHO-CSDH perspective call for the need to explore the ‘causes of the causes’ as a way to better understand the underlying explanations of health inequity (WHO, 2010). Based on this understanding, this study explored various social determinants (social norms, relationship quality, gender norms and marital status) to understand how they explain various levels of HIV vulnerability among married partners. In figure 2.3 below, in the middle boxes, the bolded red highlighted phrases represents the individual level risk (downward determinants of HIV vulnerability). Specifically the extramarital affairs and safer sex communication belong to the behaviors domains of the WHO-CSDH framework as intermediary determinants of health (Fig: 2.1), the green contents in the middle boxes, point to the type of methods used for investigation, while the black contents in the middle boxes, represents the social-structural determinants (upward determinants) of HIV vulnerability which were explored to explain the individual level risk factors.

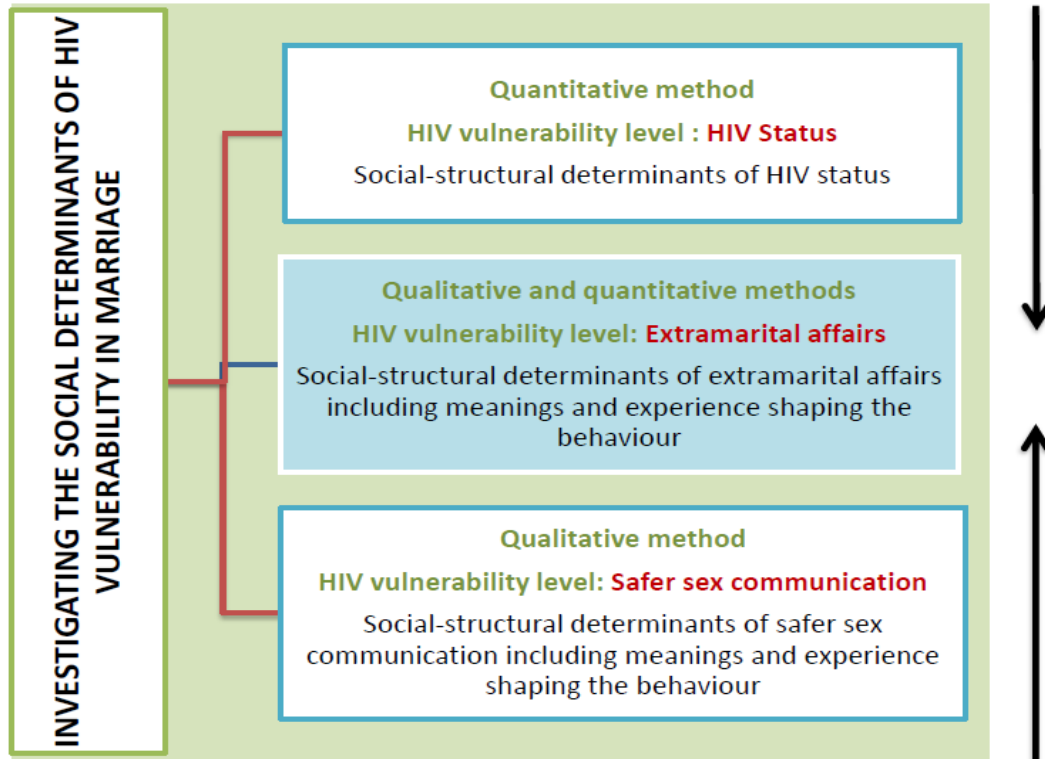


Figure 2-3: levels of study investigation for understanding the SDHs of HIV vulnerability among married partners in Ifakara town

2.3 Social structures

Social-structures are the core constructs within the social-determinants of health perspective. Structural aspects in particular, are considered as the ‘causes of the causes’ since they concert with other social-and individual level risk behaviors to indirectly influence a particular health outcome (Parkhurst, 2014; World Health Organization, 2010). According to Giddens (1984), social structures are responsible for the creation and reproduction of social systems and practices based on the intersection of both structure and agents (Giddens, 1984). Social practices are locally produced by the material conditions, social and environment that both enable and constrain social action (Giddens, 1984). This specific view of local production of behavior and social practices, differentiate Giddens from the psychological view of behavior practices. Structures according to Giddens, are the ‘rules and resources’ embedded in person’s knowledge which restrict or facilitate performance of social actions (Giddens, 1984). “Rules” according to Giddens are norms which inform the agents about the external context, conditions and the consequences of an action. These properties make it possible for the repetition of the social practices across time and space (Giddens, 1984:p.17). Within the broader social science perspective, the social structure is regarded as the patterned social arrangements in the society that are both emergent from and determined by the actions of individuals. They comprise of norms which shape the behavior of individuals at the micro level. At the macro level they comprise of social-economic stratification (e.g., the class structure), social institutions, or, other patterned relations between large social groups.

The social network ties between individuals and organizations forms the meso level of the social structures (Wikipedia, 2016b). The common pattern between Giddens' and the social science perspective of social structure is the existence of **norms and power** which guide the social practice or behaviors of individuals.

Locating the social structures as the determinants of health, Williams et al (2003) point that, the 'social structure' as a concept in earlier medical sociology strongly contributed to the understanding of the sociology of health and illness (Williams, 2003). However, in the contemporary society the concept is now used in the interpretation of health inequalities and their social determinants. Within the informed context of HIV vulnerability, structures are considered as environmental factors that influence which safe behaviors can be chosen. Sumartojo et al. (2000), defines "HIV related structural factors as barriers to, or facilitators of, an individual's HIV prevention behaviors" (Sumartojo, 2000:, p. 3). Other scholars of the social drivers of HIV vulnerability have defined structures as those factors that fundamentally shape patterns of risk behaviors (Blanchard, 2010). Other scholars of the social drivers of HIV vulnerability clarify further that, social-structures include physical, social, cultural, organizational, community, economic, legal, or policy features of the environment that affect HIV infection (Parkhurst, 2014). These factors operate at different societal levels and different distances to influence individual risk and vulnerability to HIV infection. By investigating about the proposition of the intersection between young people's sexual development and social structures, Shoveller (2004) found that sexuality is embedded in social norms and structures which silencing meaningful discussion about sex (Shoverller et al., 2004).

The following proceeding presents the social norms, gender power relation and relationship quality as the social-structural determinants of health and its relationship with social actor's behaviors in the society.

2.4 Social norms as the structural determinants of health

The previous discussion highlights that from the views of sociologists "norms" and "rules" they form part of power structures that determine the practices of behavior and the consequences of not performing certain practices (Giddens, 1984). Social norms are recognized as structural constructs since they reflect rules, systems and power that govern or authorize particular set of behavior in a specific social context. Social norms have been highlighted in the conceptualization of the structural drivers of HIV. When defining the social drivers of HIV vulnerability, Auerbach point that these are 'the core social processes and arrangements reflective of social and cultural norms, that operate around and in concert with individual behaviors and practices to influence HIV epidemics in particular settings' (Auerbach et al., 2011). Unfortunately the WHO-CSDH framework does not explicitly include social norm in the CSDH framework, but rather include social values together with culture under the domain of social economic and political context (Fig:2.1). Usually social norms and social values are assumed to be similar. However, they have different conceptual evaluative meaning. In sociology, social norms denote the rules and regulations developed by a group of people that specify how people must, should, may, should not, and must not behave in various situations. Individual in the society may define some norms and could be considered as crucial in the society.

Most of the social norms are related to actions such as "should " or "should not"; that is, there is some pressure on the individual to conform to the prescribed or proscribed rules to avoid consequences. However there could be some leeway permitted also (Paluck et al., 2010; see <http://www.sociallogyguide.com/basic-concepts/Social-Norms.php>). Values denote a belief about the desirability of a behavior and they provide general guideline for social conduct (Mondal, 2016). Sumner (1906) referred to norms as "folk-ways"; of doing things since they draw a line between right and wrong (Sumner, 1940). From this conceptual definition it is clear that 'norms' specifically indicate what is being prescribed and what is proscribed. Values are not specific. A study in South Africa found that the reported risk behavior among men were significantly associated with men's awareness that other men in the society approve the risk behavior and disapprove condom use (Carey et al., 2011). Social norms are also known to support different types of violence against women (World Health Organization, 2009).

2.5 Gender power relation as a social determinant of health

Gender is determined socially; it is the societal meaning assigned to male and female. Although there is a wide freedom of expectable behaviors for men and women, it is common in each society to find particular roles expected from each sex (Hesse-Biber and Carter, 2004). It has been pointed that people are born female or male but learn to be girls and boys who grow into women and men. This learning process is what makes up gender identity and determines gender roles (WHO, 2002, p.4). The gender roles are acquired through the process of socialization and interaction in a particular society. Gender power relation is considered as a structural construct since it emanate from socially constructed gender norms and stereotypes that create a distinction on what are the roles and the rights of men and women in the society. The report on the International Fund for Agricultural Development (IFAD) defines gender relation as "a complex system of personal and social relations of domination and power through which women and men are socially created and maintained, and through which they gain access to power and material resources or are allocated status within society" (IFAD, 2000, p. 4). Within the social determinants of health, gender relations of power are considered as the root causes of gender inequality and are among the most influential of the social determinants of health. They determine whether people's health needs are acknowledged, whether they have voice or a control over their lives and health and whether they can realize their rights (WHO, 2007). Harmful dimensions of gender power relations that emanate from the ideology of masculinity such as gender based violence have been linked to HIV vulnerability among women in SSA (Gupta, 2000; Jewkes et al., 2010).

2.6 Relationship quality as a social determinant of health

In this thesis relationship quality is conceptualized within the context of intrapersonal and interpersonal relations. Interpersonal relationship refers to patterns of interaction between spouses such as communication, conflict behaviors, and how they spend time with one another. Intrapersonal approach refers to how partners view happiness or satisfaction in a relationship (Reynolds et al., 2014). The scientific study of relationships began during the 1990s which was referred to as 'relationship science' (Reis et al., 2000).

In social science, these relations are based on social commitment and may range in duration from brief to enduring. They are formed based on the context of social, cultural and ties. Relationship ties create a sense of responsibility to the other person, meaning that one may feel obliged to comply to the norms and opinions that guides the behavior of the partner in a relation. A structural concept of relationship is based on “dominant” and “submissive” power relations, which may exist when the two parties possess un equal levels of power. Quality of relationships denote the positive aspects of relationships, such as emotional support provided by significant others including husbands, and the negative aspects of relationships, such as conflict and stress (Umberson and Montez, 2010). Research often refers to the relationship quality in marriage as how happy or satisfied partners are in their relationship (Fincham, 2010; Reynolds et al., 2014). Poor interpersonal and intrapersonal relationship have been linked to poor health outcomes of among married partners, children and the wider society, while the opposite has been linked to well-being (Reynolds et al., 2014). ‘Trust’ between partners and ‘satisfaction’ in a relationship are usually the main measures of relationship quality in research (Cox et al., 2013).

While epidemiological, biomedical, behavior and health policy system analysis provide important description of HIV prevalence, transmission patterns and their risk determinants, they are limited in understanding and addressing the underlying dynamics and dimensions of social conditions and circumstances shaping HIV vulnerability. For example, interventions based on behavior risk aspects such as condom use (ABC), male circumcision, couple-voluntary counseling and testing services, abstinence from multiple partners are important for individual level changes. Individual level changes have limited long-term impact since they may not address the multiple social-structural drivers, intrinsic and embedded nature of sexual risk behaviors (Auerbach et al., 2011; Bellan et al., 2013; Gupta et al., 2008b; Parkhurst, 2014; Parkhurst, 2013).

Consequently, in this thesis contrary to the traditional approach of viewing HIV vulnerability only in the context of epidemiological, behavior and public health risk, the WHO-CSDH framework provide opportunity to examine the pathways in which social norms, relationship quality, gender power relations, marital status as social-structural aspects, influence HIV vulnerability in marriage. In this approach we can illustrate the interface between the social-structural constructs (marital and community constructs) in relation to various levels of HIV vulnerability from the public health point to view (HIV status, extramarital affairs and safer sex communication).

3. Aims and Objectives

This thesis aimed to understand the social-structural determinants of HIV vulnerability among married and cohabiting partners in Ifakara, Kilombero District-Tanzania, and how HIV transmission within this group can be reduced. HIV vulnerability in this thesis comprises of various levels of HIV risk including HIV status, extramarital affairs and safer sex communication between partners.

The literature review section highlights that despite behavior and medical approaches to HIV prevention such as health promotion messages on abstinence from extramarital affairs, promotion of condom use, couple counseling and testing and safer sex dialogue between partners, adoption of these recommended prevention interventions remains limited among married partners. To better understand reasons behind these divergences, this thesis investigates the social-structural determinants of various levels of HIV risk (HIV status, extramarital affairs and safer sex communication) among married and cohabiting partners. Social norms, relationship quality, gender power relations and marital status were the main focus in these explorations as the social determinants of health. This understanding will be used to recommend further research and theory of change relevant for married and cohabiting partners.

To achieve the overall aim, this thesis comprised of the following general and specific objectives:

1. To identify social-structural factors associated with HIV status among married and cohabiting partners (Chapter 5)
2. To investigate and explore the social-structural aspects influencing extramarital affairs among men and women in marital and cohabiting relations. 2b. To determine the association between extramarital affairs and HIV status of married and cohabiting men and women (Chapter 6)
3. To explore the meaning and experiences regarding safer sex communication among polygamous and monogamous individuals pointing to the possible factors influencing safer sex communication among spouses (Chapter 7)

4. Study setting and methods

This study was implemented in collaboration with the MZIMA community health surveillance cohort study conducted from 2012 to 2015 under the umbrella of the Ifakara Health Institute (IHI) with technical and funding support from the Swiss Tropical and Public Health Institute (Swiss TPH) and Global Health Action. The main objective of MZIMA cohort is to provide estimates of communicable and non-communicable disease prevalence and incidence, and identify behavior and social determinants for disease and for health care seeking.

A description of the study area and the methodology used in this study is presented in the subsequent section.

4.1. Study area

The study for this thesis was implemented in two areas of Ifakara town (Fig: 4.1), i.e. Viwanja sitini and Mlabani of Kilombero district, Morogoro region in Southern Tanzania. The Ifakara town is part of the Ifakara-urban-Health Demographic Surveillance System (IU-HDSS). Ifakara town is semi-urban and a centre of business and social activities. The total population of the IU-DSS is 45,000 individuals. The Kilombero district is a largely agricultural area and borders another district called Ulanga and the two districts are separated by Kilombero river.



Figure 4-1: A map of Ifakara town, Tanzania

The Ifakara town is heterogeneous, hosting more than 9 ethnic groups coming from other parts of the country (Geubbels et al., 2015). Minja et al point that colonial settlement policies and the Socialist's villagization (ujamaa) brought inhabitants of periphery locations to organized villages in the Kilombero Valley in the early 1970s (Minja et al., 2001). The three most common ethnic groups are the Wandamba, the Wapogoro, and the Wambungu. These tribes are considered as 'indigenous', while other groups like the Sukuma, Chagga, Bena, Hehe have recently moved into the area (Minja et al., 2001). Despite existing ethnic languages, Kiswahili is widely spoken in the area. Islam and Christianity are the predominant religions (Minja et al., 2001). Farming is the main economic activity for men and women in Ifakara. Some men engage in fishing and casual labor as additional source of income, while women engage in petty trade and local brewery as their other side of income (Hausmann et al., 2000). Kilombero valley highly encourages larger farming activities including rice, maize, banana and cassava. Most people in Ifakara own larger farms in the nearest sites or far areas of up to 45 to 65 km from their homes. During rice planting and harvesting seasons most people moves to these farming sites (Hetzl et al., 2008). During harvest seasons buyers from various parts of the country they come to Ifakara to buy rice (Hausmann, 2000). The presence of Tanzania Zambia Railway (TAZARA) since 1970 and the improved road infrastructures has encouraged the growing of commercial activities in Ifakara town, Mbeya and Dar es Salaam. Despite these opportunities the life of people in Ifakara is still poor.

Malaria is highly endemic especially during rainy seasons (Russell et al., 2013). Beside malaria, recent studies suggest that HIV is also substantial in the area. The HIV prevalence among adults in Ifakara town stands at 6.5% (Abdul et al., 2014) which is higher than the national HIV prevalence (5.4%) (THMIS et al., 2012). The MZIMA HIV surveillance reported also shows that in Ifakara town, HIV prevalence is higher among the currently married couples as compared to the unmarried couples. The uptake of couple counseling and testing is also low in Ifakara town (Abdul et al., 2014).

The Ifakara town is well served by a hierarchy of health facilities ranging from the dispensaries, health centers and district hospital. There are private and government health facilities in the area offering regular outpatient services. Responding to HIV disease in the area, in the year 2004 the Kilombero and Ulanga Antiretroviral Cohort (KIULARCO) at Care and Treatment Clinic (CTC) of Saint Francis Designated District Hospital in Ifakara town was established. This center is also known as the Chronic Disease Clinic of Ifakara (CDCI). The center was established by the Swiss Tropical and Public health Institute in collaboration with the government of Tanzania, Ifakara Health Institute (IHI) and St. Francis Hospital. The purpose of the CDCI is to strengthen the human resources and the HIV Voluntary Counseling and Testing services (HVCT) in order to provide opportunity for people in Kilombero and Ulanga districts to know their HIV status and make the right decisions regarding their health including enrollment in the treatment program. The HVCT center at the CDCI provides both couple and individual counseling and testing services. The center also aim to tighten the link of the TB and HIV/AIDS program in order to target all diseases The CDCI report shows that there were over 3082 patients enrolled into the HIV/AIDS care and treatment program. This number was an increase from 2692 in March, 2008 (IHI, 2008).

4.2. Methods

To better understand the social determinants of HIV vulnerability among married partners, this thesis applied an explanatory mixed method approach. In this process, qualitative data was used to explain and elaborate more on the results of the quantitative study (Creswell, 2013). Creswell (2013), emphasizes that thorough assessment and justification should be made before decisions to embark on a mixed method design or a particular type of a mixed method design (Creswell, 2013).

An explanatory mixed method approach was deemed necessary since this thesis is nested within the MZIMA surveillance cohort with only a quantitative data. The primary objective of MZIMA study was not to investigate HIV in marriage but in all adults. Although, the MZIMA data provided an indication that it could provide a snapshot of statistical data regarding HIV in marriage. However, from the intuition, experience and observations point of view, it was potentially inadequate to broadly capture the contextual explanations on the drivers of HIV in marriage. We hypothesized that HIV in marriage could be influenced by the social aspects beyond what the MZIMA quantitative data could offer. In addition, the preliminary analysis of MZIMA data set for the determinants of certain health outcomes, presented some predictors which were difficult to interpret. Therefore we decided to triangulate the MZIMA data with qualitative exploration.

Data triangulation is a strategy for increasing the validity of evaluating the research findings by employing data collected from different sources at different time, different location and from different people (Creswell, 2014; Rahman, 2012). Hence, this study employed quantitative and qualitative methods to overcome intrinsic biases emerged from using only a single –method and allow the methods to complement each other's. Scholars of the social drivers of HIV vulnerability also recommends multiple methods to be used when investigating the determinants of HIV in order to explore multiple risk factors for informed combination prevention intervention packages (Baral et al., 2013; Parkhurst, 2014). Considering the sensitivity of the study topic the qualitative method was appropriate in this thesis since the open-ended questions and probing embraced by qualitative exploration, provides opportunity to learn at in-depth the salient emotional sentiments, feelings, values, and perceptions that underlie and shape adoption of behaviors (Creswell, 2014; Sofaer,1999). Qualitative study was also an important method for this thesis since it was hoped to provide contextual explanations for the findings generated from the quantitative study and explore more about other potential determinants of HIV vulnerability in marriage which it was not possible to capture from the quantitative study. Qualitative tool like In-depth Interviews (IDIs) allowed us to uncover partner's experience regarding marital life, safer sex dialogue, extramarital affairs, condom use with extramarital partner and other relationship aspects which would be impossible for married partners to talk in a wider group. On the other hand, the focus group discussions (FGDs) allowed insights into general group norms or collective views, beliefs regarding marriage, and the adoption of HIV prevention strategies in marriage (Creswell , 2014). Quantitative method allows capturing a quick and good snapshot of population statistics regarding the distribution of aspects associated with health outcome. However the method is not dynamic and thus limited in terms of explaining why and how certain patterns relate to the

outcome measured. Sometimes, it is difficult to interpret the statistical observations unless you explore from the qualitative inquiry (Creswell, 2013).

Specifically triangulation of views and data was applied to investigate the social-structural determinants of HIV vulnerability by exploring how the social norms, gender power relation, marital status and relationship quality contribute to partner's extramarital affairs, safer sex dialogue and HIV status. In this context the triangulation process allows integration of insights and perspectives from different dimensions in exploring the thesis aims and objectives by contributing to a broader and deeper understanding of aspects that contribute to HIV vulnerability in marriage.

This thesis used secondary data for quantitative studies and primary data for qualitative studies. Analysis of secondary data, and collection of primary (qualitative) data in the field were conducted sequentially in stages to allow iterative process (back and forth investigations) which was important for improving each subsequent analysis. The analysis of secondary data began in April 2014 while the qualitative field work began in February 2015 (Fig: 4.2).

Exploratory stage: Literature review and information discussions with national stakeholders for HIV prevention

During the exploratory stage, we reviewed some relevant documents regarding the status of HIV globally, regionally and at the national. This was followed by the informal discussions with the representatives responsible for the HIV/AIDS programs in Tanzania. This stage helped to inquire about HIV in marriage, what has been done in research, and the HIV prevention interventions available.

The key aspects identified during this stage include the following:

- HIV among married and stable couple is substantial in SSA including Tanzania
- Extramarital affairs are the common sexual pattern responsible for HIV transmission in marriage. However, there is limited information about whether couples use condom during extramarital affairs
- There is potentially limited information about safer sex dialogue between marital partners
- Most of the HIV research is widely implemented among adolescents and adults, but not in the context of marital and cohabiting relation
- Limited research on the social drivers of HIV vulnerability among married and cohabiting couples in Tanzania
- Lack of comprehensive HIV prevention interventions that targets married and cohabiting partners

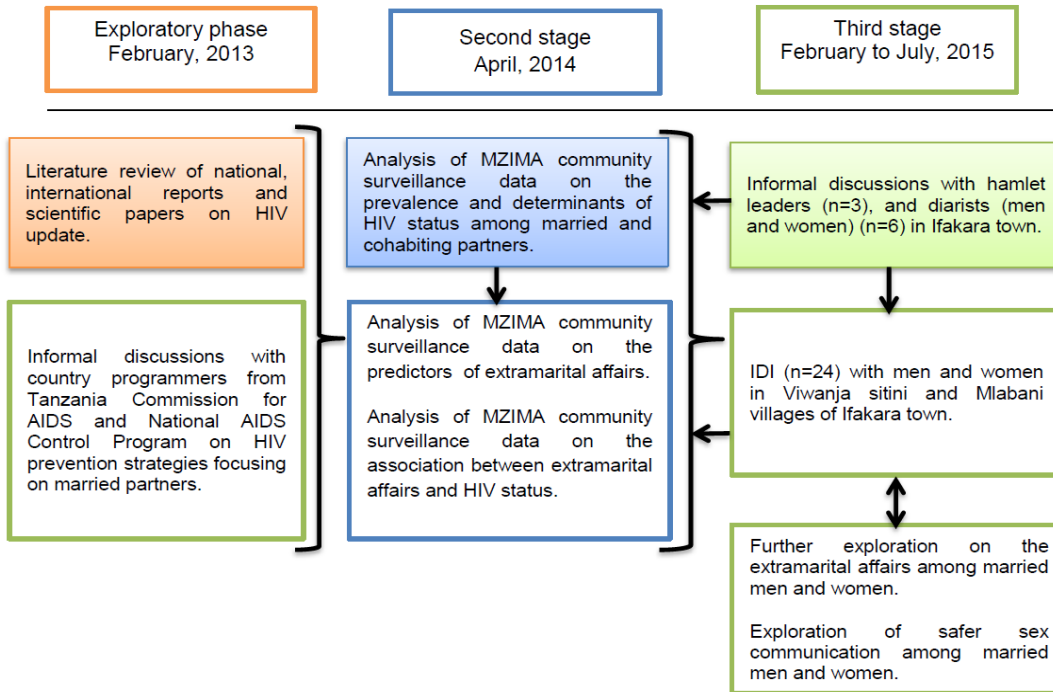


Figure 4-2: Summary of study methods

Second stage: Analysis of MZIMA quantitative data

From the observations of the literature review and information discussions with the national stakeholders in HIV, and the nature of MZIMA data set we arrived into the following research questions:

- 1) what are the social-structural aspects associated with the HIV status of married men and women in Ifakara town?, we were specifically interested to understand whether marital characteristics (re-married, polygamous and monogamous) and woman’s condoms decision power (gender norm) have any statistical significant influence on HIV status of married partners 1b) does HIV prevalence among married men and women differ by gender?
- 2) what and how are the social-structural factors influencing extramarital affairs of married men and women in Ifakara town? (the variables of interest in the quantitative data comprised of “being a member of a village community bank (VICOBA) microfinance, education and having income), aspects of interest in the qualitative exploration comprised of (marital relationship quality, social norms, gender power relation) 2b) is there any association between extramarital affair and the HIV in this context?
- 3) how is safer sex communication between married partners is being shaped by marital context (polygamous, monogamous) relationship quality, social norms and gender power relation?

From April 2014 the MZIMA data was explored. We examined its strength in addressing the above research questions. The MZIMA data was limited in providing understanding about the research question 3. This research question could be best explored through qualitative study. Hence, in this period we only analyzed the prevalence and associates of HIV among married partners. We considered chapter 5 as a background paper for this thesis. From this analysis we found that 'number of multiple sexual partners' was one of the strong predictors of HIV status for married men and women. The results of this study are reported in Chapter 5. The finding that the number of multiple sexual partners is significantly associated with HIV status of married men and women; lend support to other findings in Tanzania regarding higher prevalence of extramarital affairs among married men and women (Maswanya et al., 2010). Since the study by Maswanya et al did not present the drivers of extramarital affairs, there was a clear justification to investigate on factors that influence extramarital affairs among married men and women enrolled in the MZIMA data base. In addition, abstinence from extramarital affairs is highly promoted as one of the main HIV prevention strategies for married couples. We then analyzed the predictors of extramarital affairs parallel with exploring on how this behavior is associated with HIV status of married men and women. The results of these analyses and detailed description of statistical procedures are reported in Chapter 6. From the above analysis we noted that the factors which were associated with extramarital affairs required further explanations. Hence to improve understanding of various predictors of extramarital affairs, and to address the research question 3 which could not be explored using the MZIMA quantitative data, we carried out the qualitative study from February to December 2015.

Third stage: Informal discussion with the hamlet leaders and diarists in Ifakara town

As an entry point to the interviews and discussions with the community members, the informal discussions with hamlet leaders and the diarists were carried on. In Tanzania, the hamlet leaders are the closest community leaders to the households. Each hamlet can have an approximated 20 households. The hamlet leaders are very influential and trusted at the level of households. Building rapport with the hamlet leaders helped the author to understand the marital dynamics exist in the study area i.e polygamous, monogamous, polygamous Muslims vs Christians. It also helped to obtain some insights on how best to approach the married couples i.e the hamlet leaders advised that for the interviews conducted in the households, before approaching the wife for interview, I should first request permission from the husband and explain to the husband the objective of the interview. The hamlet leaders also advised that during the introduction stage the author should disclose her marital status as being 'married' as this will help the participants to easily identify with the author. The hamlet leaders also assisted in the recruitment of the participants for the interviews and discussions. Diarists (men and women) were the informers of the MZIMA surveillance study. They informed the MZIMA staff, about how people in the community perceive the MZIMA project. In this thesis, the Diarists assisted in providing preliminary impression about the study topics; extramarital affairs, what are the names used to refer to it. For example the diarists said that the common name used to refer extramarital affair is 'Kidumu', meaning a gallon which is used to carry water or oil. The informal discussions provided an entry point to begin the formal interviews and the discussions.

In-depth interviews and Focus group discussions with married men and women in Ifakara town

In-depth interviews with 24 married men and women and 6 focus group discussions were conducted from February to December 2015. During the interviews and discussions we explored experiences of marital relation such as how happy or unhappy partners are in marriage, and how husbands and wives relate and decide on various aspects particularly on the adoption of safer sex aspects. We also explored on (1) social norms and partner's experience regarding safer sex communication in monogamous and polygamous union, (5) personal experience regarding extramarital affairs (6) community norms and opinions regarding extramarital affairs and safer sex communication, (7) condom use with extramarital affairs, (8) views regarding HIV transmission and prevention in marriage.

A semi-structured guide with pre-determined themes was used to guide the interviews and the discussions in Kiswahili language. The tools had similar topics but framed differently to capture the objective of each tool. Before this process the guide was piloted in a different village outside the study area. The guiding tool helped to maintain the scope of the discussion and interview and ensured that the main themes were adequately explored since participants had the freedom of expressing their opinions freely. Most of the interviews and discussions were conducted by the study investigator (author) assisted by a married male research assistant (RA) - a university graduate in sociallogy with experience in qualitative studies, and the MZIMA-community liaison officer who is a married woman, with background in community development and experience in qualitative research. Due to the sensitivity of the topic (extramarital affairs), the vignette were used to introduce the topic in order to make the topic less personal and encourage participants to freely provide their own opinion regarding extramarital affairs. The vignette was composed in the following style (*There was a couple in village 'A'. This couple used to be very much in love. They stayed in this way for a very long time. But it reached a time when the man started realizing that his wife was having some affairs with another man. Seeing that his wife was doing that, the husband also began dating other women in the nearby village*). After the vignette was presented, the participants were spontaneously asked whether the story depict some characters in their community, when they were comfortable to talk about the topic, the author asked about whether they could identify themselves with the scenario presented in the vignette. The discussions and interviews conducted at the venues preferred by the participants and were recorded based on participant's consent. To minimize potential conflict and allow freedom of expression, we interviewed married men and women who were not couple (not from the same union). Where the participants refused to be recorded we used the expanded notes (Halcomb, 2006), to note down the interviews. Later the recorded interviews and the expanded notes were considered for analysis. To minimize psycho-social distress and anxiety, debriefing among researchers occurred frequently.

Results of the qualitative study are reported in Chapter 6 and 7. Participants were given a small grocery package as a compensation for transport i.e hiring of bicycles to the interview venue.

Trustworthiness

This qualitative study considered credibility, dependability, transferability and confirmability, which are the elements of trustworthiness (Anney, 2014). Credibility of qualitative study in this thesis was ensured by having appropriate methods for data collection and the study staff, debriefing, probing, inter-coder agreement, triangulation of methods (IDIs and FGDs), familiarity with the study community, the member checking method (Fig:4.3). The member checking method was conducted after the data analysis in which participants were asked to check for the accuracy of the generated themes to allow clarity on the interpretation and practicality of various key themes and sub themes. Participants provided feedback, which helped to improve the accuracy of themes. Detail description of how the qualitative study was carried on and the justification for the choices of the tools is provided in this thesis to allow other researchers use some similar procedures which ensures dependability and confirmability. Verbatim quotations were used for the transferability of the findings for further synthesis, discussions and implications which enhanced dependability of results.



Figure 4-3: Member check for data validation

4.3. Data entry and analysis

Building on the principle of grounded theory (Bulawa, 2014), the verbatim transcribed data was mainly analyzed thematically by the author. Transcripts were frequently reviewed, compared, and discordances were resolved by going back to the original tapes. While reviewing the transcripts emerging patterns were identified and coded. Coding began as an open coding assigned next to the study themes or ideas found in segments of the transcript. Inductive and deductive codes were deemed necessary during this analysis process to enhance the analytical meaning of the emerged themes (Fereday, 2006).

Tentative themes developed by the study investigator from the analytical process were compared with others identified by another independent social scientist to check for validity. Finally the categories and sub-categories were labeled analytically by adopting the constructs from the social determinants of health framework. N-VIVO program version 12 for qualitative data analysis was used to support systematic data coding. All data were analyzed in Kiswahili, and relevant quotes were translated into English for the purpose of the study.

Open Data Kit software in tablet computers was used to support the collection of data from participants in the MZIMA community surveillance. The data from the tablets were synchronized into the stand by laptop located in the field site. All analyses were performed using STATA version 14 (StataCorp, USA).

Ethics

This study was nested within the MZIMA community health surveillance project which was cleared by the National Medical Research Coordinating Committee in Tanzania (NIMR/HQ/R.81Vol.IX/1320). The qualitative component also received approval from the Ifakara Health Institute Review Board (approval number IHI/IRB/AM/01-2014). Later the project was further approved by the Ethikkommission Nordwest- und Zentralschweiz.in Basel, Switzerland (EKNZ: UBE-15/36). The Ifakara local administrative unit (Hamlet leaders) and the District Medical Officer (DMO) were informed about all the activities and authorized them. The informed consent (oral and written) was obtained from all the study participants. The informed consent stipulated clearly about the study purpose, potential risks, benefits and their rights to withdraw from the study at any time.

**5. Prevalence and social drivers of HIV among married and
cohabitating heterosexual adults in south-eastern Tanzania:
analysis of adult health community cohort data**

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5.1. Abstract

Background

In sub-Saharan Africa, the prevalence of HIV among married and cohabiting couples is substantial. Information about the underlying social drivers of HIV transmission in couples is critical for the development of structural approaches to HIV prevention, but not readily available. We explored the association between social drivers, practices, and HIV status among stable couples in Ifakara, Tanzania.

Methods

Using a cross-sectional design, we analyzed data from a sample of 3,988 married or cohabiting individuals, aged 15 years and older from the MZIMA adult health community cohort study of 2013. Social demographic factors (sex, income, age, and education), gender norms (perceived acceptability for a wife to ask her partner to use a condom when she knows he is HIV positive), marriage characteristics (being in a monogamous or a polygamous marriage, being remarried), sexual behavior practices (lifetime number of sexual partners and concurrent sexual partners), health system factors (ever used voluntary HIV counseling and testing), and lifestyle patterns (alcohol use) were used to explore the odds of being HIV positive, with 95% confidence intervals.

Results

Prevalence of HIV/AIDS was 6.7% (5.9% males and 7.1% females). Gender norms, that is, perception that a woman is not justified to ask her husband to use a condom even when she knows he has a disease (adjusted odds ratio AOR=1.51, 95% CI 1.06-2.17), marital characteristics, that is, being remarried (AOR=1.49, 95% CI 1.08-2.04), and sexual behavior characteristics, that is, lifetime number of sexual partners (2-4; AOR=1.47, 95% CI 1.02-2.11; 5+: AOR=1.61, 95% CI 1.05-2.47) were the main independent predictors of HIV prevalence.

Conclusions

Among married or cohabiting individuals, the key social drivers/practices that appeared to make people more vulnerable for HIV are gender norms, marriage characteristics (being remarried), and sexual behavior practices (lifetime number of sexual partners). Married and cohabiting couples are an important target group for HIV prevention efforts in Tanzania. In addition to individual interventions, structural interventions are needed to address the gender norms, remarriage, and sexual practices that shape differential vulnerability to HIV in stable couples.

5.2. Background

Sub-Saharan Africa (SSA) remains the region with the highest prevalence of HIV infections worldwide (UNAIDS, 2013). More than half of the adults in SSA are living in stable marital or cohabiting heterosexual relationships (Chemaitelly et al., 2012). The HIV prevalence among married and cohabiting couples is substantial (Bellan et al., 2013; Chemaitelly et al., 2014; Dunkle et al., 2008; Guthrie et al., 2007). Moreover, close to two-thirds of the new HIV infections occur in stable married or cohabiting couples (Chemaitelly et al., 2014). Consequently, married and cohabiting heterosexuals constitute an important target population for HIV prevention efforts in the region.

Transmission of HIV within couples can be reduced by individual interventions such as voluntary HIV counseling and testing (VCT), condom provision and early antiretroviral treatment (ART) (Allen et al., 1992; Burton et al., 2010; Cohen et al., 2011; Kairania et al., 2010). There is increasing recognition, however, that these HIV prevention efforts cannot succeed in the long term without structural approaches that address societal or social drivers that shape people's vulnerability for HIV (Auerbach et al., 2011; Gupta et al., 2008b; Parkhurst, 2014). According to Auerbach et al., the concept "social drivers" refers to "the core social processes and arrangements reflective of social and cultural norms, values, networks, structures and institutions that operate around and in concert with individuals' behaviors and practices to influence HIV epidemics in particular settings" (Auerbach et al., 2011). As such, according to these authors, the concept social drivers shows similarity with what has been referred to as 'social determinants' in the WHO framework of social determinants of health (World Health Organization, 2010). In this paper, we will use the concept as social drivers as used by Auerbach et al. Research on social drivers of HIV in Africa is still in its infancy and results are often inconclusive (Dean and Fenton, 2010). However, a number of social drivers were found to be linked to the inequitable distribution of HIV prevalence within or between various populations in this region. Besides biological sex (HIV rates are higher in women than in men) (UNAIDS, 2013) some of the previously identified social drivers that may increase the vulnerability for HIV infections include social and demographic factors (e.g., poverty and level of education) (UNAIDS, WHO, 2012), gender inequality (Kayeyi et al., 2012; Maman et al., 2010; van der Straten et al., 1995), sexual behavior practices (e.g., the number of lifetime and concurrent sexual partners or the lack of male circumcision (Kaiser et al., 2011; Mah and Halperin, 2010; Reniers and Watkins, 2010; Tanser et al., 2011) and health system factors (e.g., limited access to HIV prevention or treatment programs).

In Tanzania and elsewhere, evidence on social drivers that influence the differential distribution of HIV among individuals living in stable relationships is still limited, and mainly based on qualitative studies among married women (Marlow et al., 2010; Mkandawire et al., 2013; Nyamhanga and Frumence, 2014). To build more comprehensive/structural approaches to HIV prevention in couples, the existing evidence base needs to be completed with quantitative data. In this paper we analyzed health and demographic surveillance data from a community cohort study that was conducted in the Ifakara region in Tanzania in 2012/2013.

To help inform structural approaches to HIV prevention, our analysis focused on married or cohabiting men and women in the cohort and we assessed how a number of previously identified social drivers of HIV were associated with the prevalence of HIV in this group.

We hope that this paper will provide additional information to guide HIV programmers on marital arrangements that need to be targeted when addressing HIV in marital. Also the paper may inform about the need to strengthen appropriate HIV prevention strategies relevant to spouses in marital relations.

5.3. Methods

Marriage in Tanzania

During the early postcolonial period customary and Islamic law governed the area of family law in Tanzania. In 1971, Tanzania adopted the Law of Marriage Act (LMA) (URT, 1971). This Act integrated customary and Islamic law into civil law but provided women with (somewhat) better civil rights upon marriage and divorce.

The LMA defines marriage as “the voluntary union of a man and a woman, intended to last for their joint lives”. Minimum age requirements for marriage are 18 for men and 15 for women. A marriage may either be monogamous or polygamous. Polygamous marriages are only allowed to men. Marriages may be converted to polygamous or monogamous with the wife’s consent. Polygamy in Tanzania can also include “unofficial” relationships, whereby men marry one woman by statutory law but form extra-legal domestic and sexual unions with other women. Called “unofficial” or “secondary” co-wives, these women are de facto married in that they are in a regular sexual union with one man financially maintained by him and have children whose paternity he acknowledges (Howland and Koenen, 2014; URT, 1971). About a quarter of the women in Tanzania live in polygamous marriages (Howland and Koenen, 2014).

The LMA also provides separation and divorce provisions and rules for maintenance of women and children upon separation or divorce. Although the law was seen as a milestone in the fight for women’s rights in Tanzania in 1971, it has also been widely criticized for maintaining certain gender discriminatory social practices such as polygamy for men and different marriage ages for men and women (Howland and Koenen, 2014) .

The Ifakara MZIMA adult health community cohort

This study uses data from individuals in married or cohabiting partnerships who participated in MZIMA community surveillance chronic disease cohort study (Abdul et al., 2014). The MZIMA study is a repeated population-based household survey, involving a representative cohort of persons aged 15 years and older from the Ifakara region. The MZIMA study was set up to identify the prevalence, incidence and determinants of non-communicable diseases and HIV over time, as well as health seeking behavior of the affected population, in Ifakara town, a the district capital of the Kilombero district of the Morogoro region in Southern Tanzania. Data were collected in two areas of the Ifakara Urban Health and Demographic Surveillance System (HDSS) located in Ifakara town, namely the villages Viwanja Sitini and Mlabani (Geubbels et al., 2015).

Study design and data collection

This study has cross sectional design, using data from questionnaires and HIV tests from the MZIMA study. The fieldwork for first round of the MZIMA study, which took place between April 2012 to April 2013, was conducted by a team of 18 research assistants, 3 field supervisors, 5 professional counselors, 7 professional nurses, 3 clinical officers, 1 laboratory technician, 1 medical sociologist, 1 epidemiologist, 1 statistician and 1 community liaison officer. Prior to the field work, the field team received a two weeks training. Prior to the field work, the field team received 2-week training. The training was meant to inform the team members about the design and the purpose of the MZIMA community health cohort study; their specific roles; and on how to implement the study tools and standard operating procedures, data quality assurance measures, and appropriate research ethics. Field team members identified participants and collected baseline data during household visits.

During the first household visit, the research team asked household heads for their initial consent to carry out research activities in his/ her premises. Later on, individual informed consent was also obtained from household members who were eligible for the study. Separate consent was obtained for the provision and storage of verbal survey data, blood specimens, and for conducting HIV tests on those specimens. Using standardized questionnaires, field workers held face-to-face interviews in the local Kiswahili language to collect data on health, social demographic and behavioral characteristics including sexual behaviors of the selected study participants.

Open Data Kit software in tablet computers was used to support the collection and entering of the data. Subsequently, professional nurses, who were trained for this task, took venous blood samples from participants using a Vacutainer needle. Finally, all participants were offered the possibility of receiving voluntary counseling and testing, according to the national guidelines (Ministry of Health and Social Welfare, 2005). Interviews were held before the blood tests and HIV counseling sessions to avoid social desirability bias. The collected blood specimens were stored in EDTA Vacutainer tubes. Immediately after each research visit, these tubes were transported in cooler boxes to the main Ifakara Health Institute laboratory, which is located about 1 km from the field sites. Questionnaire data were checked through a series of internal consistency and range checks to identify any illogical responses. Questionnaire results and blood samples were linked to an individual through unique identification numbers.

During the first round of the MZIMA cohort study 8,734 were interviewed, 92.9% of whom provided blood samples for HIV testing (Fig. 5.1). Participants in the cohort were defined as being married or cohabiting if they had indicated on the questionnaire that their marital status was 'officially' married or cohabiting. This corresponds to the definition of marriage/cohabitation in the LMA (URT, 1971). Because we aimed to investigate factors that make people in stable relationships vulnerable for HIV, in the present study we only included data from the MZIMA cohort participants who said they were officially married or cohabiting (49.2%).

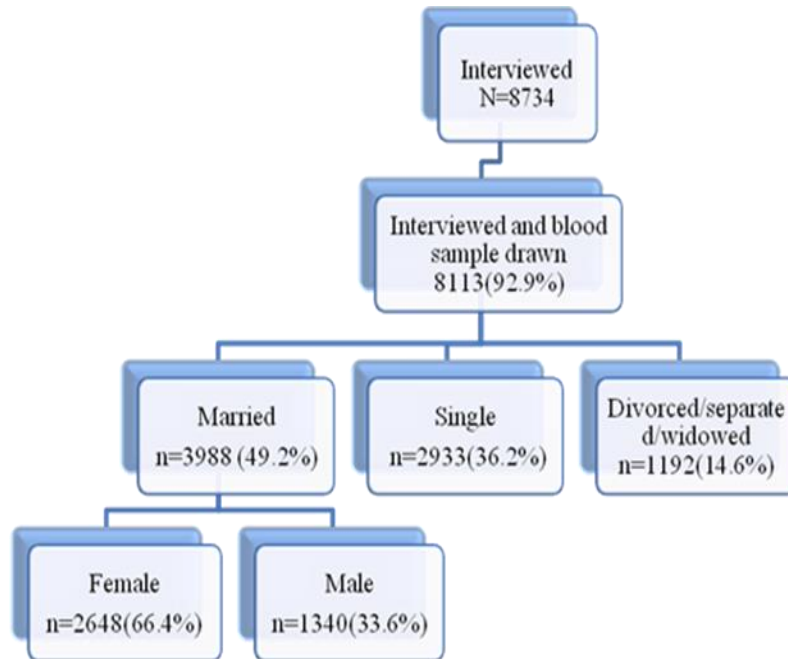


Figure 5-1: Participant flow diagram

Variables and measures

Box 1 describes the main variables used in the present study. HIV status was the main outcome or dependent variable. To establish HIV status laboratory technicians tested all blood samples for HIV-1 antibodies using two consecutive Elisa tests (Vironostika HIV Ag/Ab antigen/antibody and Vironostika HIV Uni-Form II plus 0, ELISA; Vironostika†, Biome´rieux BV, Boxtel, The Netherlands). Samples with two positive tests were considered HIV positive. HIV status was defined as a binary variable, with 1 indicating HIV positive and 0 indicating HIV negative.

Based on a review of previous literature on social drivers of HIV (Auerbach et al., 2011; Parkhurst, 2012; Seeley et al., 2012) and the WHO social determinants of health framework (WHO, 2010) We selected six groups of items from the MZIMA self-report questionnaire as independent predictor variables for analyzing the impact of social drivers on HIV status in couples: 1) social and demographic characteristics; 2) gender norms; 3) marriage characteristics; 4) sexual behavior characteristics; 5) health care utilization characteristics; and 6) lifestyle characteristics. The selected variables for group 1 refer to social demographic characteristics which are fixed and not directly amenable to change through interventions. We included these variables in this study to provide background information on the study population. The selected variables for groups 2-6 refer to social practices/ drivers that are ‘socially constructed’ and may therefore be potentially relevant for the development of structural interventions to prevent HIV.

Box 1. Variables evaluated in the analysis.

Dependent variable	HIV positive (yes/no)
Independent variables	<p>1. Social and demographic characteristics:</p> <ul style="list-style-type: none"> • sex (men/women) • age (4 age categories) • religion (Muslim, Christian-catholic, Christian-other, other) • ethnicity (North -Western, North- Eastern and Southern) • employment (being engaged in income generating activity, yes/no) • education (received formal education, yes/no) <p>2. Gender norms:</p> <ul style="list-style-type: none"> • “a woman can ask her husband to use a condom when she know he has a disease (yes, no) <p>3. Marriage characteristics:</p> <ul style="list-style-type: none"> • “being in a polygamous in or a monogamous marriage” (yes/no) • “being in a first or subsequent (second) marriage” (yes/no). <p>4. Sexual behavior characteristics:</p> <ul style="list-style-type: none"> • number of lifetime sexual partners (1, 2-4, >=5) • “used condom at first sex” (yes/no). • concurrent partnership (yes/no) <p>5. Health care utilization:</p> <ul style="list-style-type: none"> • “ever received VCT” (yes/no). <p>6. Lifestyle characteristics:</p> <p>“ever drank alcohol”(yes/no)</p>

Statistical analyses

All married or cohabiting individuals from the MZIMA cohort with complete data for interviews and HIV status were included in the analysis (Fig. 10). The analysis sample for this study consisted of 3,988 individuals of age 15 years and older, 267 of whom had (positive) HIV outcomes. This is sufficient to perform multivariable statistical analysis with adequate statistical power, when using Peduzzi’s (Peduzzi et al., 1996) rule of needing at least 10 outcome events per covariate included in the multivariable model. All analyses were performed using STATA version 11 (StataCorp, USA). Descriptive statistics were used to list outcomes for all variables. Then bivariate analyses (cross tabulation) were conducted to analyze the associations between the dependent variable - HIV status- and each of the independent variables.

The strengths of the associations between the dependent and independent variables were tested using the Pearson chi-square tests, because all variables were categorical. Associations were regarded statistically significant if the p-value was < 0.05. Finally, multivariate logistic regression analysis was performed to calculate the adjusted odds ratios (AOR) and 95% confidence interval (CI), to identify independent predictors of HIV infection among the study population. The model used sex and level of education as fixed a priori covariates in all models. Selection of the other

variables for the multivariate analyses was based on their ability to improve the overall model using log likelihood ratio test (Casella and Berger, 2002). Statistical interactions between variables of interest were also assessed. Odds ratios, their corresponding 95% confidence intervals, and p-values were reported for the final model.

Ethical statement

The MZIMA surveillance study was approved by the Tanzanian Medical Research Coordinating Committee (approval number NIMR/HQ/R.8a1Vol. IX/I320) and by the Ifakara Health Institute Review Board (approval number IHI/IRB/AM/01-2014). Participants were asked to indicate their informed consent by signing or providing their thumb finger print in the presence of a witness, after they had read and understood the contents stipulated in the informed consent form.

5.4. Results

Participant's characteristics

Table 5.1 describes the characteristics of study participants. One-third (33.6%) were male and two-thirds (66.4%) were female. Although all participants lived in Ifakara town at the time of study, most (89%) participants reported to have originated from the southern parts of the country. The mean age of the participants was 38.4 (914.5) years, ranging from 14 to 99. The majority (87.6%) had received a formal education and 72.9% were performing income-generating activity. More than half (52.3%) of participants were Christians, whereas 39.1% were Muslims. Most participants (97.39%) were living in a monogamous relationship.

Table 5-1: Frequency distribution of currently married men and women in Ifakara, Tanzania (n = 3,737)

Variable	Number of respondents (n)	Percent (%)
TOTAL	3,988	100.0
Social and demographic characteristics		
Sex		
Male	1,340	33.6
Female	2,648	66.4
Age (years)*		
≤20	175	4.4
21-30	1,265	31.8
31-40	1,159	29.1
41-50	613	15.4
50+	770	19.3
Mean = 38.4, SD = 14.5, Min = 13, Max = 99	-	-
Performs any income-generating activity?		
Yes	2,909	72.9
No	1,079	27.1
Ever had formal education?		
Yes	3,494	87.6
No	494	12.4

Prevalence and Social drivers of HIV status

Religion		
Muslim	1,559	39.1
Christian-Catholic	2,087	52.3
Other Christian	322	8.1
Other/none	20	0.5
Ethnic group		
Northern Western	307	7.7
Northern Eastern	133	3.3
Southern	3,548	89.0
Marital characteristics		
Marital status		
Polygamous	104	2.61
Monogamous	3884	97.39
Re-married?		
Yes	674	16.9
No	3,314	83.1
Sexual behavior characteristics		
Life-time number of sexual partners*		
1	901	24.1
2-4	1,837	49.2
5+	999	26.7
Mean = 4.6, SD = 7.2, Min = 1, Max = 100	-	-
Condom use at first sex*?		
Yes	525	13.3
No	3,384	85.8
Don't know	33	0.8
Concurrent partnerships		
No	3,719	93.3
Yes	269	6.7
Gender norms		
Beliefs a woman is justified to ask their husbands to use a condom if she knows he has a disease)		
Yes	3,454	86.6
No	534	13.4
Health care utilization		
Ever received VCT		
Yes	1,008	25.3
No	2,980	74.7
Life style characteristics		
Ever drank alcohol?		
Yes	1,103	27.7
No	2,885	72.3
*Missing data for some respondents		

HIV positive status by background characteristics

As shown in Table 5. 2, the overall HIV prevalence among married and cohabiting individuals in the MZIMA cohort was 6.7%. Although rates were lower among men than among women (5.9% vs. 7.1%), this sex difference was not statistically significant ($p=0.163$). HIV infection rates were higher among individuals who were remarried than among

those who were living with their first partner (9.8% vs. 6%, $p=0.001$). Statistically significant differences were not found for any of the other variables. However, HIV rates were higher among individuals who had more than one sexual partner during their life, as compared to those who had not (7.2% vs. 4.9%, $p=0.053$). Similarly, higher rates were found among study participants who believed that a woman is not justified to ask her husband to use a condom if she knows he has a disease, as compared to those who did not (8.4% vs. 6.4%, $p=0.080$). The prevalence of HIV was as low as 4.1% among individuals with concurrent partners and as high as 6.9% among individuals with no concurrent partners, ($p=0.079$). Moreover, higher HIV rates were observed among people with a lower educational level (6.8%) than higher levels of education (6.3%) ($p=0.081$).

Table 5-2: Bivariate analysis of HIV status by each of the independent variables among currently married men and women in Ifakara, Tanzania (cross-tabulations) (n = 3,737)

Variable	Number of respondents (n)	Percent (%)
TOTAL	3,988	100.0
Social and demographic characteristics		
Sex		
Male	1,340	33.6
Female	2,648	66.4
Age (years)*		
≤20	175	4.4
21-30	1,265	31.8
31-40	1,159	29.1
41-50	613	15.4
50+	770	19.3
Mean = 38.4, SD = 14.5, Min = 13, Max = 99	-	-
Performs any income-generating activity?		
Yes	2,909	72.9
No	1,079	27.1
Ever had formal education?		
Yes	3,494	87.6
No	494	12.4
Religion		
Muslim	1,559	39.1
Christian-Catholic	2,087	52.3
Other Christian	322	8.1
Other/none	20	0.5
Ethnic group		
Northern Western	307	7.7
Northern Eastern	133	3.3
Southern	3,548	89.0
Marital characteristics		
Marital status		
Polygamous	104	2.61
Monogamous		97.39
	3884	
Re-married?		
Yes	674	16.9
No	3,314	83.1

Table continue

Sexual behavior characteristics		
Life-time number of sexual partners*		
1	901	24.1
2-4	1,837	49.2
5+	999	26.7
Mean = 4.6, SD = 7.2, Min = 1, Max = 100	-	-
Condom use at first sex*		
Yes	525	13.3
No	3,384	85.8
Don't know	33	0.8
Concurrent partnerships		
No	3,719	93.3
Yes	269	6.7
Gender norms		
Beliefs a woman is justified to ask their husbands to use a condom if she knows he has a disease)		
Yes	3,454	86.6
No	534	13.4
Health care utilization		
Ever received VCT		
Yes	1,008	25.3
No	2,980	74.7
Life style characteristics		
Ever drank alcohol?		
Yes	1,103	27.7
No	2,885	72.3
*Missing data for some respondents		

Independent predictors of HIV infection among married and cohabiting individuals

Table 5.3 presents results from the multivariate model of correlates of HIV positive status. The odds of being HIV positive were 49% higher among participants who were remarried as compared to those who never remarried (OR=1.49, 95% CI 1.08-2.04). Similarly, gender norms were also associated with HIV prevalence; HIV rates were higher among respondents who believed that a woman is not justified to ask her husband to use a condom if she knows he has a disease as compared to those who did not believe this (OR=1.51, 95%CI 1.06-2.17). Sexual behavior characteristics were also associated with HIV prevalence; the odds of being HIV positive increased with the reported number of lifetime sexual partners. Participants who reported 2-4 lifetime sexual partners were more likely to be HIV positive as compared to those who had only one lifetime sexual partner (OR=1.47, 95% CI 1.02-2.11). The odds rose even further in those reporting five or more lifetime sexual partners (OR=1.61, 95% CI 1.05-2.47). Although females were 23% more likely to be HIV positive than males, biological sex was not a statistically significant predictor of HIV (OR=1.23, 95% CI 0.90-1.67).

Table 5-3: Multivariate logistic regression of correlates of HIV positive status among currently married men and women in Ifakara, Tanzania (n=3,737)

Variable	Odds Ratio (OR)	95% Confidence Interval (CI)	P-value
<i>Social demographic characteristics</i>			
Sex			
Male (ref)	1.00	-	-
Female	1.23	0.90-1.67	0.189
Ever had formal education?			
Yes (ref)	1.00	-	-
No	1.31	0.90-1.90	0.153
<i>Marital characteristics</i>			
Re-married?			
No (ref)	1.00	-	-
Yes	1.49	1.08-2.04	0.014
<i>Sexual behavior characteristics</i>			
Life-time number of sexual partners			
1 (ref)	1.00	-	-
2-4	1.47	1.02-2.11	0.038
5+	1.61	1.05-2.47	0.028
<i>Gender norms</i>			
Woman's status (believing that a woman is justified to ask their husbands to use a condom if she knows he has a disease)			
Yes (ref)	1.00	-	-
No	1.51	1.06-2.17	0.024
<i>Health care utilization</i>			
Ever had VCT?			
Yes (ref)	1.00	-	-
No	0.76	0.57-1.01	0.061
Ref = reference/baseline category			

5.5. Discussion

This study contributes to our understanding of social drivers of HIV among legally married or cohabiting heterosexual adults in Tanzania. The HIV prevalence rates for married or cohabiting men and women in the study sample (5.9% and 7.6%, respectively) are higher than those found in national studies in Tanzania (5.2% and 5.4%, respectively). However, they are very similar to those found in previous surveys which were held in Ifakara town (Abdul et al., 2014). In our study population, three of the investigated social drivers were significantly associated with differences in HIV status: gender norms (the belief that a woman cannot ask her husband to use a condom when she knows he has a disease), marriage characteristics (being remarried), and sexual behavior characteristics (number of lifetime sexual partners). Other investigated variables (social demographic characteristics, health care utilization, and lifestyle characteristics) were not associated with differences in HIV status. Gender researchers have advocated the use of two separate concepts for investigating male versus female differences in health; biological sex and socially-constructed gender roles (Krieger, 2003). Our study results highlight the relevance of this distinction. Not biological

sex, but socially constructed gender norms, appeared to be associated with differences in HIV status in married individuals in the study area.

Our findings as regards to gender are credible in the light of other studies. Several studies have also found that, by limiting women's options for protecting themselves from HIV and other sexually transmittable infections, gender discriminatory practices can be a driver of the HIV epidemic (van der Straten et al., 1995). A study from Malawi suggested that gender inequality within marital relationships has a negative influence on HIV prevention (Mkandawire et al., 2013). Women's lower condom negotiation power is likely to be linked to broader societal norms about appropriate (sexual) behavior for men and women. It has been pointed out that women in SSA may feel restrained to discuss condoms with their stable partners (husbands), because the women who do so are likely to be perceived as overly interested in sex (Worth, 1989), distrustful of their male partners, or promiscuous (Baylies and Bujra, 2000). A study from rural Tanzania found that religious norms can also strengthen male dominance in marital sexual relationships and that only single women are allowed to propose condom use (Baylies and Bujra, 2000).

In our study, 17% of the respondents were remarried. Our observation that remarriage is an independent risk factor for HIV among married individuals corroborates with findings from a previous survey study of the relationship between HIV and remarriage that was conducted among representative population samples in 13 countries in SSA. This study found high rates of remarriage in almost all countries, with significantly higher rates of HIV prevalence among remarried individuals than among those married only once (de Walque and Kline, 2012).

Although we did not explore the type of remarriage arrangements in this study, we know from anecdotal evidence that the engagement in trial or 'transient marriages' is a common socially formalized and culturally acceptable practice in the study area. People engage in such marriages for a specific period of time, with the intention of finding out if a spouse is appropriate or inappropriate for a subsequent long-term official marriage. This custom of trial marriages may not be well-reflected in the 'official' remarriage statistics we obtained in our study. Nevertheless, this custom should not be disregarded. As Greenwood (Greenwood and Kircher, 2013) pointed out, individuals who engage in trial marriages may not be interested in testing for HIV before they make an official commitment to live as spouses. Given the high HIV related mortality rates in the region, people who engage in subsequent marriages may include widows who were infected with HIV by their previous partners. A study among widows and widowers in Uganda found that the majority of them got remarried following the death of their spouses, even though they were aware of their own HIV status. This resulted in the infection of new sexual partners in ways that were considered unfair and outrageous by the authors (Greenwood and Kircher, 2013), the available data from our study did not provide information to substantiate these findings, however.

It is often assumed that engaging in concurrent sexual relationships is a risk factor for HIV (Glynn et al., 2003; Ntozi, 1997). Yet, surprisingly, in our study concurrent sexual partnership was not significantly associated with HIV status. One possible explanation is that our study measured HIV prevalence and included people who have been living with HIV for many years. People who know they are HIV positive may be less likely to engage in concurrent sexual partnerships. Similarly, we found that living in an official polygamous marriage was not a predictor for HIV. This

corresponds with findings from a previous study by Reniers and Watkins (Reniers and Watkins, 2010). This study found that being in a polygamous marriage does not increase women's vulnerability for HIV.

The researchers argued that the distinctive structure of sexual networks in polygamous marriages and the lower coital frequency in conjugal dyads may help prevent or delay HIV transmission between the partners involved. However, in our study the number of respondents in polygamous marriages was low, and further evidence from Tanzania is needed to substantiate hypotheses about association between polygamy and HIV. Our finding as regards to the positive association between the number of an individual's previous sexual relationships and HIV prevalence is not new. The same association has been found by Kalichman et al (Kalichman et al., 2007) and in another study from Tanzania (Quigley et al., 1997).

Social demographic indicators, such as income and education are regarded as important predictors of health in theoretical models of social determinants of health (World Health Organization, 2010). It is quite surprising that none of the measured social demographic variables were independently associated with a differential vulnerability for HIV in our study population. Yet, it is known that the relationship between social demographic characteristics and HIV can be quite complex. For instance, in a study of the social determinants of HIV serostatus in SSA, Fox et al (Fox, 2010) found an inverse relationship between poverty and acquisition of HIV. This was contrary to the expectation, but understandable given the wider social economic context

Strengths and Limitations

The strength of this study is that we were able to use reliable survey data and blood samples from a large community based cohort study (MZIMA). However, there are also limitations. First, two-thirds of the married or cohabiting respondents in the MZIMA cohort are female, which means that our study sample is not representative of the male/female distribution in the study area. Second, whereas the MZIMA study was not specifically designed to investigate social drivers of HIV, the available dataset allowed us to analyze data on only a limited set of potential social drivers of HIV. Although the available data are relevant as such, more specific data, particularly as regards to gender norms, will be needed to gain a deeper understanding of the impact of social drivers on HIV in married couples. Third, in our study, the data about the relationship between polygamous marriage and HIV status are inconclusive because the number of study participants who were living in official polygamous marriages was small. Further research, incorporating larger samples of individuals in polygamous relationships is needed in Tanzania, to provide information about the association between (legally sanctioned) polygamy and HIV. Finally, the information on the social drivers that is collected in the MZIMA survey is based on self-reports. The influence of culture and social desirability on self-reported data on social drivers such as gender norms and VCT utilization or alcohol use is unknown.

Implications

We are entering a new HIV prevention era, whereby approaches focusing on the prevention of individual risk behaviors for HIV are now being expanded with structural approaches that aim to tackle the underlying social determinants that shape and sanction people's lives and (risk) behaviors (Dean and Fenton, 2010; Gupta et al., 2008b; Parkhurst, 2012; Parkhurst, 2013; World Health Organization, 2010). Individuals in married and cohabiting relationships are an important target group for HIV prevention activities in Tanzania. The present study suggests that, in addition to individual interventions, the development of structural interventions that address broader societal gender norms and social practices with respect to remarriage and multiple partnerships can be particularly relevant for HIV prevention programs for this target group. At the same time, however, it should be kept in mind that some of these norms and practices may be difficult to change, as they are deeply rooted in society and partly sanctioned by Tanzanian family laws (LMA) (URT, 1971).

5.6. Conclusion

In this community-based cross-sectional study, we found that social practices/drivers influencing differential HIV vulnerability in married and cohabiting couples in Ifakara, Tanzania include gender norms, remarriage, and the number of lifetime sexual partners. Contrary to the expectation, other social factors (e.g. wealth, education, being in a polygamous marriage) were not significantly associated with HIV status in the studied population. Our data provide baseline information for developing further research on social drivers of HIV and comprehensive HIV prevention programs for married couples.

Author's contributions

SA is a co-principal investigator in the MZIMA surveillance study. She made a substantial contribution to the conception of the paper, and participated in the preliminary analysis of the data, interpretation of the findings, and drafting of the manuscript. AE substantially analyzed the data. CP, SM, EG, and MT supervised the design of the research work and provided substantial inputs to the paper. JH provided significant inputs for (re)structuring and editing of the paper. All authors read, revised, and approved the final manuscript.

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Conflict of interest

The authors declare that they have no conflict of interests.

6. Gender differences in exposure to HIV infection through extramarital affairs, and the contextual determinants of extramarital affairs among adults in a rural community-Tanzania: A mixed methods study

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6.1. Abstract

Background

The current era of HIV calls for structural approaches to long-term prevention of HIV, addressing the social, economic, political, gender and rights-related contextual factors that drive the HIV epidemic. We investigated the contextual dimensions of extramarital affairs and the association between extramarital affairs and HIV status for married men and women in rural-community-Tanzania in order to inform policies and programmes.

Method

A cross-sectional sequential explanatory mixed method design was employed. We analyzed the MZIMA community surveillance representative sample of 3,988 married partners residing in Ifakara town, Tanzania (2012-13), which comprised of individuals aged 15+. Descriptive statistics cross tabulations and multinomial logistic regression established the independent predictors of lifetime (proxy) and 12 months retrospective extramarital affairs. One-way logistic regression determined the association between HIV status and extramarital affairs. Twenty-four in-depth interviews and 6 focus group discussions explored the findings of the quantitative study, addressing the experiences and norms regarding extramarital affairs.

Results

We found a significant positive association between lifetime extramarital affairs and HIV infection among women only. The relative risk ratio (RRR) of having extramarital affairs versus non-extramarital affairs in the lifetime (proxy) was significantly higher among men, members of the Village Community Bank (VICOBA), the re-married, consumers of alcohol, those from southern regions, and lower among those of Christian religion and with older age. For those having had extramarital affairs in the past 12 months, associations were significant for the same variables except for religion and having an income was associated with the outcome. Qualitative narratives reflect that concepts of masculinity and social norms which promote that a man should have several sexual partners, and distance-marriage, influence men's extramarital affairs. For women, striving for financial autonomy, debts from microfinance projects (VICOBA) due to economic vulnerability and limited support from their husbands on economic advancement influence their engagement in extramarital affairs. Low relationship quality also encourages men and women to engage in extramarital affairs, whereby married women with an income are more likely to transact sex for relationship quality which they miss in their marriage.

Conclusions

Women are likely to be more exposed to HIV infection through extramarital affairs than men. Continued gender inequality sustains married women's economic dependence on their husbands and on extramarital partners, and lowers their safer sex negotiation power. Addressing HIV risk sexual behaviors in marriage requires that social protection and economic empowerment programs are combined with approaches that empower women's decision-making power within a marriage. Laws, religious and social norms that impede married women's rights to education and income jeopardize economic security in case of a divorce, and refuse the right of a woman to use contraceptives

including condoms on her own behalf and should be addressed on the level of the communities as well. Microfinance projects (VICOBA) could be a window of opportunity to reach married men and women with gender-transformative approaches to HIV prevention.

Key words: Extramarital affair, HIV prevention, marriage, lifestyle, cultural norms, microfinance projects, Ifakara, Tanzania

6.2. Introduction

Extramarital sex is a potential driver of increased risk of Human Immune Virus (HIV) transmission among stable couples in sub-Saharan Africa (SSA). An incidence study among stable couples in SSA estimates that 22.5% (range: 11.1%–39.8%) of HIV infections are acquired by one of the partners from sources external to the couple (Chemaitelly et al., 2014), with multiple partnerships having contributed to HIV transmission both during early and advanced stages of the HIV epidemic (Chen et al., 2007). Effective HIV prevention interventions including health promotion messages for addressing HIV vulnerability in marriage, requires knowledge on the broader social context of extramarital affairs. Absence of contextually adapted information to address extramarital affairs in marriage, together with an underestimation of the potential risk of this behavior among married partners (Buss and Shackelford, 1997) are likely to have undermined the effectiveness of proven HIV interventions in the region.

In Tanzania as elsewhere in sub-Saharan Africa (SSA) various studies suggest that extramarital sex is common among married and stable couples (Cox et al., 2014). About 70% of participants from a study in urban and rural districts in Tanzania reported ever having engaged in extramarital affairs (Maswanya et al., 2010). In this study, extramarital affairs were also identified as one of the main drivers of HIV transmission (Maswanya et al., 2010). Whether engaging in concomitant sexual relationships involves married or unmarried individuals is making a difference with regards to HIV prevention (de Walque, 2006). Married partners may feel protected from sexually transmitted infections, as it is not expected to have other sexual partners outside the union. Hence, it is likely that married partners may underestimate their spouse's potential of engaging in risky sexual behaviors including having multiple sexual partners. This is especially problematic as being in marriage usually constrains partners' adoption and communication about HIV prevention interventions including condom use and couple counseling and testing, due to aspects related to marital norms, gender power relation and relationship quality (Anglewicz and Clark, 2013; Mtenga et al., 2016). A study in Zambia also found that women are often not given the right to decide on HIV health matters (Merten et al., 2016).

This is likely to heighten the risk for HIV transmission since partners perceive themselves at a low risk of HIV infection (Do and Meekers, 2009), do not realize that a partner may be infected with HIV (Anglewicz et al., 2010; Anglewicz and Chinstsanya, 2011), and are less likely to use protection during extramarital affairs (de Walque, 2006). Therefore, being in a marriage with someone who has other partners outside the union subjects both partners to the risk of HIV infection.

Various social-behavioral aspects have been associated with extramarital affairs in SSA. In Tanzania a study among men shows that, higher education, being older, age at first sexual intercourse, and sex before marriage, significantly influenced extramarital affairs (Mbago and Sichona, 2010). In Nigeria the number of sexual partners before marriage (White et al., 2000), polygamy, wealth, being in a monogamous marriage, the region, and self-perceived risk of HIV infection were linked to extramarital affairs (Mitsunaga et al., 2005). In Kenya extramarital affairs were more common among women married to fishermen, in case of domestic violence, or when women were sexually dissatisfied with their partner (Kwena et al., 2014).

Qualitative studies conducted in Tanzania showed that sexual dissatisfaction with a sexual stable relationship, financial dissatisfaction contributed to spouses' engaging in extramarital affairs (Cox et al., 2014). Agnarson also found that concurrent partnership is a way to assure financial security for women (Agnarson et al., 2015). Individual behavior-change approaches have been consistently employed to address extramarital affairs and HIV vulnerability in marriage. For example in Tanzania, media campaigns with a Swahili slogan 'baki njia kuu mchepuko sio dili, epuka ukimwi' (literally, remain on the main road, divergence is not a deal, avoid HIV) have been widely used, advising married partners to abstain from extramarital affairs. In SSA, couple counseling and testing services are known to improve adoption of safer sex practices including condom use and reduction of multiple sexual partners among couples (Burton et al., 2010; Fedor et al., 2015). Early antiretroviral treatment is also an important intervention for prevention of HIV transmission among married partners (Cohen et al., 2011).

Increasing recognition that high-risk sexual behaviors and HIV vulnerability are entrenched within the broader social, cultural, economic and political contexts (Auerbach et al., 2011; Baral et al., 2013; Gupta et al., 2008b; Parkhurst, 2014) requires a wider understanding of how these aspects are shaping various aspects of sexual risk behaviors including extramarital affairs. In Tanzania is limited evidence, based on mixed methods that document the social and structural dimensions that influence extramarital affairs in marriage. It has been pointed that multiple level of investigations are required not only to understand but to validate the underlying structural drivers of sexual risk behavior and HIV vulnerability (Baral et al., 2013). Despite their usefulness, most investigations on extramarital affairs in Tanzania mainly focusing mostly from women's (Agnarson et al., 2015) or men's perspective and not in combination (Mbago and Sichona, 2010). They also lack specificity on the social-structural theoretical framework that guides the investigation. This has led the HIV prevention programs not to focus on broader social-structural dynamics when designing the behavior change programs for HIV prevention.

This study aims at understanding the contextual aspects and the pathways by which men and women come to engage in extramarital affairs, in order to inform comprehensive HIV prevention approaches for HIV prevention in marriage. We further investigate the association between extramarital affairs and HIV status among married men and women in the respective local context.

Theoretical framework

We used the framework of the World Health Organization's Commission on the Social Determinants of Health (WHO-CSDH) (World Health Organization, 2010) to guide the examination of the social determinants of extramarital affairs as a risk behavior for HIV infection. To investigate factors influencing extramarital relations, we added constructs related to marital norms and relationship quality to explore aspects that shape extramarital affairs of men and women (Fig: 6.1).

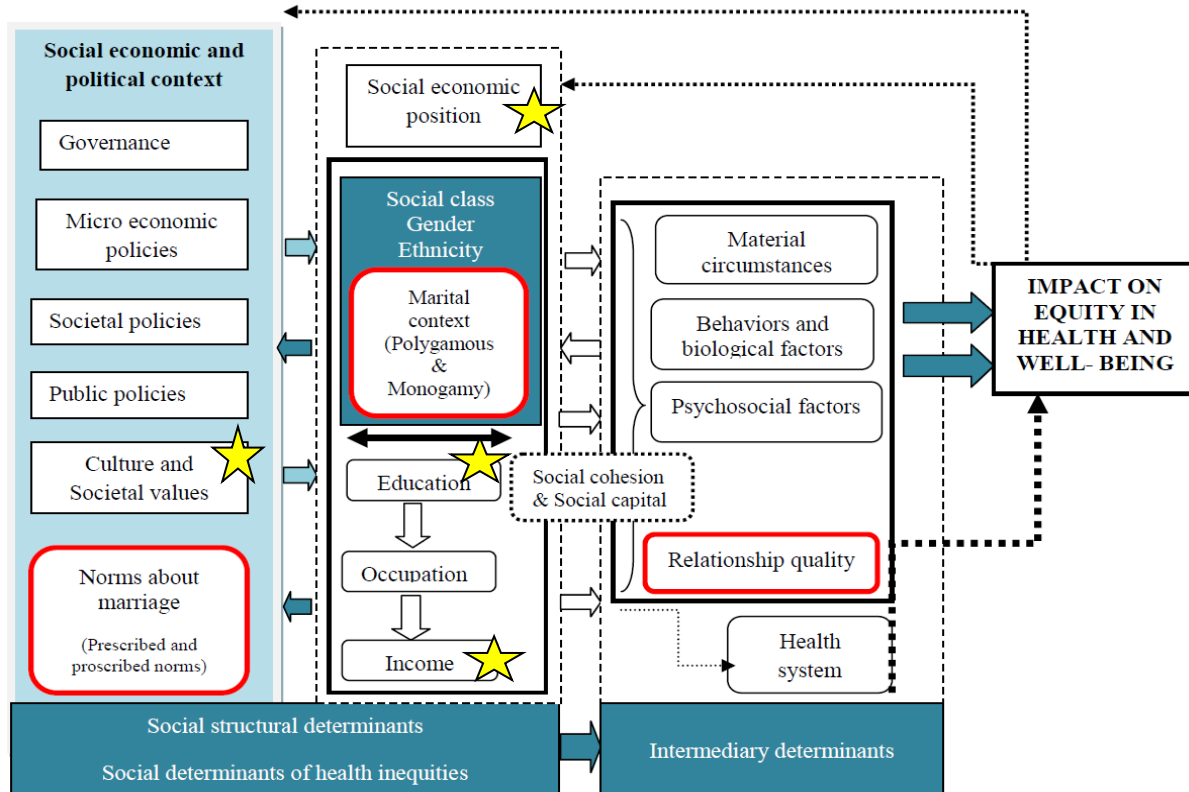


Figure 6-1: Modified WHO-CSDH framework used to learn about the challenges to safer sex dialogue between married spouses (WHO, 2010)

Although, the WHO-CSDH framework is not meant to specifically investigate factors influencing extramarital relations, the framework comprise of broader social-structural aspects that could be adopted to study any health related condition/behaviour. Emphasize on contextual determinants distinguishes the WHO-CSDH framework from other psychological and behavior theories which emphasize on individual level aspects. For example Fair (1978) has pointed to the lack of variety in a relationship as a contributing factor to extramarital affairs (Fair, 1978).

The extramarital affairs in Tanzania

The Tanzanian marriage act of 1971 declares a legal recognition of monogamous relationship between one man and one woman or between one man and several women (polygamous). Polygamous marriages are only allowed to men (URT, 1971). A man has the legal right to change the marriage contract from monogamous to polygamous or vice versa, but only with the wife’s consent (URT, 1971). The concept of the extramarital affair is not mentioned anywhere in the act. As such, the act does not legalize neither approve the extramarital relationship. Instead, it is the religion and cultural institutions, which take the lead in condemning relations developing outside the bonds of marriage (Fair, 1978). In some Muslim countries, Sharia law requires that married or divorced persons found guilty of Zina (adultery)

be executed by stoning (Bello, 2008). However, in Tanzania Sharia in personal matters was abolished immediately after independence in 1961.

6.3. Methods

Overall study design

A cross-sectional sequential explanatory mixed-method study was employed (Cresswell, 2014) to understand the contextual determinants of extramarital affairs. The qualitative study followed the quantitative study to explain the quantitative results and further explore men's and women's experiences, and normative aspects that relate to extramarital practice. However, the process was iterative as the insights from qualitative study informed the need to re-visit the quantitative analysis again. Both studies were carried on in Ifakara town, Kilombero district in southeastern, Tanzania. Ifakara town is heterogeneous, comprising of more than nine ethnic groups coming from various parts of the country (Mtenga et al., 2015). Kiswahili is the main language spoken in the area. Islam and Christianity are the predominant religions. The town comprises a hierarchy of health facilities ranging from the referral hospital to health centers and dispensaries. The adult HIV prevalence in Ifakara based on the MZIMA community surveillance study is 7% (57) which is higher than the national prevalence 5.2% (Mtenga et al., 2015).

Quantitative methods

A detailed description of the quantitative method for this study is published elsewhere (Mtenga et al., 2015). We provide a brief description here.

Study setting

The study population included married and cohabiting partners in the MZIMA community health cohort study implemented between April 2012 and April 2013. Upon arrival in the selected households, the eligible (men and women age 15 years +) participants were informed, interviewed and asked to provide biological specimens for HIV testing if they provided written informed consent. Prior to interview, voluntary counseling and testing for HIV was offered. Interviews were conducted in a private place within the premises of the household.

Study design and sample

This cross-sectional study uses data from questionnaires and HIV tests from the MZIMA study collected between April 2012 and April 2013. All households located within the Ifakara town health demographic surveillance system were selected. Considering our study aim, in this study we restricted our sample to participants who reported to have been officially married or cohabiting; this concerned 3988 individuals (49.2% of the total study sample). The number of persons with extramarital affairs in the past 12 months and of the proxy for extramarital affairs before that was sufficient to perform multivariable multinomial statistical analysis.

Variables and measures

We examined the demographic (sex; age; income; education; ethnicity), social-structural (being part of a village community bank, a 'VICOBA'; performing any income generating activity), marital characteristics (being re-married or

not), health care utilization (VCT access) and lifestyle (alcohol consumption; number of sexual partners in the 12 months and in the lifetime) as correlates of extramarital relationship prevalence. These variables were selected based on a review of previous literature (Maman et al., 2010; Mugweni et al., 2015) and the WHO-CSDH framework (World Health Organization, 2010), and on the insights from qualitative research. The variables were defined as follows:

Outcome variables

The study had two outcome variables: HIV status as main, and extramarital affairs as intermediate outcome. First, we establish associations of extramarital affairs with HIV infection stratified by sex of the respondent; second, associations of the independent variables with extramarital affairs were determined. Due to the sensitive nature of the topic, participants were not directly asked whether they engaged in extramarital affairs. The variable 'extramarital affair' was constructed based on marital status and the number of sexual partners a) in the past 12 months, and b) over the lifetime. There were two main reasons why we constructed a variable estimating the occurrence of lifetime extramarital affairs. One, the percentage of married persons with extramarital sexual contacts in the past 12 months did not represent the proportion of spouses at risk that was suggested by the qualitative approaches and previous studies, which suggested that extramarital affairs is more widely practiced. Two, extramarital sexual contacts in the past 12 months were not associated with an increased risk of HIV infection. This contradicted the finding that a greater number of sexual partners is associated with HIV infection as reflected in our earlier findings from the same population (Mtenga et al., 2015) and other studies in Tanzania (Maswanyana et al., 2010). We therefore decided to construct a proxy variable for lifetime extramarital affairs. First, the average number of sexual partners at the average age at marriage was calculated (44 years (std=15.5) for men and vs 33 years (std= 7.5) among women). This led to the assumption that a woman marries her second partner, whereas a man gets married in average to the fourth partner. To calculate the probability of lifetime extramarital affairs we computed the difference between the lifetime number of sexual partners and the second or fourth partner, respectively. We then divided the resulting number of partners by the duration of marriage to get a probability for the average number of extramarital partners a year. In this variable, we included all men who had more than four partners and all women with more than 2 partners, assuming that some of these relationships happened within their marriage. Therefore the lifetime extramarital affairs is referred here and after as 'estimated' or 'proxy' lifetime extramarital affairs. Men with less than 5 partners and women with less than 3 partners were considered as not having extramarital affairs (=0). If an extramarital affair occurred in the 12 months prior to the survey the lifetime extramarital affair was also considered true. For this analysis, extramarital affairs were defined as a trichotomous variable comprising of the values corresponds to the following: 0= no extramarital affair; 1= lifetime extramarital affair (proxy based on number of lifetime partners) but not in past 12 months; 2=extramarital affair in past 12 months.

Independent variables

A detail description of the variables and measures for this study is published elsewhere (Mtenga et al., 2015) except for 'VICOBA membership'. This variable was measured by requesting participants to report on whether they were members of a microfinance program in their community. Participants who reported that they were a member of a VICOBA were assigned a 'Yes'. We modified the previously applied social determinants of health categories (Mtenga et al., 2015) to assign the independent predictors of extramarital affairs drawn from the MZIMA self-reported questionnaire. The categories were drawn from the review of literature and the WHO-CSDH framework. They include 1) Social-demographic characteristics, 2) economic characteristics, 3) marital status, 4) health utilization characteristics, 5) lifestyle characteristics. Group 2 to 5 are modifiable variables and amenable to change through development of social-structural interventions to prevent HIV. They are also referred as "socially constructed" (Box 1).

Statistical analyses

First, descriptive statistics were conducted to list outcomes for all variables. We conducted bivariate analyses (cross tabulation) to analyze the associations between each of the independent variables and 'extramarital affairs'. The significance of the associations between the dependent and independent categorical variables were tested using the Pearson chi-square test. Bivariate logistic regression analysis was then performed to determine the association between extramarital affairs and HIV status, stratified by sex.

We then performed multinomial logistic regression to calculate the adjusted Relative Risk Ratio (RRR) and 95% confidence interval (CI) to identify the independent predictors of proxy lifetime and 12 months extramarital affairs. The model used sex, age and level of education as fixed a priori covariates. Selection of variables for the multinomial analyses was based on their ability to improve the overall model using log likelihood ratio test. Statistical interactions of sex and other independent variables were assessed, and consequently the model was stratified for sex of the participant. RRR and their corresponding 95% confidence intervals, and p-values were reported for the final multinomial regression models. Associations were considered statistically significant if the p-value was < 0.05. All analyses were performed using STATA version 14 (StataCorp, USA).

Qualitative methods

Study participants. We targeted sexually active married men and women of age between 18 and 60 years who participated in 24 in-depth interviews (IDIs) and 6 focus group discussions (FGDs).

Setting and recruitment

The study was implemented between May and August 2015 in two villages of Ifakara town namely: Viwanja sitini and Mlabani. These are the areas where the quantitative data was implemented during the MZIMA study (Mtenga S et al., 2015). A stratified purposive sampling was used as a recruitment strategy, which ensured that the younger, polygamous and monogamous older partners are captured in the study. The local leaders assisted in the recruitment process.

Instrument design

The IDI and FGD guides, consisted a series of themes constructed using the findings from the quantitative study. However to gain a deeper insights about extramarital practice, the IDIs elicited marital relationship quality and personal experiences regarding extramarital affairs. FGDs explored social norms regarding extramarital affairs. Most of these aspects are grouped in specific SDHs categories.

Data collection

A married female social scientist (SM) with extensive experience in conducting HIV-related qualitative research conducted most of the interviews. One male research assistant (RA) - a university graduate in sociology with experience in qualitative studies assisted in some interviews and discussion sessions with male participants. Prior to formal interviews, the social scientist conducted the informal discussions with some members of the community to gain insights about the topic and the general marital lifestyle. The formal interviews and discussions were conducted in Kiswahili, recorded verbatim and subsequently transcribed by the social scientist (SM) assisted with a trained research assistant. We used a vignette ("There was a couple in village 'A'. This couple used to be very much in love. They stayed in this way for a very long time. But it reached a time when the man started realizing that his wife was having some affairs with another man. Seeing that his wife was doing that, the husband also began dating other women in the nearby village") to make the topic less personal and encourage participants to freely provide their own opinion about extramarital practice. In the vignette we chose to present a woman as the first to perform extramarital affairs since unlike men, women may not easily disclose their behaviors regarding engaging in multiple sexual partnership. Privacy and confidentiality of information were ensured. Interviews took place in places preferred by the participant's i.e under the tree, household premises.

Data analysis

The social scientist (SM) independently coded and analyzed the data thematically (Bulawa, 2014). Pre-determined parent codes drawn from the topic guides (i.e attitude towards extramarital affairs, reasons for practicing extramarital affairs) were generated. Through open coding emerging themes (marital uncertainty) were subsequently added. To enhance validity, themes developed by the social scientist were compared with others identified by another independent social scientist from Ifakara Health Institute (Irene Masashi). In addition, member checking was used to check for accuracy of the coding and interpretation as described in the previous study (Mtenga, et al, 2016). N-VIVO program version 12 for qualitative data analysis was used to support rigorous data coding. All data were analyzed in Kiswahili, and relevant quotes were translated into English for the purpose of this study.

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data analysis was used to support systematic data coding. All data were analyzed in Kiswahili, and relevant quotes were translated into English for the purpose of this study.

Ethical Consideration

Ethical clearance for this study was acquired from the Ifakara Health Institute Review Board, Tanzania (approval number IHI/IRB/AM/01-2014), the National Institute for Medical Research, Tanzania (approval number NIMR/HQ/R.81Vol.IX/1320) and the Ethikkommission Nordwest- und Zentralschweiz, Switzerland (EKNZ:UBE-15/36). All participants provided their oral and written informed consent prior to participating in the study.

6.4. Results

Quantitative study

Characteristics of study population

Characteristics of survey respondents are summarized in Table 6.1. There were 3,988 married and cohabiting participants of which the majorities (74%) were between the ages of 25 to 59 years, females accounted for 66.4%. Eighty-eight percent of participants had attained the formal education, 92% among males and 84% among females. Sixty-four percent of females and 90% of male respondents performed an income generating activity. More than half of participants (60%) were Christians and 39% were Muslims. Seventeen percent of participants were not living with the person they had married first.

Table 6-1: Profile of respondents for extra marital affair assessment in Ifakara, Tanzania (n=3711)

Variable	Number of all respondents	Percent (%)
Overall	3,711	100.0
Sex		
Female	2,648	66.40
Male	1,340	33.60
Age (years)		
15-24	569	14.29
25-59	2,990	75.09
>60	423	10.62
Education		
No (formal education)	494	12.39
Yes (formal education)	3494	87.61
Performing any income generating activity		
No	1079	27.06
Yes	2,909	72.94
Religion		
Muslim	1559	39.09
Christian-Catholic	2087	52.53
Other Christian	322	8.07
Other/none	20	0.50

Ever received VCT?		
No	2980	74.72
Yes	1008	25.28
Alcohol consumption		
No	2885	72.34
Yes	1103	27.66
VICOBA membership		
No	3540	88.77
Yes	448	11.23
Remarried		
Yes	674	16.90
No	3314	83.10
Ethnicity		
North West	307	7.70
North East	133	3.34
Southern	3,548	88.97

Association between extramarital affairs and HIV infection

Table 6.2 shows the association between extramarital affairs and HIV infection. Women with estimated lifetime extramarital affairs were more likely to be HIV positive than those who had not had an extramarital affair (OR= 1.74, 95%CI (1.27-2.39). We did not find any statistical significant association between extramarital affair and HIV among men (OR= 0.84, 95%CI 0.51-1.40).

Table 6-2: The Logistic regression results of the association between extramarital affair and HIV status of men and women in Ifakara town, Tanzania (2015)

Males (n=1340)	% (n/N)	OR (95%CI)	P-value
Extramarital affairs:			
Ref. never had extramarital affairs	592	1	-
Proxy-Life time	482	0.84 (0.51-1.39)	0.50
12 months	162	0.73 (0.34 -1.61)	0.44
Female (n=2648)	% (n/N)	OR (95%CI)	P-value
Extra marital affairs:			
Ref. never had extramarital affairs	1400	1	-
Proxy-Life time	988	1.74 (1.27-2.4)	0.001
12 months	87	1.06 (0.42-2.69)	0.89

Extramarital affairs by background characteristics

Table 6.3 reflects the two-way tabulation of extramarital affairs by background characteristics.

Thirty nine percent of both men and women had had extramarital affairs in the proxy-lifetime extramarital affairs, while 13.11% of men and 3.52% of women had had confirmed extramarital affairs in the past 12 months before the survey

($p=0.001$). In the lifetime extramarital affairs, the rates of extramarital affairs were higher among partners of age 25-59 (40.67%), those with formal education (40.13), those who perform income generating activity (40.24%), from southern regions (40.87%), who are members of VICOBA (44.01), who re-married (43.69%), who consume alcohol (43.69) and among the Muslims (43.43%). All the associations were significant at $p<0.001$, except for education (0.073). In the 12 months extramarital affairs, the behavior was significantly higher among those of age 25-59 (7.76%), those with formal education (6.88%), those with formal income (8.42%), those from northern eastern (11.20%), among the VICOBA members (8.76%), those who re-married (8.54%), those who consume alcohol (11.34%) and among those of other religions (10.53). Similarly all the associations were significantly at $p<0.001$, except for education. The mean number of sexual partners in the proxy-life time extramarital affairs was 2.3, while the range was 1-3 and the median was 3. The mean number of sexual partners in the 12 months extramarital affair was 1, while the range was 1-3, and the median was 1.

Table 6-3: Percentages distribution of extramarital affair practices by characteristics of respondents in Ifakara, Tanzania (n=3711)

Variable	Extramarital affairs			P-Value
	Never had extramarital affairs	Proxy Life time	last 12 months	
	N=1992	N=1470	N=249	
Sex				
Male	592 (47.90)	482 (39.00)	162 (13.11)	0.001
Female	1400 (56.57)	988 (39.92)	87 (3.52)	
Age				
14-24	281 (56.83)	196 (39.36)	21 (4.22)	0.001
25-59	1448(51.57)	1142 (40.67)	218 (7.76)	
Above 60	263(65.10)	132 (32.67)	9 (2.23)	
Ever had formal education?				
Yes	1726 (52.99)	1307 (40.13)	224 (6.88)	0.073
No	266 (58.59)	163 (35.90)	25 (5.51)	
Performs any income-generating activity				
Yes	1390 (51.35)	1089 (40.23)	288 (8.42)	0.001
No	602 (59.96)	381(37.95)	21 (2.09)	
Ethnic group				
Northern Western	181 (65.11)	78 (28.06)	19 (6.83)	0.001
Northern Eastern	71 (56.80)	40 (32.00)	14 (11.20)	
Southern	1740 (52.60)	1352 (40.87)	216 (6.53)	
VICOBA Membership				
Yes	205 (47.24)	191 (44.01)	38 (8.76)	0.001
No	1787 (54.53)	1279 (39.03)	211 (6.44)	

Re-married				
Yes	228 (36.08)	350 (55.38)	54 (8.54)	0.001
No	1764 (54.53)	1120 (39.03)	195 (6.44)	
Ever drank alcohol?				
Yes	456 (44.97)	443 (43.69)	115 (11.34)	0.001
No	1536 (56.95)	1027(38.08)	134 (4.97)	
Ever had VCT?				
Yes	477 (49.33)	420 (43.43)	70 (7.24)	0.007
No	1515 (55.21)	1050 (38.27)	179 (6.52)	
Religion				
Muslim	720 (50.03)	625 (43.43)	94 (6.53)	0.001
Christian-Catholic	1053 (54.06)	758 (38.91)	137 (7.03)	
Other Christian	206 (67.54)	83 (27.21)	10 (5.25)	
Other/none	13 (68.42)	4 (21.05)	2 (10.53)	

Independent predictors of extramarital affairs

Table 6.4 present the results of multinomial logistic regression. The majority of the independent predictors of the proxy lifetime extramarital affairs were consistent with those in 12 months extramarital affairs. The relative risk ratio (RRR) of having extramarital affairs versus non-extramarital affairs in the proxy lifetime significantly decreased as age decreased (RRR: 0.98 95%CI; 0.98-0.99), was higher among men (RRR: 1.27; 95%CI; 1.06-1.52), among members of Village community Bank (VICOBA) (RRR:1.35; 95%CI 1.08 -1.69), among consumers of alcohol (RRR:1.54; 95%CI; 1.29 -1.82), among those who re-married (RRR: 2.50; 95%CI; 2.07- 3.02) and were lower among those of catholic religion (RRR: 0.82; 95%CI; 0.71-0.95), other Christian religion (RRR:0.52; 95%CI; 0.39-0.70). Likewise, the relative risk ratio (RRR) of having extramarital affairs versus non-extramarital affairs in the proxy lifetime at 12 months, significantly decreased with age decrease (RRR: 0.95; 95%CI; 0.94-0.96), was higher among those with stable sources of income (RRR: 2.70; 95%CI; 1.64-4.35), among the VICOBA members (RRR: 2.63; 95%CI: 1.72-4.0), among the re-married (RRR: 2.41; 95%CI; 1.69-3.43) and among those consuming alcohol (RRR: 2.5; 95%CI; 1.85-3.33). We calculated predictive margins for men and women separately; we found that the variables that are associated with extramarital affairs are the same for men and women. Only a few differences can be noted, which are Age: youngest age-category is less likely to have had extramarital affairs, men in contrast to women. In Southern Region more women are having extramarital affairs, but not men. Religion plays a role mainly for women.

Table 6-4: Multinomial logistic regression of correlates of extramarital practices in Ifakara, Tanzania (3711)

Covariate	All adults				Men				Women			
	RRR	95%CI		P-value	RRR	95%CI		P-value	RRR	95%CI		P-value
		Lower limit	Upper limit			Lower limit	Upper limit			Lower limit	Upper limit	
<i>Outcome category 1: Extramarital affairs in lifetime</i>												
Males (ref = Females)	1.27	1.06	1.52	0.007	—	—	—	—	—	—	—	—
Age (ref=younger age)	0.98	0.98	0.99	0.000	1.00	0.99	1.01	0.688	0.97	0.96	0.98	0.000
Had formal education (ref = no formal education)	1.15	0.90	1.45	0.213	1.00	0.62	1.61	0.997	1.16	0.90	1.51	0.252
Perform any income activity (ref = doesn't performs)	1.15	0.97	1.35	0.107	1.47	0.96	2.27	0.073	1.20	0.99	1.45	0.058
Ethnic group (ref = Northern Western)												
Northern Eastern	1.09	0.67	1.77	0.730	1.30	0.62	2.76	0.487	0.83	0.41	1.65	0.590
Southern	1.53	1.14	2.06	0.005	0.87	0.54	1.43	0.593	2.08	1.42	3.05	0.000
VICOBA membership (ref= non-member)	1.35	1.08	1.69	0.009	1.89	0.98	3.70	0.058	1.29	1.02	1.64	0.037
Remarried (ref=not remarried)	2.50	2.07	3.02	0.000	1.23	0.90	1.68	0.197	3.78	2.96	4.84	0.000
Drunk alcohol (ref=never)	1.54	1.29	1.82	0.000	1.38	1.08	1.79	0.011	1.64	1.32	2.04	0.000
Never had VCT (ref = ever)	0.87	0.74	1.03	0.099	0.91	0.67	1.25	0.570	0.86	0.71	1.04	0.131
Religion (ref = Muslim)												
Christian-Catholic	0.82	0.71	0.95	0.008	0.87	0.67	1.13	0.305	0.80	0.66	0.96	0.015
Other	0.52	0.39	0.70	0.000	0.69	0.41	1.17	0.172	0.42	0.29	0.61	0.000
Other/none	0.42	0.13	1.32	0.138	0.71	0.12	4.38	0.715	0.35	0.07	1.69	0.190
Constant	2.58	1.59	4.19	0.000	2.62	1.02	6.78	0.046	2.46	1.37	4.44	0.003
<i>Outcome category 2: Extramarital affairs in past 12 months</i>												
Males (ref = Females)	5.26	3.85	7.14	0.000	—	—	—	—	—	—	—	—
Age (younger age)	0.95	0.94	0.96	0.000	0.95	0.94	0.97	0.000	0.95	0.93	0.97	0.000
Had formal education (ref = no formal education)	1.23	0.78	2.0	0.387	1.16	0.86	1.96	0.710	1.54	2.78	0.83	0.172
Performs any income-generating activity (ref = doesn't performs)	2.70	1.64	4.35	0.000	6.25	1.45	25.0	0.014	2.17	1.25	3.70	0.006
Ethnic group (ref = Northern Western)												
Northern Eastern	1.37	0.62	3.02	0.438	1.31	0.50	3.44	0.579	2.52	0.39	16.30	0.332
Southern	1.23	0.71	2.12	0.462	0.77	0.40	1.48	0.428	3.31	0.78	14.05	0.104
VICOBA membership (ref=non-member)	2.63	1.72	4.0	0.000	5.0	2.38	11.11	0.000	2.04	1.19	3.45	0.009
Remarried (ref=not)	2.41	1.69	3.43	0.000	1.27	0.79	2.06	0.328	4.27	2.53	7.21	0.000
Drunk alcohol (ref=never)	2.5	1.85	3.33	0.000	2.5	1.69	3.70	0.000	2.5	1.49	4.1	0.000
Ever had VCT (ref = never)	0.87	0.63	1.19	0.373	0.72	0.47	1.09	0.120	1.20	0.72	1.99	0.478
Religion (ref = Muslim)												
Christian-Catholic	0.91	0.68	1.23	0.558	0.87	0.59	1.30	0.498	1.05	0.66	1.68	0.830
Other	0.59	0.33	1.08	0.088	0.80	0.38	1.65	0.539	0.25	0.06	1.07	0.061

Gender differences in exposure to HIV through extramarital affairs and Contextual determinants of extramarital affairs

Other/none	0.99	0.20	4.99	0.988	1.74	0.26	11.60	0.566	0.00	0.00	.	0.978
Constant	9.06	3.67	22.40	0.000	26.56	7.51	93.99	0.000	0.32	0.05	1.94	0.217

RRR = relative risk ratio; CI = Confidence interval; ref=reference/baseline category;

Qualitative study

Twenty-four participants (13 females and 11 males) took part in the IDIs (Table 6.5). Thirty-eight individuals participated in the focus group discussions (18 males, 21 females) (Table 6.6). Participants were of age between 18 and 68. All participants were currently married, 44 lived in monogamous marriages and 20 in polygamous ones. Most participants reported to have had 1 to 7 children and had been married for 10 years or less.

Table 6-5: Summary of the IDIs participants in Ifakara town (n=24)

Participant's characteristics	Total number of participants
Sex	
Males	11
Females	13
Age	
24-30	08
31-36	05
37-42	08
43-48	01
49-54	00
55-60	01
61-67	00
68-74	01
Education	
Never gone to school	01
Primary education	19
Secondary education	02
Higher level	01
Occupation	
Farmers	13
Farmers/business	02
Petty traders	04
Business	04
Teacher	01
Marital type	
Monogamous	15
Polygamous	09
Marital duration	
1-5	09
6-11	06
12-17	05
18-22	03
30	01
Number of children	
0	01
1-3	13
4-6	07
7-9	02
20	01
Religion	
Muslims	07
Christians	17

Table 6-6: Summary of the FGD participants in Ifakara town (n=38)

Participant's characteristics	Total number of participants
Sex	
Males	18
Females	20
Age	
18-25	12
26-34	11
35-43	15
Education	
Primary education	36
Form four	02
Occupation	
Farmers	25
Petty traders	06
Business	07
Marital type	
Monogamous	25
Polygamous	13
Marital duration	
1-5	25
6-11	09
12-17	04
Number of children	
1-3	27
4-6	11
Religion	
Muslims	15
Christians	23

Theme1: Describing extramarital practice in Ifakara town

When the Vignette (Annex 1) was presented, participants reported that the extramarital affair is a common behavior among men and women in monogamous and polygamous relations. The excerpts presented in the subsequent themes and the one below depicts this observation:

“Extramarital affairs happen much in our community, we see people, husbands and wives, competing in moving out with other partners, one may initiate (extramarital affair) and another one may do the same as revenge, I saw one of my friends doing the same” [IDI, Woman_24 years, Monogamous]

'Kidumu' is a nickname for extramarital affairs in Ifakara town. Kidumu denote a plastic container, which is used to store local brew, milk and water. As such, Kidumu in Ifakara is considered as a backup for sexual desires and economic needs as reflected in the subsequent excerpts.

Theme 2: Participant's views about the reasons behind extramarital affairs

In this section, emerged themes on the determinants of extramarital affairs are presented based on the social-structural domains as adopted from the WHO-CSDH framework. From the interpretation point of view, most themes were converging. We thus used broader theoretical domains to categorize the key themes.

Social-structural aspects

Masculinity, religion and societal expectation

Most men and women had the strong converging view that extramarital behavior is acceptable for men based on religious beliefs and social cultural norms.

A male participant mentioned that religious books justify men's extramarital affairs by allowing them to 'dominate' women and that the cultural system only prohibits women's extramarital affairs:

"Even the religious books stated that a man should dominate his wife and not otherwise and so he 'can have extramarital affair' the wife who have extramarital affair destroys the system of culture [...]"

[IDI_Male_56 years_Polygamous]

Similarly, based on the masculinity ideology another man had the opinion that realistically men cannot stay without extramarital partners:

"I cannot stay like this without a woman (extramarital partner), it is not realistic for a man, I cannot lie, I used to have several (extramarital women) but I now have only one 'kidumu' (extramarital partner)", [...]
since I cannot afford many at the moment"

[IDI_Man_26 years_Monogamous]

A female's excerpt below exemplifies the societal acceptance that men should have several women outside marriage. Unlike women; when men have such relations it may not necessarily imply that they are prostitutes:

"A man [...] with several women outside marital will never be called a prostitute, because 'he is a man', he can even finish all the women in the village but will never be called a prostitute[...] but not you (woman) "

[IDI_Female_26 year_Monogamous]

Village community bank (VICOBA) and women's economic hardship

Women and men frequently cited VICOBA as an aspect that drives women to seek extramarital partners. Participants (mostly women) reported that women's economic hardship, lack of financial support from their husbands and the need to pay interest to VICOBA encourage women to initiate and continue with extramarital behavior.

One woman explained her experience:

F: How long have you been with this “mchepuko” (extramarital partner)?

P: 3 years

F: Can you please tell me how the relationship started?

P: There is a time that I was supposed to give back the money for VICOBA. But I did not have money and so group members took me to the village chairman, I explained to the village chairman that my husband does not want to assist in paying the money back to VICOBA (fearing that the woman will be superior in the house), so when I was explaining this to the chairperson there was a man aside who was listening and looking at me. When I was leaving that man followed me and told me that [...] “I will assist you in paying the VICOBA” I said why can’t I have an affair with this man who is ready to help me? Then we started the relationship”

[IDI_Female_35years_Monogamous]

Another woman explained how the extramarital partners support her social and economic livelihood:

“The extramarital partner assist me a lot, he gives me money for my farming activities, provides food, sometimes he can even buy beans, flour which help me and my child to survive. [...] he (husband) does not provide anything for the family [...], all he knows is to drink alcohol [...]”

[IDI_Female_26_ polygamous]

The fear of losing power over women by men was frequently mentioned as an aspect that restricts men from supporting their wives’ economic opportunities i.e VICOBA, and consequently encourages women to engage in extramarital affairs:

“Usually men when you tell them about VICOBA, they do not want to hear about that, they do not like to be asked about money to cater for VICOBA, they think that when you get money you will be at the same level with them, they just like women to depend on them for everything. That is why women here (in this community) decide to look for an extramarital partner who will assist them to keep up with VICOBA”

[FGD_Women_01]

For men, the opportunity to network in VICOBA group was reported as an avenue to engage in extramarital affairs with several women who are VICOBA members:

“As you know within VICOBA there are many women who are so beautiful and sometimes they do not have money to pay back the VICOBA loans. You know in that situation there is a chance for men to choose them (women) and since you (man) have money they (women) will not deny you”

[FGD_Men_02]

Income

Having good income was one of the main aspects reported by participants which facilitate men's engaging in extramarital affairs. One participant pointed that it is a privilege for a man with income to have several women:

"Us men when we get money we feel privileged to have several women [...] it speaks about the status [...]and I tell you any man with high income will not be complete without having several women"

[IDI_Male_63years_Polygamous]

Alcohol

Participants mentioned that alcohol consumption influence the extramarital behaviors of men and women through sexual networks in the local brew. Married men and women who attend the local brews and bars in Ifakara town are unlikely to be accompanied with their marital spouses since this could infringe their freedom to socialize. Women mostly engage in local brewing, while men are the main customers.

A male participant described that when married men and women get excessively drunk they engage in sexual affairs mostly with non-marital partners.

F: What happens in the local brew with regards to extramarital affairs?

P: For men alcohol goes down to the penis and they no longer feel shy [...]. When you are in the local brew you can get a woman and take her for sex, even women when they are drunk they behave the same (having extramarital affair)

F: What happen to a woman in the local brew?

P: Women sell the local brew and we (men) buy alcohol for them and other friends

F: Does this apply also for married women?

P: Let me tell you my sister, it is rare here to find married couples going together to the local brew since this will limit their socialization, enjoyment and searching for extramarital partners [...]

[IDI_Male_30years_Monogamous]

Marital relationship quality

Marital conflict

Participants (mostly women) reported about existing relationship uncertainties in their marriages, which encourage them to seek extramarital partners expected to provide comfort and other social and financial needs.

"It (extramarital affair) is not a good habit but what you do because there are so many problems in the family and sometimes you may even feel like committing suicide, so you just decide to look for someone who will provide money for food and make you comfortable and maintain your peace"

[IDI_Female_41 years_Monogamous]

Sexual dissatisfaction

Both married men and women mentioned that they were sexually dissatisfied with the sexual passion received from their marital spouses.

Most women were searching for a long time pre-sex preparation from extramarital partner:

“Unlike my husband, he (extramarital partner) takes a long time to prepare me for sex [...], I really enjoy when I am with my ‘mchepuko’ (extramarital partner)”

[IDI_Woman_33 Polygamous]

*“[...], My husband just comes and start making love as if he is entering the farm [...] but the one from outside (extramarital partner) start talking to me for a long time [...]. I **just** do sex with my husband just because he is my husband [...].”*

[IDI_Woman_26_Monogamous]

On a peculiar scenario, one male participant shared his experience that some married women with good financial position married to high income men are compelled to seek extramarital partners since their own men do not provide good sex:

“We meet with other women whose husbands have high income; they keep men (extramarital) in the guest houses because their higher income husbands do not provide good sex since they are engaged in other affairs outside marital”

[IDI_Male 37years_ Monogamous]

Men are more in search of frequent sex.

“You find that I need sex frequently or I have the speed more than my wife but she refuses to give me whenever I need (sex) and then I need to look for other women [...].”

[IDI_Male_30years_Monogamous]

“ [...] during her 40s my wife moved to a different bed because she (wife) did not want to provide frequent sex. Now, tell me in such a situation what was I supposed to do except to look for other women who will satisfy me?”

[IDI_Man _68years_Monogamous]

Polygamous context

A polygamous man confessed that he failed to satisfy his wives sexually, and this was the reason for the wives to seek extramarital partners, eventually he divorced the two wives and remained with the two. If this kind of divorce is a shared norm, this is likely to expose several women to extramarital affairs, especially when there are not social security and legal systems to ensure that the divorced women continue to receive their social and economic needs:

“ At a time I failed to satisfy sex to all 4 wives and I think that was the reason for them to look for sexual satisfaction outside... but later after I discovered that I am HIV infected I had to divorce the two wives who were negative and retain the ones who were HIV positive [...] whom we share a similar status [...]”.

[IDI_Male_59 years_Polygamous]

Spouses living far from each other (parting)

It was reported that some men are unlikely to withstand their sexual urges during a period of separation. The excerpts below point to the instances where spouse had to stay far from each others but men had to find extramarital partners:

“I went to care for my pregnancy in my parent’s home and I had to deliver there and when I came back I found my husband having affairs with another woman (who was not my co-wife), but after sometimes, we went to test and found that both of us we are HIV positive”

[IDI_Woman_33years_Polygamous]

“This (extramarital affairs) happens a lot when spouses live far from each other. I had a friend of mine (woman) whose husband moved to the shamba (farm) and after three months she heard that the husband was having an affair with another woman ooh [...]”

[IDI_Female_25years_Monogamous]

6.5. Discussion

The discussion section is presented based on the interpretation and categories adopted from the WHO-CSDH framework presented in figure (6.1). We emphasize on the structural constructs since they are considered by the scholars of the social drivers of HIV vulnerability as the fundamental sources of HIV vulnerability (Auerbach et al., 2011; Gupta et al., 2008b; Parkhurst, 2014). The findings confirm that extramarital affairs is a complex phenomenon, socially constructed, and may not be well understood in the context of individual behavior, social-structural paradigm may help provide more in-depth understanding of the behavior.

Gender power relation

This study suggests that gender power relation is a face behind differential exposure to HIV vulnerability through extramarital affairs.

In this study we observed a significant association between lifetime extramarital affairs and HIV status among women only (OR= 1.74, 95%CI 1.27-2.39), suggesting the existing unequal exposure to HIV infection through unprotected extramarital behaviors. It is worth pointing that having higher HIV infections among women than it is for men is not new in SSA. De Walque found that, in a sizeable proportion of HIV-infected couples the woman is the only infected partner (de Walque, 2006). In Tanzania, during the period 2003/4 to 2011/12, a statistically significant decline of HIV infections was only among men, from 6.3% to 3.9% but not among women (THMIS et

al., 2012). Another study in Tanzania found that in sero-discordance unions, women were likely to be HIV positive than men (71% versus 29% respectively $p < 0.001$) (Ngilangwa et al., 2015).

Nevertheless, the finding that extramarital affairs mainly expose women to HIV infection is peculiar and in contrast to the observation that men more often engage in extramarital affairs and are at risk of HIV infection. Although biological view of increased HIV vulnerability among women exist (Ramjee and Daniels, 2013) we may argue that beyond biological vulnerability of women, prevailing gender discriminatory practices and masculinity ideologies potentially subject married women to high risk of contracting HIV infections by restricting their power to negotiate safer sex including condom use. DeWalque in SSA including in Tanzania found that married women who engage in extra-marital sex are less likely to use condoms than single women when doing so (de Walque, 2006).

A study in rural Tanzania found that the notion that a woman is not justified in asking the husband to use condom even when she knows that the husband has a disease is common among married and cohabiting partners. This notion was strongly associated with their HIV status (Mtenga et al., 2015). Another study in Tanzania found that although safer sex communication is limited in marriage, women who initiate safer sex discussion on condom use or couple counseling and testing services might be subjected to divorce or conflict (Mtenga et al., 2016) and are not often given rights to decide on HIV related matters (Merten et al., 2016).

Moreover, gender power inequality and partner violence have been strongly linked to increased risk of contracting HIV among women in SSA (Dunkle et al., 2004; Jewkes et al., 2010; Parker et al., 2014). While this is the case, about 44% of adult women in Tanzania have experienced intimate partner violence (IPV) in their lifetime (McCleary-Sills et al., 2016). Similar to our observation, the Rakai study found that multiple sexual partners significantly increased the risk of HIV acquisition among women but not men (Nalugoda et al., 2014). In our study we assumed that remarried women especially those who lost their husbands due to HIV could have contributed to the observed effect among women, but when we excluded the re-married group in the logistic regression analyses, the effect of extramarital affair remained significant (OR=1.44 95% CI 1.06-1.9).

Social-structural determinants of extramarital affairs of men and women

In this section, the determinants of extramarital affairs among married men and women are structured based key themes of social-structural determinants of health as adopted from the WHO-CSDH framework.

Structural domains

Gender power relation/women's economic hardship

This study suggests that being a VICOBA member of a microfinance project increases the relative risk of engaging in extramarital affairs for women. To the best of our knowledge, this finding is new in the respective literature. This is also contrary to the notion that having income is a protection from risk sexual behaviors and that even in the context of economic opportunities still married women are exposed to sexual risk behavior. VICOBA as an informal social protection mechanism in Tanzania is expected to improve men and women's financial saving capacity and enhance their economic livelihood (Massawe, 2014). How VICOBA exposes women to

extramarital practices is an interesting question especially at this era when the social protection mechanisms are expected to alleviate women's poverty and HIV vulnerability (UNAIDS, 2015a). The qualitative component clarify that usually women with economic hardship have several debts in VICOBA since they are unable to raise enough money to support their families and the VICOBA groups. It was however noted during the validation of the qualitative findings that, in striving to raise adequate income, some women become members in several VICOBA groups, which brought them in the situation that they couldn't keep up with paying all the loans. Some husbands may refuse to support their wives' social and economic livelihood, particularly the VICOBA membership fearing power insecurities and competition in the households (even in the context where men would in turn borrow money (received from VICOBA by their women).

As such engaging in extramarital affairs seems to be an acceptable coping strategy for women who are economically dependent on men (keep going of their VICOBA business).

Considering that women in VICOBA who seek money from extramarital partners are already economically vulnerable, they may also have less power to bargain for condom use during sexual intercourse with extramarital partner. This may partially explains about the increased HIV prevalence among married women through extramarital affairs. A similar study in Tanzania also found that economic needs among women were the legitimate reason for women to have multiple concurrent sexual partnerships (Agnarson et al., 2015). Contrary to the view of Mafiga matatu in Agnarson's study (Agnarson et al., 2015), in Ifakara 'Kidumu' as a nick name for extramarital partner among women is also considered as a backup in case one fail to meet the demands of VICOBA. The link between VICOBA and extramarital affairs of married women potentially contribute to the need for the microfinance activities and other social-protection schemes to be delivered in combination with addressing legal systems that deny education opportunity for girls such as the 1971 Marriage Act in Tanzania that allows girls to marry at the age of 15 (URT, 1971). Creating legal rights for women's to advance economically has been highly recommended (Hallward-Driemeier and Hasan, 2012).

Norms of masculinity and social-cultural norms

Based on convergence of views in this section we merge the structural constructs, masculinity and social-cultural norms. The observation that men are more often engage in extramarital affairs is not new in SSA. A study in Nigeria found that husbands practice most of the infidelity behaviors as compared to wives (Kongnyuy and Wiysonge, 2007). However, our study suggests that men's involvement in extramarital affairs is linked to societal expectations and masculinity ideologies. Interestingly, unlike men, women who practice extramarital affairs could be termed as prostitutes. This emphasizes how social norms may constrain safer sex practices for men, and may further explain the finding by Mtenga et al that, it is mainly women who may attempt to initiate safer sex discussion in the marriage, and that men are un happy regarding the discussions about condom use and couple counseling and testing services (Mtenga et al., 2016). Norms of masculinity may also explain the observed significant association between having income and extramarital affairs, as participants mentioned that men with good income cannot be complete without practicing extramarital affairs. Besides, the association between alcohol consumption and extramarital affairs for men, could be an outcome of masculinity ideology as established

elsewhere in SSA (Myadze and Rwomire, 2014). Although we did not establish a positive association between extramarital affairs and HIV status among men, it could be that the long-term effect of men's risk behavior could be realized in the future or in a different context.

Social domains

Marital relationship context

Relationship quality (sexual dissatisfaction and conflict)

Beside economic hardship, this study revealed that sexual dissatisfaction, conflict and lack of passionate in the marriage influence extramarital affairs for married men and women. Interestingly the qualitative study suggests that some women with good income may search for extramarital partners and pay them in exchange for quality sex, which they miss, from their husbands. This may help explain the observed significant association between having income and extramarital affairs among women. If transacting money for quality sex among women is a shared practice then we could argue that while economic hardship encourage girls and adult women in Tanzania to transact sex for income (Wamoyi et al., 2010), married women with stable income would transact sex for sexual dissatisfaction and care from extramarital partners. Similarly, Lammers et al. found that women who are more financially independent and with higher positions of power were more likely to be more unfaithful to their partners (Lammers et al., 2011). In Zambia a good relationship quality was found to prevent married men and women from un safe sex practices (Vamos et al., 2013). In Kenya, sexual satisfaction was found to be protective against extramarital partnerships among married women (Kwena et al., 2014).

Polygamous relation

It was reported in the qualitative study that within polygamous marriage husbands may fail to support all the wives and decide to divorce some. In context where no strong legal systems exist that guarantee the rights of the divorced women and how they will meet their social and economic needs after divorce, there is a potential for these women to engage in risk sexual behaviors including having several extramarital partners. Even in the context of existing legal systems that protect women, some women may not be aware about their rights and the social norms of marriage and gender power inequality may prevent them demanding their rights. This may explain the higher rates of HIV infections among the divorced women in Tanzania and elsewhere in SSA (THMIS, 2012).

Social networks

While economic hardship and relationship quality, seems to mediate the relationship between VICOBA and extramarital affairs for women. The relationship between being in VICOBA and extramarital affairs among men is based on the sexual network in VICOBA groups. From the informal discussions with community members, it was mentioned that, men find opportunities to establish sexual networks with non-marital spouses in VICOBA groups since it is unlikely that both spouses can belong to the same VICOBA group. Although we had fewer men (4% men vs 14% women) reporting belonging to VICOBA, it could be that men have sexual relations with several

women in the same VICOBA group. It is possible that married men meet with married women who are already economically vulnerable. In this context it is easy for them to form extramarital affairs. A study by Coma showed a similar observation that men tend to form extramarital relations in dense networks (Coma, 2013).

Implication of the results

The new era of eliminating HIV infections globally, and optimizing the proven HIV treatment and behavior interventions, call for addressing the social-structural drivers of HIV vulnerability including gender inequality (UNAIDS, 2016b). UNAIDS strategy for 2016-2021 appreciates that supporting social protection and economic empowerment programs for women is likely to address HIV vulnerability among women (UNAIDS, 2016b). For social protection and other structural programs to be protective against women's HIV vulnerability, multiple structural policies and programs are required especially in SSA where legal systems still encourage gender inequality and masculinity ideology. For example, the Tanzanian marriage act by legalizing marriage for 15 years girls it is to deny their opportunity to advance in education, which potentially attracts poor quality of life, lowers their safer sex negotiation power and increases their economic dependence over men. Also, the marriage Act, by allowing polygamy among men, it also encourages their extramarital affairs as well as supports their male power dominance over women.

Structural approaches to health are at an infancy stage in Tanzania (Mtenga et al., 2015a), however the country has a better opportunity to address the structural drivers of HIV vulnerability parallel with addressing the sources of gender inequality through vigorous social policies, and community based initiatives. A program (SASA) in Uganda targeting both men and women in HIV prevention interventions is an evidence that it is possible to work address gender inequality and other structural determinants of health through various stakeholders including community initiatives (Kyegombe et al., 2014).

6.6. Conclusion

Extramarital affairs potentially unequally expose married women in Ifakara town to HIV infection. This paper supports that gender inequality may not only create a setback to women's economic independence, but may continue to increase HIV vulnerability among women particularly married women in resource constrained areas who are surrounded by social-cultural norms and masculinity ideologies that lower their safer sex negotiation power and economic opportunities. Sexual risk behaviors that relates to HIV risk for men and women may not be addressed by health promotion messages that advise married partners to abstain from extramarital affairs. Harmful social norms, gender power relation, economic vulnerability, relationship quality and masculinity should be accounted for.

Although our results lend support to the social-structural domains within the WHO-CSDH framework, based on this study, the masculinity, gender power relation and relationship quality should be explicitly reflected in the framework.

Limitation

The study had several limitations. First, the study was cross sectional i.e. exposures and HIV status had been determined at the same time. Second, two-thirds of the married or cohabiting respondents in the MZIMA cohort are female, which means that our study sample is not very much representative of the male/female distribution in the study area. Third, the variables measuring extramarital affair could have a reporting bias.

We assume that the proxy life time extramarital affairs are likely to have overestimated the prevalence of extramarital affair since it was calculated from the average number of multiple sexual partners at age of marriage. This might have included some of the relationships, which happened before marriage. Therefore, the results should be interpreted with caution by accounting for the possible overestimation of the outcome variable. However, a mixed method design provided quite a good internal validity for most of our observations. For example the qualitative data provided various life scenarios that supported the association between VICOBA and extramarital affairs for women. Likewise, most of the narratives pointed to various social construct contributing to men and women's extramarital behaviors. Most of our findings are supported by observations from other SSA countries. For example in our data we observed the association between income, alcohol and extramarital affairs among men and women which has been also observed in other contexts.

However, further research on how sexual behaviors exposes women to HIV infection, and marital relationship quality is needed to gain a better understanding of the epidemic.

Author's contribution

SA designed the study, collected the data, performed the analyses, interpreted the findings and developed the manuscript. CP, SME, EG supervised data collection. CP, SM, EG and MT provided inputs to the paper. All authors read, revised, and approved the final manuscript.

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Conflict of interest

The authors declare that they have no conflict of interests

7. “It is not expected for married couples”: A qualitative study on challenges to safer sex communication among polygamous and monogamous partners in southeastern Tanzania

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7.1 Abstract

Background

Behavioral change approaches for HIV prevention in Tanzania encourage married partners to observe safe sex practices (condom use, avoidance of, or safe sex with multiple partners). To implement this advice, partners need to communicate with each other about safer sex, which is often challenging. Although social-structural factors are crucial in understanding sexual behavior, only a few studies focus on understanding safer sex dialogue in a broader social context. Drawing on the WHO Social Determinants of Health framework (WHO-SDH), this study explored key social-structural constructs for studying health in the context of improving safer sex dialogue between polygamous and monogamous partners.

Methods

Twenty-four in-depth interviews (IDIs) and 6 focus group discussions (FGDs) with 38 men and women aged 18 to 60 years were conducted in Ifakara town located in Kilombero district, Tanzania. The study was nested within the community health surveillance project MZIMA (Kiswahili: "being healthy"). Partners' experiences of safer sex dialogue in polygamous and monogamous relations were investigated and the challenges to safer sex dialogue explored.

Results

The study revealed that open safer sex dialogue in marriage is challenged by social norms about marriage (a view that safer sex dialogue imply that partners are 'not really' married); marital status (a belief that safer sex dialogue is not practical in polygamous marriages, the elder wife should be exempted from the dialogue); relationship quality (conflicts, extramarital affairs, trust and sexual dissatisfaction); and gender power relations (the notion that females' initiative to discuss condom use and HIV couple counseling and testing may lead to conflict or divorce).

Conclusion

Implementing safer sex practices requires interventions beyond promotion messages. HIV prevention interventions in Tanzania should be carefully adapted to the local context including respective social norms, gender systems and relationship uncertainties as aspects that facilitate or hinder safer sex dialogue between partners. The WHO-SDH framework could be strengthened by integrating relationship quality, marital status and social norms as additional determinants of health.

Key words: Safer sex, HIV vulnerability, marriage, marital-relationship, social norms, communication, polygamous, Tanzania, qualitative study

7.2 Introduction

Safer sex communication is one of the health protective, and an effective strategy for promotion of safer sex practices between partners in stable and marital relations (Marlow et al., 2010; Muhindo et al., 2015; Noar et al., 2006; Vamos et al., 2013). Since there is no cure for the Human Immunodeficiency Virus (HIV), promotion of safer sex strategies including safer sex communication remains key in Sub-Saharan Africa (SSA) where heterosexual sex is the major route of HIV transmission (UNAIDS, 2013). However, there is increasing recognition that, social-structural context is likely to constrain the practice of safer sex (Auerbach et al., 2011; Baral et al., 2013; Parkhurst, 2014) including among married partners. Literature highlights that marriages carry taboos that could inhibit safer sex practices between partners (Karim et al., 2010; Marlow et al., 2010; Mugweni et al., 2015). These marital taboos are also likely to influence safer sex communication practices among married partners. Recent evidence in Tanzania indicates that the gender norm that a wife is not supposed to ask her husband to use condoms even when he has a disease is common among married partners (Mtenga et al., 2015). This norm was significantly associated with HIV status of married men and women in a rural community. Furthermore, alarming HIV vulnerability in marriage as highlighted by studies in SSA including in Tanzania (Bellan et al., 2013; Chemaitelly et al., 2014; Dunkle et al., 2004; THMIS et al., 2012) is an indication that more data is required on social-structural drivers of HIV vulnerability. Hence, understanding contextual aspects surrounding safer sex communication between partners is critical for designing appropriate interventions to promote safer sex communication and practices between partners.

In Tanzania, health promotion messages that encourage married partners to use couple counseling/testing and condoms, as well as to abstain from extramarital affairs have been consistently promoted as HIV prevention interventions for married partners. A widely promoted Swahili slogan is “stay on the main road, divergence is not an option-prevent HIV” (Kiswahili: “baki njia kuu mchepuko sio dili-epuka ukimwi”). Implementing the recommended safer sex practices requires partners to communicate with each other about safer sex. This is often challenging despite evidence that communication and negotiation for safer sex play major roles in HIV prevention in (Marlow et al., 2010; Noar et al., 2006; Sheeran et al., 1999). In India, better safer sex communication led to increased sexual activity, improved relationships, alleviate doubts about a partner’s infidelity and increased forgiveness among married partners (Marlow et al., 2010). In contrast, poor sexual communication has been positively associated with STI prevalence among married men and women (Kershaw et al., 2012).

Studies based on psychological and behavior theories have led to insights into variables (i.e communication skills, attitude, intention, perception, self-efficacy) that influence safer sex communication and practices (Ajzen and Fishbein, 1980; Carmack and Lewis-Moss, 2009; Kakoko et al., 2006). Such studies, however, are criticized for the failure to account for the social-structural context in which the safer sex practices operate (Auerbach et al., 2011; Gupta et al., 2008b; Parkhurst, 2013). For instance the main critique of the “ABC” (condom, abstinence and being faithful) model of HIV prevention is its “individualistic” focus, paying little attention to the context of the safer sex aspects.

Different from the psychological and behavior approaches to safer sex communication and practices, in this paper we take a step further to understand how social-structural aspects including marital experiences challenge safer sex dialogue between married men and women in monogamous and polygamous relations.

Safer sex communication hereby refers to how married partners communicate and negotiate about condom use, couple counseling/testing and abstaining from extramarital affairs. We confine safer sex to these safer sex aspects based on the ongoing health promotion messages in Tanzania and evidence of their relevance among married partners.

Theoretical framework

We study safer sex communication in the context of the WHO-Commission on the Social Determinants of Health framework (WHO-CSDH) (World Health Organization, 2010). The primary aim of the framework is to guide understanding and practice in addressing health inequity and diseases (World Health Organization, 2010). Although, the primary aim of the WHO-CSDH framework is not to investigate factors influencing safer sex communication between married partners, the framework includes relevant broader social-structural aspects (Figure 11) that can be adopted to study health behavior aspects. By focusing on the social, economic and political context, this study explored cultural and social values, gender aspects, which may affect safer sex dialogue. The red stars in the framework presented below illustrate this focus (Fig: 7.1).

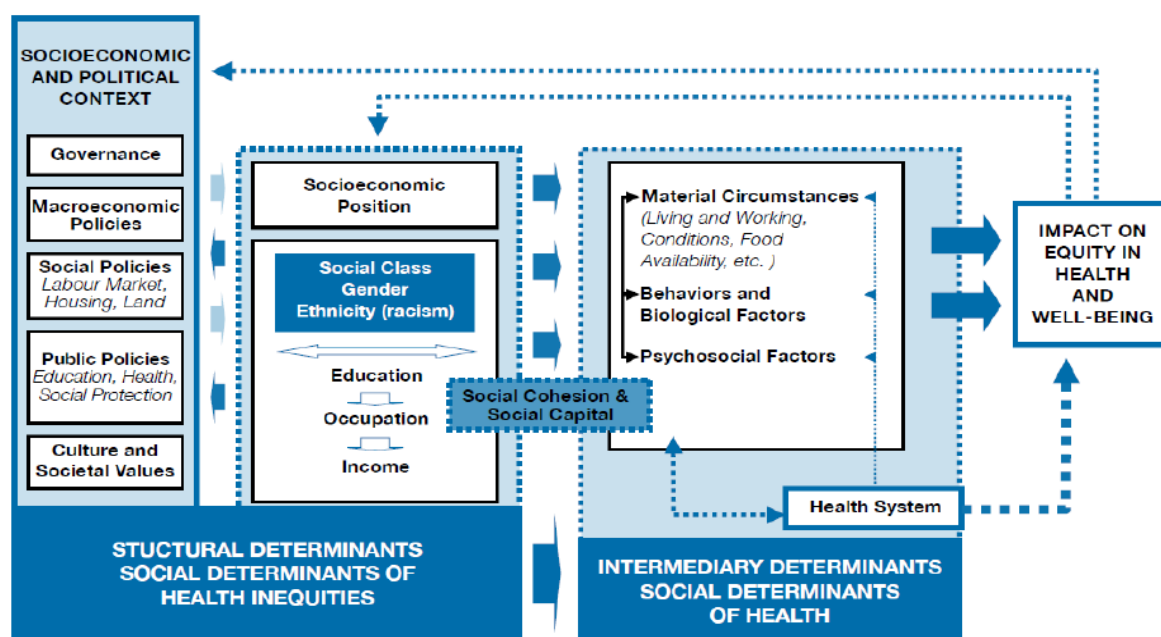


Figure 7-1: The WHO- Social Determinants of Health framework (WHO-CSDH)

Acknowledging the limitations of the framework, based on the literature review and intuition, additional social-structural constructs were explored to improve understanding of safer sex dialogue in marital relation. The red boxes in Figure 7.2, below present these additional constructs.

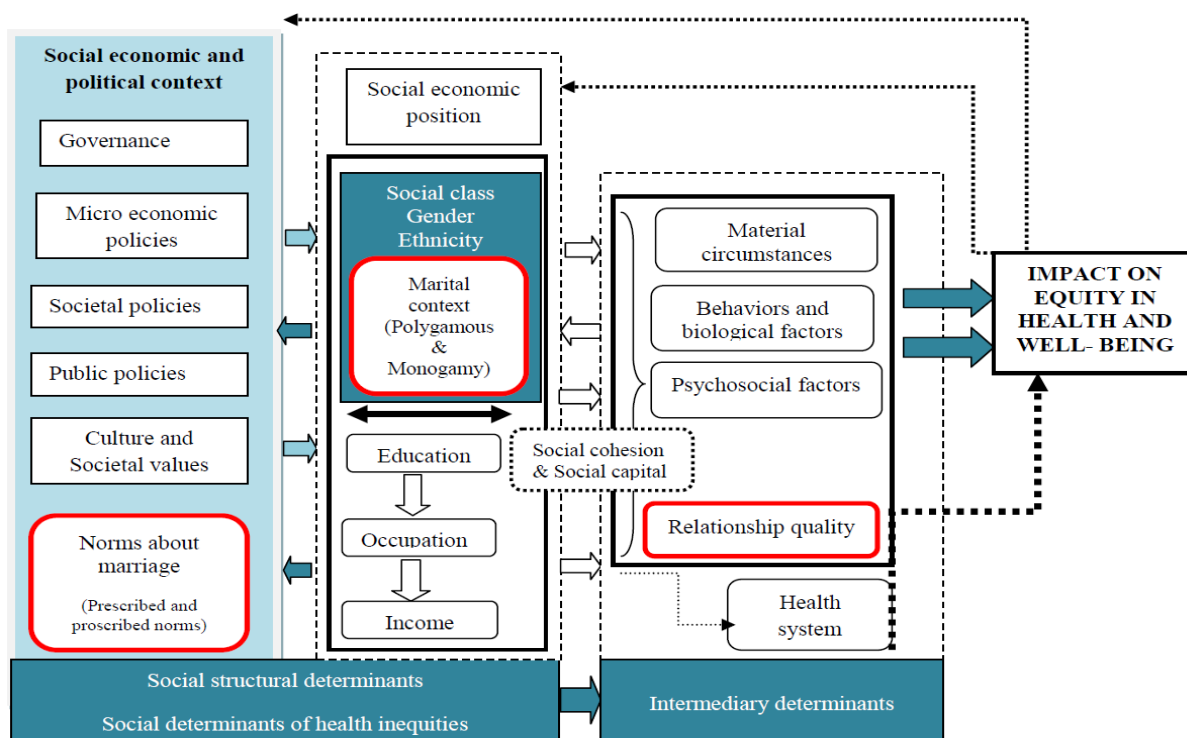


Figure 7-2: Modified WHO-SDH framework used to learn about the challenges to safer sex dialogue between married spouses (WHO, 2010)

Definition of key concepts

Social norms

Norms are unwritten rules, representations of acceptable group conduct motivating people to conform to rules. Social norms are the customary rules that govern individuals' behavior in groups and societies. Prescriptive norms indicate what one should do while proscriptive norms indicate what one should not (Bicchieri and Muldoon, 2014). Bicchieri (2006) point that norms are important social constructs since they are endogenous products of individuals' interactions and imply punishment or negative social consequences if one fails to comply (Bicchieri, 2006). Social norms have been found to influence individual's health practices (Bandali, 2011; Overseas Development Institute, 2015; World Health Organization, 2009). The two types of social norms are explored in this study.

Relationship quality

Relationship quality is often referred to as how happy or satisfied partners are in their relationship (Reynolds et al., 2014). Approaches to relationship quality comprise of 'interpersonal relationship' (patterns of interaction between spouses: communication, conflict behaviors, and spending time with one another) and 'intrapersonal approach' referring to how partners view happiness or satisfaction in a relationship (Reynolds et al., 2014). In most studies 'trust' between partners and 'satisfaction' in a relationship have been the main measures of relationship quality (Cox et al., 2013; Mugweni et al., 2015). Poor interpersonal and intrapersonal relationship quality is linked to poor health outcomes for partners (Vamos et al., 2013).

Marital context

Marital context in this study refers to different types of marriage. Polygamous and monogamous relationships are the common patterns of marriage in SSA including Tanzania. About a quarter of the women in Tanzania live in polygamous marriages (Howland and Koenen, 2014) which refers to one man having more than one wife; monogamous refers to one man having one wife (URT, 1971). Observation that monogamous and polygamous partners are likely to engage in sexual risk behavior (THMIS, et al., 2012) provides indication that both marital types are not protective against HIV infection.

7.3 Methods

Design

Using a qualitative approach, we conducted 24 in-depth interviews (IDIs), and 6 focus group discussions (FGD) with married men and women residing in Ifakara town, Kilombero district in southeastern Tanzania. The IDIs were useful in uncovering individuals' experiences regarding safer sex dialogue and capturing sensitive, emotive and salient aspects in marital life which one may not feel comfortable discussing in the presence of other people (Creswell, 2013). FGDs allowed insights into general group norms on marriage, or "collective" views, beliefs and discourses related to safer sex dialogue in marriage. The use of both tools helped to cross check information (Creswell, 2013).

Study setting

The study was implemented between May 2015 and July 2015 in two villages of Ifakara town: Viwanja sitini and Mlabani in Kilombero district. It is nested within a larger MZIMA community health surveillance study (Abdul et al., 2014). The detailed description of MZIMA surveillance study and Ifakara town is provided elsewhere (Mtenga et al., 2015). While MZIMA offers quantitative data regarding predictors of HIV status among heterosexual married individuals, this qualitative study was set up to build upon a previous study focusing on the social drivers of HIV status among married and cohabiting partners (Mtenga et al., 2015), to gain a better understanding of the complexities of safer sex dialogue that cannot be easily captured by survey research.

Ifakara town is the district headquarters of the Kilombero district where most of the administrative and social activities are implemented. The town is heterogeneous, hosting more than nine ethnic groups coming from other parts of the country. The three most common ethnic groups are the Wandamba, the Wapogoro, and the Wambunga. Islam (39%) and Christianity (52%) are the predominant religions (Mtenga et al., 2015). The town is well served by a hierarchy of health facilities ranging from the district hospital to health centers and dispensaries. The adult HIV prevalence in Ifakara based on the MZIMA community surveillance study is 7% (Mtenga et al., 2015) which is higher than the national prevalence 5% (THMIS, et al., 2012).

Participants' recruitment and data collection

We conducted 24 IDIs with married and cohabiting individuals living in heterosexual monogamous and polygamous relations, and 6 FGDs with married partners (Table 7.1 and 7.2). The sample size for the IDIs was

based on the saturation principles recommending a sample size of 12. Each FGD had 6 to 10 participants to achieve a maximum variation (Kuzel, 1999).

A stratified purposive sampling was used to recruit the IDIs and FGDs participants by ensuring that the younger (18-30 years age group), older (30-60 years age group), polygamous and monogamous individuals were captured. We assumed that marital characteristics (polygamous, monogamous) would be important in understanding partners' marital contexts and experiences affecting a safer sex dialogue. During FGDs, we separated individuals according to gender and age but we combined the polygamous and monogamous marital characteristics in the discussion groups due to fewer polygamous partners. Familiarity with the study setting, prior informal discussions with community members and the Swahili language was useful for the first author (SM) in gaining access to the relevant community and the local leaders.

The community hamlet leaders were useful in the recruitment of the study participants. They helped with understanding of marital types in the study area i.e polygamous, monogamous and facilitated access to married couples. Semi-structured and open-ended discussion guides were used during the interviews. Four broader topics were explored: (1) perceptions of marital life, (2) perceptions of safer sex methods, (3) experiences of safer sex dialogue, and (4) community views on safer sex negotiation between partners in monogamous and polygamous relations. The guides were pre-tested and afterwards revised. The study investigator (SM) (a female married Tanzanian adult and a sociologist) with experience in qualitative data collection carried out the study.

A married male researcher, assisted in conducting interviews and discussions with a married male participant. The study venues were selected based on participants' preferences i.e under the trees, at private places, homes, in their neighborhoods and at school classrooms. Participants were interviewed until no new insights emerged which was observed at the 24th interview. To enable free narration of personal experiences and emotional sentiments, we recruited partners from different households. We did not interview participants based on the background of their sexual risk behaviors (i.e condom use, having multiple partners) since we intended to capture the broader marital relationship and lifestyle.

All participants were asked for written informed consent after being informed about the purpose of the study. Confidentiality was assured and participants were informed about their right to withdraw from the study at any time. Iterative and recursive processes in data collection were employed to explore emerging concepts or themes from one interview to the other (iterative) or going back to check for the issues raised in the previous interviews (recursive) (Bernard, 1988). Interviews and discussions were conducted in Kiswahili, a debriefing session was conducted to review emerging issues and prepare for the subsequent interviews. Participants were given a small grocery package as a compensation for transport i.e hiring of bicycles to the interview venue. Data were audio recorded and transcribed verbatim.

Table 7-1: Summary of IDIs participants in Ifakara town (n=24)

Participant's characteristics	Total number of participants
Sex	
Males	11
Females	13
Age	
24-30	08
31-36	05
37-42	08
43-48	01
49-54	00
55-60	01
61-67	00
68-74	01
Education	
Never gone to school	01
Primary education	19
Secondary education	02
Higher level	01
Occupation	
Farmers	13
Farmers/business	02
Petty traders	04
Business	04
Teacher	01
Marital type	
Monogamous	15
Polygamous	09
Marital duration	
1-5	09
6-11	06
12-17	05
18-22	03
30	01
Number of children	
0	01
1-3	13
4-6	07
7-9	02
20	01
Religion	
Muslims	07
Christians	17

Table 7-2: Summary of the FGD participants in Ifakara town (n=38)

Participant's characteristics	Total number of participants
Sex	
Males	18
Females	20
Age	
18-25	12
26-34	11
35-43	15
Education	
Primary education	36
Form four	02
Occupation	
Farmers	25
Petty traders	06
Business	07
Marital type	
Monogamous	25
Polygamous	13
Marital duration	
1-5	25
6-11	09
12-17	04
Number of children	
1-3	27
4-6	11
Religion	
Muslims	15
Christians	23

Data analysis

Building on the principle of grounded theory (Halcomb and Davidson, 2006), the verbatim-transcribed data were analyzed. Emerged patterns were identified and coded. Coding began as open coding assigned next to the study themes or ideas found in segments of the transcript. Inductive and deductive codes enhanced the analytical meaning of the emerged themes (Fereday and Muir-Cochrane, 2006). Themes were compared between men and women (young and old) and monogamous and polygamous relations. Tentative themes developed from the analytical process were compared with others to check for validity. Themes, categories and sub-categories were guided by the social determinants of health framework (World Health Organization, 2010). A summary of the aspects that emerged from the analytical process is provided (Table 7.3). N-VIVO program version 12 for qualitative data analysis was used to support systematic data coding. All data were analyzed in Kiswahili, and relevant quotes were translated into English.

Trustworthiness

This qualitative study considered credibility, dependability and transferability (Anney, 2014). After the data analysis, the member checking method was used for validation of data. Participants were asked to check for the accuracy of the generated themes to allow clarity on the interpretation and practicality of various key themes and sub themes. Participants provided feedback, which helped to improve the accuracy of themes.

Ethical consideration

Ethical clearance was acquired from the Ifakara Health Institute Review Board (approval number IHI/IRB/AM/01-2014), the National Medical Research Coordinating Committee (approval number NIMR/HQ/R.81Vol.IX/1320) and the Ethikkommission Nordwest- und Zentralschweiz in Basel, Switzerland (EKNZ:UBE-15/36).

7.4 Results

Participants' characteristics

Table 7.1 shows the characteristics of married and cohabiting individuals enrolled in the IDI interviews; Table 7.2 shows the characteristics of the participants of the FGDs. Twenty-four participants (13 females and 11 males) participated in the IDIs. Thirty-eight individuals took part in the focus group discussions (18 males, 21 females). Participants were between 18 and 68 years. All participants were married, 44 lived in monogamous marriages and 20 in polygamous relations. In polygamous marriages, the number of reported co-wives varied from 2 to 4. Participants reported to have had 1 to 7 children, and had been married for 10 years or less.

Challenges to safer sex dialogue

Three main themes highlighting the challenges of safer sex dialogue are presented below (Table 7.1). By focusing on the relationship quality, we start by presenting partners' views about their marriages as 'happy marriage', and how this view is challenged by marital uncertainties. We then elaborate other key themes, which challenges safer sex dialogue between partners. Lastly, we present how participants communicate and perceive safer sex. We expected to observe strong divergences of opinions between polygamous and monogamous partners. However, the opposite was found. Differences were only noted with regards to norms related to the marital status.

Table 7-3: Major themes and sub-themes that emerged in the study

Major themes	Sub-themes
Relationship quality	<ul style="list-style-type: none"> ▪ Marital conflict ▪ Marital trust ▪ Extramarital affairs ▪ Sexual dissatisfaction
Social norms	<ul style="list-style-type: none"> ▪ Norms of marital relations ▪ Norms of marital status (Polygamous relation)
Gender power relation	<ul style="list-style-type: none"> ▪ Raising discussion on condom and couple counseling by a woman leads to conflict and divorce

Relationship quality

'Happy marriage identity'

At the start of the interviews, various participants (men and women) characterized their marriages as being "happy". Later it became clear that a happy marriage does not necessarily preclude one of the partners from having extramarital sexual relationships or conflict. One male participant reported that he is happy with his marriage and that his wife treats him well but in the course of the interview, he disclosed to have had several extramarital partners:

"Now days without marriage you will be hanging here and there but if you have your wife you just stay and enjoy, so when I see my wife I feel very happy"

"What really makes me practice extramarital affairs is lust, just lust because the lady (extramarital partner) is beautiful, have nice shape and tall [...] she was not married and just finished her form four"

[IDI_Male_38 years_Monogamous]

Some women revealed being happy in their marriage but they reported to engage nevertheless in extramarital behavior. It could be a reflection that living in a 'happy marriage is a 'valued identity' among marital partners (both men and women). However, this identity is affected by the circumstances within marriage (extramarital affair).

One female participant expressed her experience:

"I love my marriage, I cannot quit, if my husband's behavior improves I will be happy to continue with my marriage"

"At first I did not have a man outside my marriage, but I was forced to do that after seeing that my husband does not pay attention to my needs and he also does the same (engage in extramarital affair). I

have been with this man (extramarital partner) for two years now, he is not married [...] we use condoms but not always”

[IDI_Female_24years_Monogamous]

Marital conflict

Participants frequently mentioned marital conflict as an aspect that dominates their marital lifestyle. One female participant explained that marital disharmony affects mutual dialogue on safer sex since it becomes impossible for partners to talk. She confessed frequent quarrels with her husband:

“P: If there is marital disharmony, you cannot talk about anything. If you always quarrel on things, you cannot agree on things (including safer sex practice). Where there is no love, these discussions are impossible.

I: You have talked about quarrels does this happen in your marriage?

P: Yes, very often, I tell him (husband) do not come back late at night and do not have other partners but he does not listen”

[IDI_Female_40years_Monogamous]

Similarly, a male participant pointed out that absence of happiness in the marriage makes it difficult for partners to practice safer sex dialogue since they cannot stay together and plan:

“I: What do you think are the reasons that couples do not communicate about safer sex?

P: They do not have good relationships because marriage is happiness if you are not happy you will not discuss (about safer sex aspects)”

[IDI_Male_38years_Monogamous]

Marital trust

The concept of ‘trust’ was evident in most interviews and discussions. Partners expressed their strong opposing views towards dialogue about couple counseling and testing or condom use since this contradicts trust in marriage:

“When people have been married for a long time, they become like relatives and you trust each other and it is difficult to talk about condoms or going for HIV testing since you already trust each other”

FGD_Males_01]

“You know, when you agree to live as husband and wife you need to trust each other and be ready for anything (not having safer sex dialogue)”

[FGD_Females_03]

Extramarital affairs

Participants (particularly women) frequently cited an extramarital affair as one of the constructs that affects marital happiness and sexual passion in marriage and may hinder mutual dialogue on safer sex.

One woman explained that she would be happy to see her husband abstaining from extramarital affairs since the behavior affects happiness and the quality of sex in her marriage:

"P: I would feel happy when my husband does not have outside sexual affairs

I: Can you tell me more, why do you say so?

P: Because if a man has other women outside marriage (extramarital affairs) there will be no happiness in the house [...].

I: Why do you think that he (husband) has partners outside marital?

P: My husband usually tells me "I am tired" when I ask for sex [...]

[IDI_Female_40 years_Monogamous]

A male participant admitted that he always quarrels with his wife due to his extramarital behavior:

"The main issue that we normally have conflict with is about women (extramarital women), she (wife) always think that I have other women, but sometimes I have (extramarital women) sometimes not"

[IDI_Male_26years_Monogamous]

Sexual dissatisfaction

Participants also talked about how it may be difficult for the partners to implement safer sex communication since some spouses are not sexually satisfied in their marital affairs.

One participant explained how the husband has been denying sex for a long time:

"Men are the source of the problem (not having safer sex dialogue); I do not know why the society does not see this. On my side, I have been very much patient with my husband, I stayed for one month, two months without getting sex from him. When he comes home he just sleeps and turns the back on a different side"

[FGD_Females_01] A man in a polygamous relation highlights a similar concern:

"You find that I need sex frequently but she refuses to give me, whenever I need (sex) she fails to satisfy me"

[IDI_Male_41years_Polygamous]

Social norms

Norms of marital relations

Some participants were of the view that safer sex dialogue between married partners is not acceptable in the Tanzanian community. This shared belief could be one of the explanations for the low uptake of condom use and couple counseling and testing among married partners.

"Here people feel shy to address the reality. To speak the truth, in our normal Tanzanian communities for a husband and a wife to sit together and talk about HIV prevention or condom use or HIV testing is not common and neither expected, unless you suspect each other. Even when other people in the community hear that Mr. so and so and the wife talk about these issues they may think that you are not in real marital relations"

[FGD_Males_02]

Some study participants stated that if married partners are seen by community members talking about HIV prevention, people may start doubting whether they are real in a marital relation. These sorts of discussions are meant for single and young people:

“Sometimes people (in the community) may question, why do these married people talk about HIV prevention? I think that, those discussions are for the single and young people. Like me if my husband tells me about condoms or HIV prevention, I may think that he does not respect me as a wife or suspect about issues”.

[FGD_Females_03]

Another participant had the opinion that it is against the law to advise a spouse to use a condom with an extramarital partner and may look like approving the extramarital behavior:

“It is not legal to tell your wife that “use condom when having extramarital affairs”, it is like allowing her to go outside. I can never propose condom use with my wives”

[IDI_Male 56 years_ polygamous]

Norms of marital status (polygamous marriage)

Most participants (especially women) in a polygamous reported that the polygamous context is not appropriate for safer sex dialogue since it is difficult to know whether the husband also speaks about safer sex with the other wife/wives.

Also women in polygamous are uncertain about the behaviors of their co-wives:

“I am not sure whether my husband also talks (about safer sex) to my co-wife. You know I may be discussing (about safer sex) with him (husband) but if he does not talk with the co-wife, it may not help, because I am not sure about the (risk) behavior of the co-wife”

[IDI, Female_ 33 years_Polygamous]

One woman mentioned that she could not imagine that a man would speak to all his wives about safer sex aspects:

“P1: how can (safer sex dialogue) be done? Someone with several wives, how can he talk with all of them?”

P4: Just like the way she has said, in polygamous [marriage] it is impossible to talk about HIV prevention, because even if you talk with one wife, how about the other wives?

P5: [...], moving from one wife to the other is not a joke, you may end up discussing with one wife only but not with all”

[FGD_Females_02]

Gender power relations

Participants reported that women usually initiate discussions on safer sex by instructing their husbands to abstain from extramarital affairs and being careful with HIV. If this is a shared norm, it could reflect that women despite their engagement in risk sexual behavior take the responsibility of watching over their husband's sexual behavior. However, talking about condom use and couple counseling and testing may lead to conflict and divorce:

"When you talk about condom use or going for couple counseling and testing you will bring conflict in the marriage and even divorce. In order to avoid those things (conflict and divorce) you just keep quiet. Even in the context where a woman has been tested and found positive, she will never disclose that to the husband, so she will just continue to infect the husband"

[FGD_Females_03]

Women who reported to have been instructing their husbands about abstaining from extramarital affairs stated:

"For us we do not discuss (about HIV prevention), but I am the one who usually tells my husband that he needs to be careful with HIV, look we can both die and leave our kids, but he never listens"

[IDI_Female_35years_Monogamous]

One male participant admitted that it is his wife who usually initiates the safer sex discussion and he cannot initiate the discussion since he is the one engaging in extramarital affairs:

"Like in my marriage, my wife is the one who usually initiates the discussion about safer sex. She normally tells me that I should not go outside my marital. It is always hard for me to initiate those discussions because I normally go out with other women"

[IDI_Man_26 years, Monogamous]

Conceptualization of safer sex

Safer sex practices were mainly linked to abstinence from extramarital affairs. Knowledge of condom use and couple counseling and testing was not common. This could be due to marital normative aspects presented above.

"P: In my opinion, I think that safer sex is abstaining from other sexual partners outside your marriage

I: What about condoms?

P: He (husband) does not want to hear about it (condom) and I cannot force him since I will be in trouble (may be beaten or threatened to be forced out of marriage)"

[IDI_Female_40 years_Monogamous]

7.5 Discussion

Our findings suggests that open safer sex dialogue between monogamous and polygamous partners in Ifakara town, Tanzania is challenged by interrelated multiple social-cultural factors. Findings are divided into: 1.) relationship quality, 2.) social norms of marital relation, and 3.) gender power relations.

Relationship quality

In this study, we observed that the participant's view of 'happy marriage' had a symbolic meaning as it would not necessarily translate into a resource to safer sex dialogue and practice. This could possibly reflect how spouses in marriages are culturally obliged to use symbolic expressions such as "happy marriage" to protect the positive images of their marriages even in the context of marital uncertainties and risk behaviors. Hopkins (2008) pointed that in some cultures a woman is expected to retain a peaceful marriage regardless of marital disputes (Hopkins and Lewis, 2014). Leaving a marriage would bring shame upon the paternal name and is considered being contrary to the spirit of women's tolerance. However, women's tolerance is context specific. A study in Uganda concluded that while urban women would not tolerate conflicts in their marriage, rural women preferred not to leave their marriage regardless of the circumstances (Nyanzi et al., 2005).

In our study, men's portrayal of their marriage as happy marriage despite their extramarital behaviors, may have emanated from the expected masculine view in Tanzania, which also considers men's extramarital behavior as a sign of being a 'complete man (strong)' (Mtenga et al, 2015). This discussion lays the foundation of how further safer sex dialogue between married partners is constructed from various social-cultural dimensions.

Our study also showed that marital relationship uncertainties (marital conflicts, sexual dissatisfaction, safeguarding trust and extramarital affairs) challenged an open safer sex dialogue between partners. This finding is similar to dynamics observed in Zimbabwe and Malawi where trust, and a belief that condom use would contradict love, constrained safer sex negotiation and practice for married partners (Mugweni et al., 2015). Parker (2014) in South Africa found that concerns about partners' infidelities, i.e. extramarital affairs, was a barrier to safer sex dialogue among couples (Parker et al., 2014).

Our results highlight the role of relationship quality as a barrier to safer sex dialogue. This is a strong challenge to the notion of economic vulnerability being the main aspect constituting HIV vulnerability among married couples (Mishra et al., 2007). Unfortunately, relationship quality is a rare theme in most of the HIV intervention programs. This could be due to its complexity and being too 'distal' from commonly accepted HIV risks (Parkhurst, 2014). However, knowledge on the distal determinants of HIV risk is now well recognized to be important for the design of long-term approaches to HIV vulnerability (Baral et al., 2013; Parkhurst, 2014; Parkhurst, 2013).

Social norms

Norms of marital relation

We found that norms of marital relations imply that married partners are obliged to comply to social expectations linked to marriage even when the expectations contradict safer sex practices including safer sex dialogue. These findings are credible in light of other studies in SSA. In Zimbabwe, extended family members and religious leaders explicitly or implicitly discouraged women's safer sex negotiation with their husbands (Mugweni et al., 2015). Traditional beliefs in Malawi prevented married couples from supporting condom use (Chirwa et al., 2011). Social norms in Nigeria were a barrier for married men to participate in prevention of mother to child transmission services (PMTCT) including couple counseling and testing services (Adelekan et al., 2014). Gagnon (2005) argues that in most societies social norms influence sexual communication through a structured set of behavioral

guidelines that create cultural norms for how sex and sexuality can be expressed (Simon and Gagnon, 2005) . Beyond their influence on safer sex dialogue, social norms as reflected by gender expectations significantly influenced HIV status of married and cohabiting men and women in Tanzania (Mtenga et al., 2015b). Karim (2010) also found that it was difficult for married partners to influence condom use because of the dominant ideologies about marriage (Karim et al., 2010).

Norms of marital status

Polygamous context

We observed a belief that 'it is only the younger wife who is considered worthy of safer sex dialogue in polygamous marriage since she is perceived as more vulnerable to risk behaviors based on her age and level of maturity'. Doing so, might risk overlooking the HIV vulnerability of older wives. Women in polygamous relationships also felt that it useless and difficult to practice safer sex dialogue since they are uncertain about the sexual risk behaviors of co-wives.

Only few studies exist in this field. We, however, consider these observations as of critical importance since they reflect the realities of marital context, how they shape practice of safer sex dialogue, and the understanding of who is vulnerable to HIV. Craddock et al. highlight that in the dominant HIV prevention discourse, individuals are framed with a particular identity or position, overlooking that other identities or positions also contribute to their vulnerability (Craddock, 2000). Likewise, the public health discourse may overlook that individuals have their own context based perspectives of HIV vulnerability. This oversight could partially explain why some couple-based programs have not yet fully succeeded.

Although the SDHs framework highlights culture and social values as social-structural determinants of health, the social norms are not clearly defined. Despite their similarity, these concepts are different. Culture reflects people's ways of life (Connie,1996). Social values denote what people consider being of importance and influence their practices (Mondal, 2016). Social norms reflect the rules that dictate what people should do and what they should not do in a particular society (Bicchieri and Muldoon, 2014). Therefore, the social norms have a dictating connotation - a reflection of how powerful they could be in shaping health decisions.

Gender power relations

Some female participants in our study pointed out that dialogue on couple counseling and testing or condom use may subject them to violence or divorce. This is a reflection of existing gender inequality in marriage and of violation of human rights. The Demographic and Health Survey report in Tanzania indicates that about half (41%) of the surveyed married individuals were likely to be exposed to gender based violence (TDHS, 2011). Elsewhere in SSA, it was found that women are voiceless negotiating for safer sex due to fear of perceived or actual consequences, which include violence and abandonment (Mugweni et al., 2015). Other studies show that power in gender relations places men in control of when, where and how sex takes place (Gupta, 2000). In South Africa

a study showed that women were more likely to use condom if they had more gender-equal views, compared with women whose views were male dominated (Medical Brief, 2015).

It emerged from our study that women in monogamous relations may take a lead in instructing their husbands to abstain from extramarital affairs. We would expect the same among women in polygamous relation. However, as pointed out earlier, a polygamous marriage is perceived as not conducive for safer sex dialogue. Nevertheless, the finding that women in monogamous take the lead in instructing their husbands to abstain from extramarital affairs is contrary to our expectation since in SSA women may not be expected to raise their voices to men regarding sexual matters (Zulu and Chepngeno, 2003). It seems, however, that in Tanzania, having more women entering the informal sector as entrepreneurs (One World for Growth, 2009) is now challenging this culture. As such, having more women joining the Village Community Bank (VICOBA) in Ifakara town, as informally observed in our study community may have improved women's ability to communicate extramarital behaviors of their husbands. But this assumption requires further investigation.

Implications

The current calls to address HIV vulnerability in a long-term, requires understanding of how social-structural factors influence various patterns of safer sex practices (Auerbach et al., 2011; Gupta et al., 2008b; Parkhurst, 2014). This study reflects some of these social-structural aspects that limit open safer sex dialogue between spouses. Based on these findings, it is not surprising that, despite intensive promotion of couple counseling and testing, its uptake is still low in Tanzania (AMREF, 2014). Our findings therefore support the argument that besides emphasis on the individual-behavior approaches to safer sex communication and practices, there is a need to address social norms about marriage, relationship quality, marital type and gender power relation. These marital and community level constructs are likely to challenge not only safer sex dialogue but also the uptake of other proven HIV prevention interventions in marriage like early antiretroviral therapy (ART).

Health promotional messages in Tanzania should advocate for safer sex communication rights of men and women in polygamous and monogamous relations, and reflect on social norms and expectations that constrain partners' mutual dialogues on condom use and couple counseling and HIV testing services. In addition, gender-based violence should be targeted in parallel with emphasizing the importance of quality relations.

Some of the social-structural challenges to safer sex dialogue are complex and may require creating wide opportunities for women's social and economic development programs, and policies that support men and women's rights to participate in safer sex dialogue regardless of their positions in marriage.

7.6 Conclusion

This study demonstrates that social norms regarding marriage, gender power relations, relationship quality (marital conflict, extramarital affair, sexual dissatisfaction) and marital types (polygamous/monogamous) challenge open safer sex dialogue between spouses living in polygamous and monogamous marriages in Ifakara

town, Kilombero district-south eastern Tanzania. Moving beyond the current behavior-centered paradigm by considering contextual factors is key for better understanding the underlying determinants of safer sex communication and other aspects of HIV risk among married individuals.

The WHO Social Determinants of Health framework is a useful approach for understanding how various social-structural determinants influence health and health inequities. In the context of safer sex dialogue, the framework should explicitly reflect relationship quality, marital status, social norms and gender power in stable relations.

Paper context

Behavior change approaches to address HIV vulnerability among married spouses in Tanzania encourage partners to speak about safer sex. Drawing on the WHO Social Determinants of Health framework, this study explored key social-structural constructs that influence safer sex dialogue in polygamous and monogamous relations in southeastern Tanzania. Findings highlight that marital relationship quality, social norms about marriage, marital status (polygamous) and gender power relations determine safer sex dialogue and need to be addressed in HIV prevention interventions.

Author's contributions

SA designed the study, collected the data, analyzed the data, interpreted the findings and developed the manuscript. CP, SME, EG supervised data collection. CP, SM, EG and MT provided inputs to the paper. All authors read, revised, and approved the final manuscript.

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Conflict of interest

The authors declare that they have no conflict of interests.

8.0. Overall discussion and conclusion

The main aim of this thesis was to contribute to a better understanding of social-structural determinants of HIV vulnerability among married men and women in Ifakara town, Tanzania. This thesis provided prevalence of HIV and extramarital affairs in the study area. Specific determinants (Box 2) were investigated to understand how they influence HIV status, extramarital affairs and safer sex communication between partners. Recognizing the limitation of the survey data (Box 2), the thesis added other social-structural ingredients which from our intuition, experience and from the WHO-CSDH framework, we thought could enhance the understanding of HIV vulnerability in marriage. The additional constructs include social norms, gender power relation and relationship quality. These aspects were mainly explored during qualitative study.

Out of investigation, gender norms and power relation, social norms, norms of masculinity, social-cultural expectations, lifestyle (alcohol), women's economic hardship, relationship quality (marital conflict, sexual dissatisfaction, extramarital affairs) and marital status (re-marriage and polygamous) appeared to have multiple influence on the adoption of safer sex communication between partners, they can expose partners to extramarital affairs and have direct association with HIV status of married men and women. These aspects are thus considered as potentially fundamental social-structural determinants of HIV vulnerability in Ifakara marriages.

In this section, the above fundamental social-structural determinants are summarized and discussed. The strengths and limitations of this study are conferred. Building on the thesis findings, recommendations for practice and policy are voiced. Finally based on the overall thesis, conclusion is formulated.

Box 2. Variables evaluated in the quantitative analysis

1. Social and demographic characteristics:
 - Sex, age, religion, ethnicity, employment, education
2. Gender norms:
 - "a woman can ask her husband to use a condom when she know he has a disease"
3. Marriage characteristics:
 - "being in a polygamous in or a monogamous marriage"
 - "being in a first or subsequent (second) marriage"
4. Sexual behavior characteristics:
 - number of lifetime sexual partners
 - "used condom at first sex"
 - concurrent partnership
5. Health care utilization:
 - "ever received VCT"
6. Lifestyle characteristics:
 - "ever drank alcohol"
7. Being a member of Village Community Bank (VICOBA)

8.1. Gender norms, gender power relations and women's economic hardship as structural determinants of HIV vulnerability in marriage

The World Development Report (World Bank, 2011) and the United Nations' Sustainable Development Goals (SDGs) (United Nations, 2016) emphasize that, health, economic and social gains can be achieved by addressing gender inequities worldwide. In efforts to fast track ending AIDS by 2030, UNAIDS call for HIV programmes in SSA to be more effective by addressing social and structural issues that deter people from accessing proven HIV preventive services (Joint United Nations Programme on HIV/AIDS, 2015b). Addressing social-structural drivers of HIV is also part of the Tanzania multi-sectoral strategic framework for HIV/AIDS 2013-2017 (URT, 2013). The findings observed in this thesis potentially lend support to these important gender equity commitments as highlighted below.

Chapter 5 of this thesis shows that HIV prevalence rates for married or cohabiting men and women is (5.9% and 7.6%, respectively). This pattern is similar to the one observed in the national HIV prevalence data in Tanzania among adults of age 15-49 which stand at (6.2%) among women vs (3.8%) among men (THMIS, et al., 2012). Differences between our own and the national data might be explained by regional differences. However, similar to the national data (TDHS et al., 2011; THMIS, et al., 2012) and data from elsewhere in SSA (ICF International, 2012), in Ifakara, HIV prevalence was higher among married women than men.

Of most interest is that in chapter 6, adjusted by gender, the significant association between proxy lifetime extramarital affairs and HIV infection was only among women (OR=1.74, 95%CI 1.27-2.39), despite that the relative risk of extramarital affairs was higher among men in both 12 month reference (RRR=5.26: 95%CI 3.85-7.14) and in the life time reference (RRR=1.27, 95%CI 1.06-1.52). While this particular observation is new in literature, evidence that married women have higher HIV infection than men is not new in Tanzania and elsewhere in SSA. A recent study in Tanzania shows that in sero-discordance unions, married women were likely to be HIV positive than men (71% versus 29%) (Ngilangwa et al., 2015).

Although biological view of increased HIV vulnerability among women exist (Ramjee and Daniels, 2013; Wand and Ramjee, 2012), this thesis argues that beyond biological vulnerability of women, prevailing gender discriminatory practices and masculinity ideologies potentially subject married women to a high risk of contracting HIV infections. Existing literature and observations from this thesis support our argument. Chapter 5 of this thesis shows that although more married women than men were diagnosed with HIV, it is socially constructed gender that was a significant factor for HIV status among married men and women: adjusted odds ratio (OR=1.51: 95%CI 1.06-2.17). The social gender in this finding suggests that "women are not justified in asking their husbands to use condom even when they know that the husband has a disease". Chapter 7 of this thesis advances that although married men and women may have a limited mutual safer sex dialogue, married women potentially have less influence on safer sex communication on the use of condoms and couple counseling and testing, and that suggesting these aspects by a woman may lead to divorce or conflict. Chapter 6 exemplifies that married women with economic hardship in Ifakara town have several debts in VICOBA (Village Community Bank-

microfinance groups), since they are unable to raise enough money to support their families and the VICOBA groups.

Some husbands may refuse to support their wives' social and economic livelihoods, particularly the VICOBA membership fearing power insecurities in the households. Engaging in extramarital affairs seems to be an acceptable coping strategy for women who are economically dependent on men (to keep their VICOBA business going). Chapter 6 also highlight that husbands in polygamous relationships may decide to divorce their wives with no guarantee of how these wives will meet their economic and social needs. These observations potentially reflect prevailing gender inequality which might increase women's likelihood of contracting HIV infection. Likewise, the 2012 national HIV surveillance report in Tanzania highlights that gender inequality and violence among women still prevails in the country (THMIS, et al., 2012). About 44% of adult women in Tanzania have experienced intimate partner violence (IPV) in their lifetime (McCleary-Sills et al., 2016). Another study found that the lifetime exposure to IPV was 65 % among ever-married or ever-partnered women with 34, 18 and 21 % reporting current emotional, physical and sexual violence respectively in Tanzania (Kazaura et al., 2016). While this is the case, gender power inequality and partner violence have been strongly linked to increased risk of contracting HIV among women in SSA (Dunkle et al., 2004; Jewkes et al., 2011, Li et al., 2014).

One of the crucial implications regarding the gender inequality aspects and the harmful gender norms is that, as long as they are shared and constructed in the community, (Mikkola et al., 2008) they may not only lessen married women's power to negotiate condom use within a marriage, but even with non-marital partners. A study by de Walque in SSA' countries including in Tanzania found that married women who engage in extra-marital sex are less likely to use condoms than single women (de Walque, 2006).

Supporters of gender theories emphasize how aspects of gender inequality are a product of nurture or how men and women are brought up and the roles that each sex is expected to perform (Haslanger, 1995, p98). Societal stereotypes, patriarchal systems and religious ideologies are also responsible for the second class status allocated to women in a particular context (Hirschman, 2016). In Tanzania and elsewhere, it has been found that unlike men, women who proposes condom use in marriage are likely to be perceived as overly interested in sex (Worth, 1989), distrustful of their male partners, or promiscuous (Baylies and Bujra, 2000). Religious norms can also perpetuate male dominance in marital sexual relationships based on the notion that only single women are allowed to propose condom use (Baylies and Bujra, 2000).

The social norms of marriage also oblige married women not to oppose their husband's opinions and neither speak to them about sexuality aspects including HIV aspects (Merten et al., 2016; Zulu and Chepngeno, 2003, 2003).

Our findings that the husbands may be unwilling to support their wives' economic advancements is of interest particularly in the contemporary society where gender equality is highly promoted, and in Tanzania, whereby, economic empowerment programs (microfinance) have been set up to support women, even those in remote areas. Although there is no clear evidence to indicate the extent to which gender inequality has been addressed in Tanzania, as long as norms of masculinity and harmful gender norms potentially prevail, addressing gender

inequality may be potentially difficult. This also challenges some initiatives set up by the government to address gender inequality such as ensuring that 20 percent of the parliamentary seats are reserved for women and allocated to the political parties in proportion to the number of parliamentary seats won in an election, and to have 50% female representation in the parliament (Strachan, 2015). If not addressed, men's masculinity ideologies and the harmful gender norms may potentially undermine the social and economic initiatives that seek to promote gender equality and HIV vulnerability among women.

From the interpretation of this thesis, we further argue that gender inequality in Tanzania is unlikely to be fully attained if the 1971 marriage legal Act remains unchanged (URT, 1971). The marriage legal act potentially encourages masculinity ideology, gender inequality and women's dependence on men by denying women of their human rights including rights to education. This is because the current Marriage Legal Act allows men to marry at **18 years** and women are allowed to marry at **age 15 years**. At age 15, a woman is expected to be in school. By providing legal approval for women to marry at such age, potentially deny girls to advance in education, career and in attaining the quality of live in their future life. The marriage also provides legal rights for men to marry multiple women. This legal right potentially encourages inequality practices in marriage and risk sexual behaviors for men.

8.2. Norms of Masculinity, social expectations and social norms as structural determinants of HIV vulnerability in marriage

Part of the discussion in section 8.1 above, highlighted how norms of masculinity interact with gender norms and they potentially expose married women to economic hardship and extramarital affairs. This thesis further advances that masculine ideology and social-cultural expectations regarding men's sexuality may also encourage extramarital affairs among married men. Chapter 6 of this thesis shows that (13.11%) of men and (3.52%) of women had confirmed extramarital affairs in the past 12 months before the survey ($p=0.001$). Participants' narratives in chapter 6, elaborate that the society may accept men to have several multiple sexual partners as a sign of proving that they are men. A man with income is also expected to have several women since this signifies power. Further narratives point that unlike women, a man who engages in having multiple sexual partners may not be regarded as a prostitute since this behavior is expected for men. Extramarital affairs among men could be one way of conforming to the gendered expectations regarding men's sexuality. It has been reported that men in Tanzania practice extramarital affairs to increase their sense of masculinity and self-esteem when faced with situations, such as unemployment (Silberschmidt, 2001).

Although having multiple sexual partners for men is not a new finding in SSA (Bingenheimer, 2010), for married men to engage in such relations potentially subjects both spouses at risk of HIV infection and other sexually transmitted infections, especially if protection is not sought. This is more serious in marriage since spouses may not be expected to have multiple sexual partners outside marriage and that even when a spouse suspects risky sex, using protection such as condom may not be an acceptable option. Beyond exposure to extramarital affairs, social construction of masculinity has long been recognized as an important influence on men's health seeking behavior and alcohol

behavior (Lesch and Casper, 2015). That is why despite that alcohol consumption was significantly associated with extramarital affairs among men and women in this thesis, we postulate that for men alcohol is potentially part of manifesting their expected gender roles and masculine ideology (Myadze and Rwomire, 2014).

The contribution of social norms of marriage to HIV vulnerability is highlighted in chapter 7. In this chapter we observed how proscriptive norms (don't do) potentially restrict married men and women from practicing safer sex practices including mutual safer sex communication. If this is a shared norm, it could explain the low uptake of HIV prevention programs among married men and women in Tanzania including the use of couple counseling and testing services in Tanzania and elsewhere in SSA (Becker, S et al., 2010; Matovu et al., 2013). A study in Mozambique found that social limitations placed on condom use also increase risk of HIV infections among married couples (Bandali, 2011). Previous studies have also established the link between harmful social norms and practice of sexual risk behaviors among adolescents in Tanzania (Wight et al., 2012). However, our study enlightens further on how social norms of marriage might constrain safer sex communication in marriage. Despite attempts to address social norms and gender norms such as those implemented by non-governmental organizations in Tanzania including Champion project (FHI, 2016), it is vivid that social norms and gender norms surrounding safer sex practices in marriage are yet to be adequately understood and addressed. Although social norms and gender norms may be interchangeably used, they are conceptually different. Social norms are strongly based on expectations of the consequence for not conforming to the prescribed or proscribed behavior or norm. In fact, social norms support the masculinity and gender norms (Overseas Development Institute, 2015). This makes the social norms to be the strong determinants for behavioral practices.

An excerpt below is reported in chapter 7 of this thesis, highlighting how social norms influence safer sex communication between married partners:

"Here people feel shy to address the reality. To speak the truth, in our normal Tanzanian communities for a husband and a wife to sit together and talk about HIV prevention or condom use or HIV testing is not common and neither expected, unless you suspect each other. Even when other people in the community hear that Mr. so and so and the wife talk about these issues (condom use and couple counseling and testing) they may think that you are not in real marital relations" [FGD_Males_02]

8.3. Relationship quality and marital status (polygamous, remarriage) as social determinants of HIV vulnerability

Relationship quality in this thesis includes four emergent themes: conflict, sexual dissatisfaction, trust and extramarital affairs. The key themes of relationship quality mediate the relationship between structural aspects such as social norms of marriage, gender norms and masculinity and the adoption of safer sex in marriage. Authors of relationship quality point that a quality relationship is a social resource for partners to adopt health practices (Reynolds et al., 2014). Chapter 7 lends to this view by highlighting that: *"Where there is no peace [in marriage], it is hard for spouses to talk about such things as safer sex aspects"*. Some aspects of relationship quality observed in this thesis such as

conflict, trust, and sexual dissatisfaction could be observed among the unmarried partners as well. However, within marriage, relationship quality may have a much more implication on the stability of the marriage and mutual agreement on the adoption of safer sex aspects for the health of both partners and children. A study in Zambia found that a good relationship quality provides protection against unsafe sex within HIV sero-positive and-discordant couples and couples perceiving their relationships more positively were more likely to engage in less risky sexual behavior such as condom use and less sexual partners (Vamos et al., 2013).

One of the most interesting findings emerged in chapter 6 of this thesis showing that, economically empowered married women may pay the extramarital partners in order to obtain sexual passion and care which they may not receive from their husbands. If this observation is shared, this thesis may further argue that while research points to economic conditions as aspects leading young women to transact sex for money (Choudhry et al., 2015; Wamoyi et al., 2010), married women may transact sex for both money and quality relations as well. In his study, Nzioka (2001) concluded that extreme poverty is not usually the overriding factor leading women to exchange sex (Nzioka C, 2001). This could be an important message to the HIV programmers who may consider economic empowerment as the main intervention to address sexual risk behaviors among women. Relationship quality could be playing a significant role among married women. Deane (2015) in Tanzania also concluded that microfinance alone is not a means to empower women since transactional sex is an established local sexual norm (Deane and Wamoyi, 2015).

Surprisingly, the aspects of relationship quality are rarely addressed by the HIV prevention interventions. Perhaps this could be due to its complexity and distal relation with the outcome measured; and yet, the distal determinants may have deeper contributions to the practice of health behaviors and health status than the direct determinants (Baral et al., 2013; Parkhurst, 2014).

Marital status emerged as an important social determinant of HIV vulnerability in this thesis. Two emergent themes of marital status featured: re-marriage and polygamy. Chapter 5 shows that re-marriage was a significant predictor of HIV status for men and women (AOR=1.49; 95%CI 1.08-2.04). While chapter 6 shows that the relative risk of extramarital affairs was higher among the re-married partners in the lifetime extramarital affairs (RRR=2.50; 95%CI 2.07-3.02) and in the 12 month extramarital affairs (RRR=2.41; 95%CI 1.69-3.43). Re-marriage practice in Ifakara could be linked to the mushroom of trial marriages which are considered as culturally acceptable (anecdotal data). In the trial marriages, partners may decide to cohabit for a short time, in order to check whether they make a good couple or not; if there are any doubts, the partner may decide to terminate the marriage and attempt a new marital relation. Perhaps people form extramarital relations while in marriages and later decide to re-marry, which could partly explain the association between extramarital affairs and re-marriage.

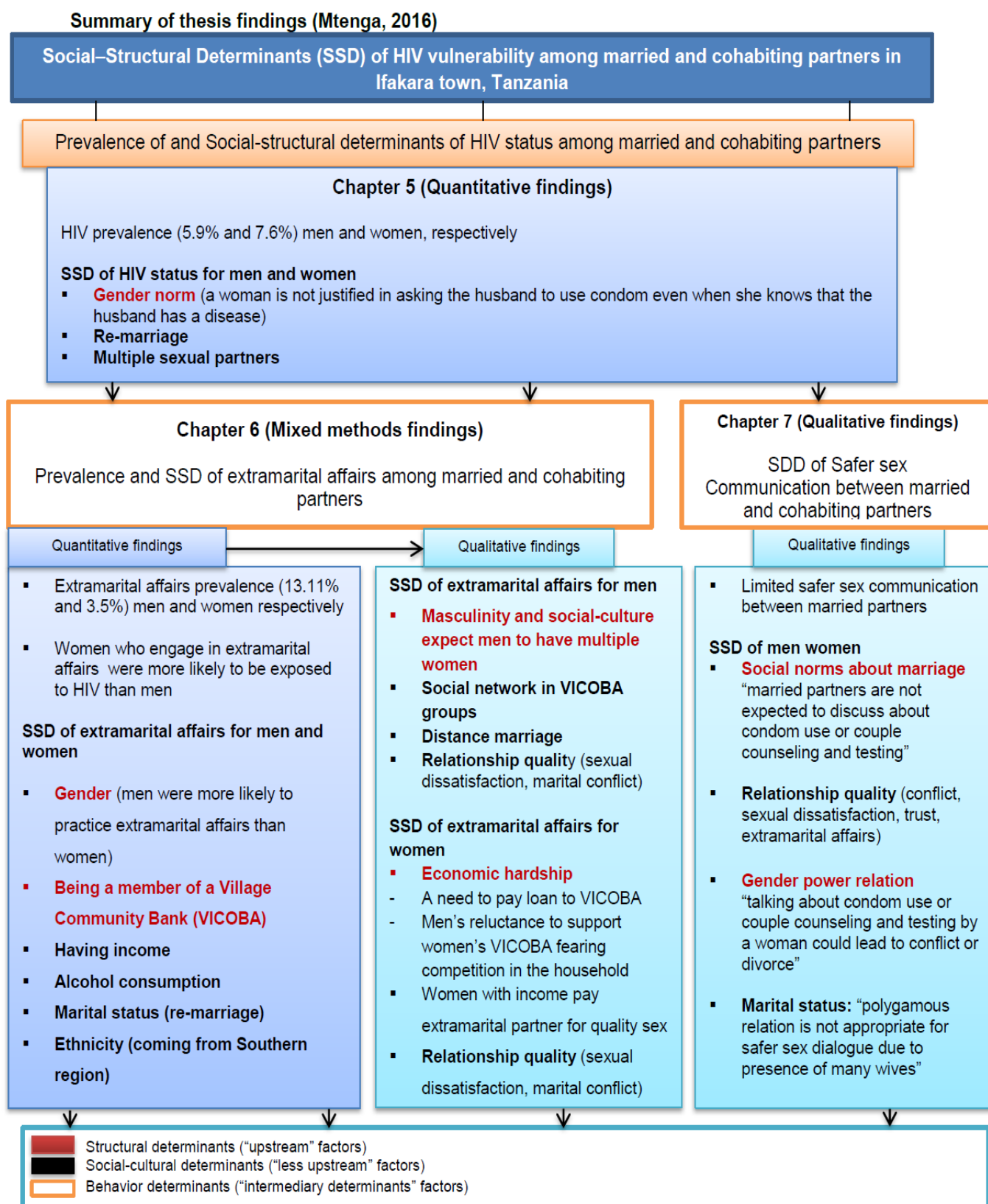
The main concern with re-marriage or trial marriages is that, despite their association with HIV vulnerability, it is not certain whether the public health and the society recognize the potential risk associated with this marital pattern. Given the high HIV related mortality rates in the region, people who engage in subsequent marriages may include widows who were infected with HIV by their previous partners. A study in Uganda found that the majority of widows and widowers were married following the death of their spouses even though they were aware of their HIV status and which resulted in new infection among the new sexual partners in ways that were outrageous (Ntozi, 1997). Similarly,

a study among 13 countries in SSA found that re-marriage was significantly associated with HIV infection among adults (de Walque and Kline, 2012).

Polygamous marriage is another interesting dimension of marital status. Chapter 7 of this thesis shows how the polygamous relationship may shape safer sex communication in marriage. Aspects which may require attention in polygamous context is the notion that “safer sex communication is inappropriate in the polygamous relation” and that “safer sex communication in polygamous marriage should only be between the husband and the younger wife”. Surprisingly, both men and women had a convergence view regarding the notion that it is the younger wife who should speak about safer sex aspects with the husband since she is at high risk of engaging in extramarital affairs. If the notion that safer sex communication is only appropriate for the younger wife is a shared norm, this could be a potential challenge to the current HIV prevention interventions targeting married couples. To the best of our knowledge these findings are potentially new in literature, but they may provide important updates in the literature emphasizing how the current HIV prevention programs need to be tailored within the dynamics of marriage. Unfortunately, polygamy and re-marriage are rarely targeted for appropriate HIV prevention interventions including the health promotion messages.

This thesis has several unexpected findings. It is a surprise that in chapter 5, none of the measured social-demographic variables such as income and education were independently associated with HIV status of married men and women, although the WHO-CSDH considers these variables as important social determinants of health. However, in chapter 6, this thesis shows that income was a significant predictor of extramarital affairs for men and women. Varied evidence of how income relates with HIV has been observed in SSA. For example, a study by Shelton et al (Shelton et al., 2005) illustrated a strong positive relationship between household wealth and HIV infection prevalence in Tanzania. While elsewhere in SSA, a study by Fox revealed an inverse relationship between wealth and acquisition of HIV (Fox, 2010). These observations may also suggest that the relationship between HIV infection and social-structural determinants is complex and may require context specific interpretation. For instance, chapter 6 of this thesis shows that being a member of VICOBA was a predictor for women's extramarital affairs. Without contextual explanations of pathways in which VICOBA may expose women to extramarital affairs, one may assume that VICOBA makes women participate in extramarital affairs. Qualitative findings in chapter 6 clarify that it is the relationship quality coupled with masculine ideology that potentially makes VICOBA not protective regarding women's extramarital affairs. Anecdotal information from the study community also highlight that women usually seek membership in multiple VICOBA groups. Some of these women are unlikely to have adequate funds to support the multiple VICOBA. Hence, embarking on extramarital affairs could be one of the strategies used by women to secure adequate money to sustain their VICOBA membership.

To provide a full picture of the findings, the thesis findings are summarized in the figure 8.1 below.



- Structural determinants ("upstream" factors)
- Social-cultural determinants ("less upstream" factors)
- Behavior determinants ("intermediary determinants" factors)

Figure 8-1: Summary of thesis findings

In the summary figure (Fig: 8.1), we distinguish between social and structural determinants to highlight their proximity to the health outcome or behavior practices. Although the structural determinants such as masculinity, social norms and gender power relationships may have an indirect influence on HIV vulnerability, they are, however, considered fundamental for health status (WHO, 2010) and are likely to be the root causes of HIV vulnerability at a population level (Gupta et al., 2008b; Kippax et al., 2011; Parkhurst, 2013). Structural factors are also referred to as the “upstream” determinants due to their distal influencing pathway; they may concert with less “downstream” determinants to constrain safer sex practices at the individual level. The bottom line is that unlike the biological determinants, the social-structural determinants of health are amenable for change through structural interventions and may potentially bring long-term behavior change at the population level (Auerbach et al., 2011; Gupta et al., 2008b; Parkhurst, 2014).

8.4. Implication for policy, theory and practice

By investigating the social-structural determinants of HIV vulnerability among married partners, this thesis lends support to national and international commitments that seek to address social-structural drivers of HIV vulnerability for sustainable change (UNAIDS, 2016b). This thesis divulges that social-structural factors such as gender norms and power relationships, social norms of marriage, relationship quality, norms of masculinity and marital status potentially constrain safer sex communication in marriage, expose married partners to extramarital affairs, and some social-structural aspects have direct association with the HIV status of married partners. There is room for improvement in addressing HIV vulnerability in Tanzanian marriages. Some of the initiatives may require emphasizing on the rights of married women and men to negotiate and practice safer sex, to change contradictory marriage laws, to acknowledge married men and women as agents of change, to engage communities and families in addressing harmful norms.

Specific implications for concrete actions, policies, research, and structural indicators are put forward below. The thesis also proposes a model that could be adopted to understand and approach various dimensions of HIV risk among partners in marriage and those in stable relations.

➤ Married women and men as agents for HIV prevention

In this thesis, we found that sexual risk behavior among married partners particularly women is not homogeneous. Some women may actively initiate risky sexual behaviors (extramarital affairs) to cater for sexual satisfaction and passionate care which they miss from their husbands. Other women may initiate extramarital affairs to meet their economic needs. Therefore, different from the initial notion that women are passive agents of sexual initiation, and that single women are the main agents of transactional sex, our study suggests that women are also proactive in searching for extramarital partners even when they are aware of the risks involved. Interestingly, despite the social-structural constraints to safer sex communication, some women may initiate the safer sex discussion with their husbands.

These observations have several implications. One is that heterogeneity of the motives behind women’s sexual risky behaviors (i.e engagement in extramarital affairs) should be well acknowledged. It is not always that women engage in

risky sexual behaviors for economic purposes, but rather, sexual dissatisfaction and uncertainties within marriage also contribute to it. Unfortunately, a need for sexual satisfaction and passionate care from a spouse are the missed discourse in HIV and other reproductive health related interventions. However, to meet the reality of HIV prevention needs in marriage these aspects should be targeted by HIV prevention interventions. Secondly, observations that women could initiate safer sex in marriage, even in the context of social-structural constraints, is a strong indication that women have the agency to spearhead safer sex practice in marriage if they are empowered to do so with acquisition of safer sex negotiation skills, and the availability of legal and policies that support their rights to communication, education and economic advancement.

The multiple implication of masculinity as evidenced in this thesis calls for the need to consider men as agents of change in the whole process of addressing gender inequality and HIV transmission. Beyond impacting on men's health, masculine ideology potentially denies men's full support of women's economic empowerment. This may slow down international and national level commitments to eliminate gender inequalities, especially if men are not targeted for or are not part of the strategies to address gender inequality. A program (SASA) in Uganda provide lessons that targeting both men and women as agents of change in HIV prevention significantly increases men's lower acceptance of gender inequality elements (Kyegombe et al., 2014).

➤ **Changes in Tanzanian Marriage Legal Act (1971)**

An enabling policy and legal environment is central to addressing social-structural drivers of HIV vulnerability (Gupta et al., 2008b; Parkhurst, 2012), such as by promoting a rights-based approach to HIV in a manner that reduces vulnerability to infection and can address gender norms and power inequality. In this context, the current Tanzanian Marriage Legal Act, the section on 'Restrictions on Marriage': "13-(1) No person shall marry who, being **male**, has not attained minimum the apparent age of **eighteen years** or, being **female**, has not attained age the apparent age of **fifteen years**" (URT, 1971, p 10) requires adjustment. This is the age in which both girls and boys are expected to be in school. Legalizing marriage for a 15 year old girl and 18 year old boy potentially denies their rights to advance their education and economic carrier. Specifically, the prevalence of early marriages for girls in Tanzania could be an outcome of endorsement from the current Marriage Legal Act which also perpetuates gender discriminatory practices and is a strong impediment towards addressing gender power inequality which is essential for achieving long-term HIV prevention and positive health impact (UNAIDS, 2016b; United Nations, 2016). It has been noted that in marriages where the wife is much younger than the husband, the union is frequently flawed with violence. Child marriage occurs more frequently among girls who are least educated (Kimati, 2014). Furthermore, the Marriage Legal Act by legalizing polygamy only for men potentially supports gender discriminatory practices and multiple sexual partners among men.

Change in harmful patterns of the legal system is manageable if there is a political will and long-term commitment of various actors: i.e. members of parliament, communication sector, Ministry of Community Development Gender and Children, Ministry of Education, and advocacy groups. This is where the policy of health in all and comprehensive

interventions could be put in practice. In addition, the social policy that promotes the rights of married men and women to negotiate safer sex and use HIV prevention interventions is also needed in Tanzania. In Zambia, promotion of gender equality has been backed up by the Anti-Gender-Based Violence Act which was passed in year 2011 as one of the government initiatives to address harmful gender norms that prohibit a woman's refusal of sex, negotiating condom use, or accessing HIV-related service (Bowa et al., 2013). When implemented, enforced, and linked with other prevention services, the policy has the potential to contribute to HIV prevention by enforcing positive gender norms.

➤ **Health system to support and map the local sources of HIV vulnerability and structural indicators as part of HIV prevention initiative**

A new HIV prevention era requires biomedical and behavior HIV prevention interventions to be combined with social-structural approaches in order to address HIV in the long-term (UNAIDS, 2016b). Social-structural approaches to HIV require actions based on evidence from local sources of HIV vulnerability. The local evidence should be used to arrive at a clear understanding of the 'key population at risk' of HIV infection and the 'dimensions of risk'. This thesis suggests that married men and women are the window of addressing structural drivers of HIV vulnerability. Therefore, they should be targeted with HIV prevention interventions. However, the first action priority is to protect and promote women's human rights as a key aspect in the broader framework of addressing HIV vulnerability in marriage.

Addressing the local drivers of the epidemic requires that social, economic, cultural, and legal constraints that undermine the agency of individuals to protect themselves and others are addressed (Hankins and de Zaldondo, 2010). The conclusions by Asiedu et al for a research done in Zimbabwe, Lesotho and Malawi support for country-specific and more targeted HIV policies and programmes (Asiedu, 2013). They established that the relationship between the probability of HIV infection and marital status varies by country (Asiedu, 2013).

The Tanzanian HIV multi-sectoral strategic framework and the National HIV surveillance reports provide indicators for direction and the priority areas that require attention by HIV prevention programs. However, more structural indicators should be integrated in order to expand the scope of structural approaches for sustainable health outcome.

➤ **Moving beyond the current health promotion messages, couple counseling and testing as the main approaches to HIV vulnerability in marriage**

Just like with any other individual focused behavior interventions, the current HIV promotion messages in Tanzania are important for awareness creation and increased perceived risk of HIV infection. However, the interrelated nature of social-structural drivers of HIV vulnerability in marriage provide evidence that the health promotion messages alone may not be adequate to address HIV vulnerability in marriage. This may partly explain why despite vigorous public health messages encouraging couples to practice safer sex, knowledge level remains higher but the uptake of the recommended interventions remains low (THMIS et al., 2012). It has been pointed that the public health messages may be effective on the knowledge, awareness and acceptability level but may fail to influence changes in the practice of safer sex behaviors (Hankins and de Zaldondo, 2010). It could be better, if the current health promotion messages

could challenge the harmful social norms, gender norms and masculine ideologies that constrain adoption of safer sex in marriage, women's economic advancement and rights to negotiation safer sex, and parallel with creating awareness about the risk of HIV in marriage.

Likewise, the health system in Tanzania considers couple counseling and testing services as the main couple based HIV prevention intervention (Ministry of Health and Social Welfare, 2005). This thesis suggests that one way to improve the impact of couple counseling and testing services is not to rely on the individual level risk determinants of HIV, but rather to incorporate the social risk aspects during the counseling session. For example, during the HIV pre and post-test counseling sessions, the counselors could integrate the social risk aspects such as poor marital relationship, harmful gender norms, and social norms of marriage and masculine ideologies as additional risk aspects for couples. The counselors may emphasize about the role of un-protected extramarital affairs and the importance of safer sex communication between couples. Emphasizing only on the use of condom, multiple sexual partners or alcohol as the main risk aspects and ignore the broader social risk aspects could be a missed opportunity towards achieving the optimal impact of HIV couple counseling sessions.

Furthermore, the women's economic empowerment programs in Tanzania that seek to reduce women's HIV vulnerability may not be protective if they are implemented in isolation of other social-structural interventions including masculinity and relationship quality. Contrary to this, being financially well off may expose women to sexual risk behaviors instead of protecting them since in marriage women are likely to engage in risky sex not only in search for income but due to poor relationship quality.

➤ **Implication for community and family**

This thesis suggests that HIV vulnerability among married partners is potentially shaped by broader social-structural aspects such as social norms of marriage, gender norms, power relations, norms of masculinity, social-cultural expectations, lifestyle (alcohol), women's economic hardship and relationship quality. While it is mostly the community structure that supports the construction of these aspects, it is also the one which may contribute to their deconstruction. The WHO (2009) provides some evidence of interventions that can be used to address the harmful societal norms which include mass media campaigns, education, legislations and policies. However, the SASA project in Uganda presents strong evidence of a community engagement model which proved to be effective in reducing gender based violence and enhance quality relationship among married couples (Watts, 2014; Abramsky, 2014). In Tanzania for example, local leaders and religious leaders at the community could be used as change agents to advocate against harmful social norms which contradict safer sex practice in marriage and the rights of women to negotiate safer sex, and they could also promote relationship quality in marriage. Pre-wedding occasions like "kitchen parties" and "beg parties", could be used as avenues for enlightening partners about the value of relationship quality in marriage and rights to safer sex negotiations for men and women. Establishing community based marital counseling centers would add value to the HIV prevention efforts targeting married partners.

Furthermore, political leaders during campaigns and upon meetings at various levels of communities could take a lead in advocating against gender discriminatory practices and male participation in health practices and HIV prevention. Families may contribute to the deconstruction of the harmful social-structural aspects by playing an active role in imparting elements of equality among boys and girls during childhood socialization process. For example they could embrace the rights of boys and girls to receive an equal education opportunity and be encouraged to freely talk about their health and lifestyle aspects.

➤ **Implication for research**

MZIMA survey data had limited social-structural variables which could have provided a better understanding about the contribution of social-structural determinants on HIV vulnerability in marriage. For better understanding of the social-structural drivers of HIV vulnerability in marriage, it is important for the future studies to incorporate broader social-structural aspects including relationship quality, masculinity, gender norms and social norms of marriage.

More analytical work is required to assess how social-demographic aspects such as age, education, and location relate to the structural level aspects. For example it may be important to examine whether aspects such as gender norms, masculinity, social norms of marriage differ by age or education background. This may be important for more strategic interventions.

This thesis suggests that extramarital affairs among married women are likely to be transactional and non-transactional. If this is the case, then further research may be required to further break this down and compare the prevalence between transactional affairs and non-transactional affairs among women.

This thesis suggests that having income and being a member of VICOBA (microfinance) potentially expose married men and women to extramarital affairs. We argue that for women it is not only having income or being a VICOBA member that exposes them to extramarital affairs, but it is the relationship quality in their marriage, and the norms of masculinity among their husbands that may contribute to their extramarital affairs. Based on this argument, it is important for the future studies to examine whether the effect of income on women's HIV risk behaviors is influenced by the marital relationship quality and the norms of masculinity among their husbands and not having income. This information is likely to improve the economic empowerment programs.

In our study, the survey data regarding the relationship between polygamous marriage and HIV status are inconclusive because the number of study participants who were living in official polygamous marriages was small. Future research should incorporate larger samples of individuals in polygamous relationships in order to provide information about the relationship between polygamy and HIV.

The majority of participants in our study were farmers and in primary school education; perhaps a more heterogeneous sample with regards to occupation and educational background could provide a more dynamic pattern of social determinants of HIV vulnerability in marriage.

This study was a rural based. Although Ifakara is a small town, it does not exclusively reflect the urban lifestyle. Perhaps we could observe similar or different patterns of social determinants of HIV vulnerability in urban area. As such, future studies on HIV vulnerability among married and cohabiting partners should pursue these discrepancies.

Further research on couples to corroborate these findings is needed as data on the partner's behavior and HIV status were not available in this study

➤ **Implication on the theory side**

On the theory side, the WHO-CSDH (2010) should be modified to explicitly indicate various social-structural constructs adoptive to the African context, by including relationship quality, marital status (i.e polygamous, re-married), social norms and gender power relations as social determinants of health and health inequity.

8.5. Novel contributions of the thesis

The contributions of different chapters of this thesis are summarized in figure 12, in summary section and in figure 8.1 below. In addition a suggested model for addressing HIV vulnerability in marriage is presented.

8.5.1. Proposed framework/theory of change for addressing HIV vulnerability in marriage

One of the limitations with other social behaviors and ecological models is that they lack sufficient specificity to guide conceptualization of a specific problem or to identify appropriate interventions (McLeroy et al., 1988). In this thesis we propose a model (Figure 8.2) to guide epidemiologic studies in collecting data needed to enhance understanding of social drivers of HIV vulnerability by examining the multi-layered risk aspects. The model can serve as a useful guide for practice and policy development as well. It acknowledges the existing complex interaction of multiple social-structural aspects that work in concert with the individual's risk factors to influence multilevel risk and HIV vulnerability in marriage. This complex interaction contributes to the recognition that understanding of HIV vulnerability requires knowledge of contextual dynamics behind HIV vulnerability which are beyond individual risk behaviors and that HIV prevention measures must be delivered in the form of packages in order to address multi-level HIV infection risks (Baral et al., 2013).

The model includes three levels of risk: individual, social-cultural (up-downstream) and structural (upstream). It communicates evidence-based and hypothetical relationships between structural level (upstream determinants), social level (downstream determinants) and individual level determinants (mainly downstream determinants) which together may influence HIV vulnerability in marriage. Most of the constructs in this model were derived from the evidence in this thesis, but some constructs (i.e. political will, marriage law) which are in the upper social-structural

level were informed by the interpretation of the thesis findings. The relationship between constructs seems to be dynamic, interactive, and interceptive. We have added 'condom use during extramarital affairs' and 'safer sex communication on treatment' as individual level determinants in order to expand the potential risk behaviors related to HIV vulnerability in marriage. Scholars of the social drivers of HIV have pointed that although it is important to characterize the individual level risks, it is the higher order social-structural levels of risks which are likely to facilitate HIV transmission since these are considered as the root causes of HIV vulnerability (Baral et al., 2013). The lower order structural constructs are a bit less structural, but they mediate with the individual level determinants to influence HIV vulnerability.

Mtenga S (2016): Model for understanding HIV vulnerability in Marriage

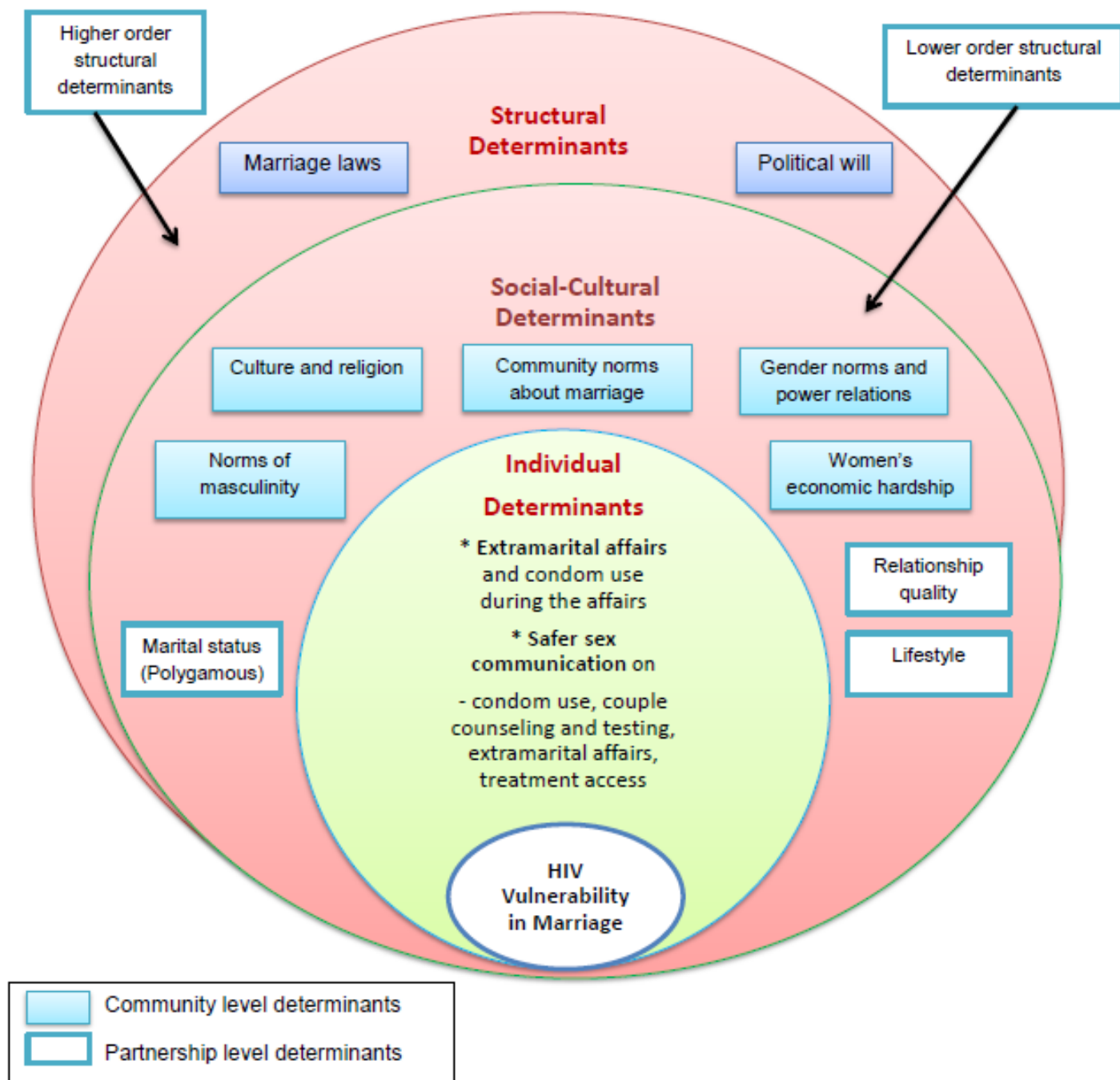


Figure 8-2: Proposed model for understanding HIV vulnerability in marriage

8.6. Overall conclusion

In this thesis we supported the argument that understanding of individual-behavior level risk factors may not be adequate to explain the underlying drivers of HIV vulnerability. Hence, this thesis aimed to investigate the social-structural determinants of HIV vulnerability among married and cohabiting partners.

Chapter 5 of this thesis from quantitative findings shows that married women are likely to have higher HIV infections as compared to married men. Re-marriage, gender norm (a woman is not justified in asking the husband to use a condom even when she knows that the husband has a disease) and multiple sexual partners were the only independent predictors of HIV status among married men and women in Ifakara town.

Chapter 6 of this thesis, findings from mixed methods (quantitative and qualitative) suggest that being a member of VICOBA, with income, alcohol consumption, re-marriage, and ethnicity were the key independent predictors of extramarital affairs for married men and women. Also, women who practice extramarital affairs were more likely to be HIV positive than men despite higher extramarital affairs among men. The qualitative findings revealed that women's economic hardship, being in VICOBA groups, having income relationship quality, masculine ideology, social expectations regarding men's sexuality, and a husband's reluctance to support their wives' economic advancement, were the key themes that relate to extramarital affairs for men and women.

Chapter 7 from the qualitative exploration suggests that safer sex communication is limited among partners in polygamous and monogamous relationships. The unmet HIV prevention need of married or cohabiting couples are centered within the social norms about marriage, gender power relationships and relationship quality were the key determinants of safer sex communication in marriage.

Our thesis accentuates that to optimize the uptake of the proven HIV prevention interventions in marriage it is important to account for the social realities that constrain its uptake. Structural approaches beyond the limited behavior and biomedical interventions should be employed in collaboration with the respective community and policy makers. Community leaders including religious leaders could be the change agents in the community to advocate against gender discriminatory practices and social norms that expose couples to HIV vulnerability. Instituting community based marital counseling centers would add value to the HIV prevention efforts targeting married partners. It is important for married men and women also to be considered as change agents for HIV prevention, together with availing a supportive environment in which social norms about marriage, gender norms and relationship quality sustain the adoption of safer sex practices in marriage. Economic empowerment programs that seek to address gender inequality need to be combined with approaches that empower women to negotiate safer sex in marriage and outside marriage. Contradictory marriage laws i.e Tanzanian Marriage Act of 1971 require some amendment especially on the age of marriage for girls and boys. However, this requires support of various stakeholders including political leaders.

In this respect, we confirm the argument that understanding of individual-behavior level risk factors for HIV vulnerability may not be adequate in explaining and addressing the underlying drivers of HIV vulnerability in marriage. Epidemiological studies for HIV have a great chance of contributing to comprehensive understanding of social-structural drivers of HIV vulnerability if the theory based approach is used together with multiple methods to investigate various dimensions of HIV vulnerability in a specific context.

The WHO-Social-Determinant of Health framework provides a comprehensive guidance in understanding the social-structural determinants of various levels of health risk. However, in the context of HIV vulnerability in marriage the

framework could be improved by adopting the social determinants that reflect the African context by incorporating the relationship quality, masculinity, marital status and social norms as social determinants of health and health inequity.

8.7. Overall Strengths and limitations of methods and design

Specific strengths and limitations are detailed in specific chapters. We provide few highlight here.

Strengths:

- This study used a reliable survey data and blood samples from a large community based cohort study (MZIMA). A large community based sample is essential for making statistical inference.
- This thesis used an explanatory mixed method approach and multiple levels of investigations. This allowed data and method triangulation for validating and interpreting findings. The qualitative study contributed strongly in clarifying some of the striking observations from the quantitative study including the association between VICOBA and extramarital affairs.
- This thesis contains both internal and external validity. Most of the observations corroborate across the methods, with other findings in Tanzania, and elsewhere in SSA.

Potential limitations:

- Two thirds of the married or cohabiting respondents in the MZIMA cohort are female and as such, the data may not have a full representation of male/female distribution in the study area.
- The MZIMA survey data were not designed to investigate the social-structural determinants of HIV vulnerability in marital context. As such, we only used the potential variables. Perhaps if the data set could have adequate structural variables such as masculinity, relationship quality and social norms of marriage, it would have improved the interpretation.
- As it is with the cross sectional designs, i.e. exposures and HIV status have been determined at the same time, therefore, it is not absolutely certain to attribute some behaviors as a result of several variables.
- The influence of culture and social desirability on some variables, such as the lifetime number of multiple sexual partners which was used to construct extramarital affairs, could have a reporting bias. However, a mixed method design provided quite a good internal validity for most of our observations. For example, the qualitative data provided various life scenarios that supported the prevalence of extramarital affairs in Ifakara town, as well as the association between VICOBA and extramarital affairs for men and women.

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IDI- tool for married individuals

Project title: Social-structural determinants of HIV vulnerability among heterosexual married partners in Ifakara town, Tanzania

 <p>Swiss TPH Swiss Tropical and Public Health Institute Schweizerisches Tropen- und Public Health-Institut Institut Tropical et de Santé Publique Suisse</p>  <p>IFAKARA HEALTH INSTITUTE research training services</p>	<p>HIV in marriage</p> <p>IDI-version: 01 Version date: 26th February, 2015</p>	<p>Date: _ _ / _ _ / _ _ _ _ _ </p> <p>Ref. IDI/Audio File: Individual – ID _ _ _ </p>
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Ref. IDI/Audio File:	Factors associated with HIV transmission IDI – _ _ _ - _ _ _ _ _ HIV in Marriage_Mono-Man- [] HIV in Marriage_Mono-Woman- [] HIV in Marriage_Poly- Woman- [] HIV in Marriage_Poly-Man – []
Date	_ _ / _ _ / _ _ _ _ _
IDI type	Age _ _ Men _ Woman _
Time at the start of interview	_ _ : _ _
Time at the end of interview	_ _ : _ _
Language (s) spoken	_____
Place of interview	_____
Description of participant dynamic	
Result of Interview	<input type="checkbox"/> Complete <input type="checkbox"/> Incomplete, reasons: _____ _____ If applicable, reconvened for: _ _ / _ _ / _ _ _ _ _

Introduction

Thank you very much for agreeing to participate in this interview. As we discussed during the consent process, I am a student of the University of Basel, Switzerland and working with Ifakara Health Institute. We are conducting this interview involving married and cohabiting partners (men and women residing in two villages of Ifakara, (Viwanja sitini and Mlabani). The main purpose of our study is to understand the marital welfare and factors contributing to HIV transmission in marriage. Therefore, this interview is an attempt to seek your opinions and experience with regards to marriage life, safer sex communication, extramarital affairs and the use of HIV prevention strategies. We hope that your responses to our questions will help synthesize information that will contribute to the understanding of aspects that need to be worked on for improving available strategies for HIV prevention in marital and cohabiting relations. Kindly feel free to provide your views about the questions, there is no wrong response; all your responses will be valued.

We expect our interview to last for about 1 hr.

Do you have any question?

Our interview is divided into various topics and each topic will be introduced as the interview proceeds

Part A-----Marital welfare

A1. How do you feel being in marital relation?

- How long have you been married?
- Is this your first marriage?
- If not what happened with your first marriage?
- How many children do you have?
- How satisfied or dissatisfied with the present marriage?
- If you are given a chance to quit this marriage will you do so and why?
- What is the most important aspect of your spouse's behaviour that you wish changing and why?

Part B-----Safer Sex Communication behaviours

B1. What is your view about HIV transmission in marital

B2. How can HIV be prevented in marital?

B3. What are your attempts to prevent HIV in your marriage?

B4. How do you communicate about HIV with your spouse?

- What do you communicate? how comfortable are you in communicating about it?
- Who initiate the discussion?

B5. How important is the communication about safer sex in your marital?

- How comfortable are you to discuss about sex issues with your spouse?

B6. Do you normally plan together on which HIV prevention interventions to use as spouses?, do you reach a consensus?

B7. What do you think are the aspects that can prevent safer sex communication with your spouse?

B8. What do you think can be done to improve safer sex communication among married individuals?

Part C.....Extramarital affairs

C1. How sexually satisfied are you in your marriage?

C2. What is your opinion about extramarital affairs?

- Is it justified for a man to engage in extramarital affairs?
- Is it justified for a woman to engage in extramarital affairs?

C3. Do you have other sexual partners apart from your marital spouse?

- How long have you been in this other relationship?
- How many extramarital spouses have you had since you got married?
- What was the motivation behind having this other relationship?
- Reflecting on your marriage, in your opinion what aspects encourage men to have extramarital affairs?
- What aspects encourage women to have extramarital affairs?
- What are the aspects that you consider important in these extramarital affairs?
- How do you feel being in these extramarital affairs?
- Is your husband aware of this affair?
- How would you feel if your husband knows that you are having this other relation?
- Are you aware of your extra spouse HIV status?
- How possible it is to propose HIV testing with non-spouse? Do you use condom with him/her?

C4. Is your partner having other affairs?

- How long he/she has been in this relationship?
- How do you feel about it?
- Why did you decide to continue with the marriage?

C5. Are you aware of your friends who are married but have other sexual partners apart from their marital spouses? What do you think about this?

C6. In your opinion what do you think are the consequences of engaging in extramarital affairs?

C7. In your opinion does having extramarital affairs has any implication on HIV transmission?

Part D----- Perception about HIV transmission and preventive strategies in marriage

D1. What are the health problems considered to be a threat in your marriage?

- What groups of people are likely to contract HIV?

D2. What do you think are the factors that contribute to HIV transmission in marital relation?

- Who is likely to bring the HIV infection in the union?
- How possible it is to prevent HIV in marital relations?
- How can HIV be prevented in marital context?
- How does couple counselling and testing services works for polygamous couples?

CURICULUM VITAE

Mtenga Sally Mmanyi

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Current Employer:	Ifakara Health Institute (IHI)
Nationality:	Tanzanian
Marital Status:	Married
Children:	Two
Value statement:	Committed, self-motivated, accountable and team up with others to serve with integrity

Short Profile/Summary

More than 10 years of professional experience in program management and public health research on the intersection of community social norms, gender, social cognitive behavior sexual behavior and health in the humanitarian context. Sound experience in qualitative research methods including study design, tool development, data management and analysis. Experience in quantitative research (study design and analysis). Wide experience in community based health interventions, monitoring and evaluation of projects. Familiar with the analysis of determinants of health risk behaviors in the context of social-structural perspective. Direct work experience and collaboration with International agencies such as CARE International in Tanzania, Barcelona Centre for International Health Research, Manhica Health and Demographic Site (HDS)-Mozambique and Lambarene HDS-Gabon. National collaboration with Tanzania AIDS Control Program, National Institute for Medical Research, Muhimbili Department of Health and Allied Science and Mwanza Institute of Clinical Trial Unit. Local collaboration with the Kilombero District Council Health Management team. Report writing skills in Kiswahili and English. Good working capacity in Tanzania.

International recognition: One of my first authored papers (*Mtenga S, Shamba D, Wamoyi J et al. "How long-distance truck drivers and villagers in rural southeastern Tanzania think about heterosexual anal sex: a qualitative study." Sexually transmitted infections, 2015; 91.8: 576-580*) received recognition in the UNAIDS Science now in 2015.

Higher Education and Qualifications

2014-2016 PhD Epidemiology

Swiss Tropical and Public Health Institute. University of Basel, Switzerland

Dissertation: Social-Structural Determinants of HIV vulnerability among Married Partners in Tanzania: The role of gender norms and power relation, masculinity, social norms and relationship quality

2010-2011 MSc Medical Sociology

University of Nairobi, Kenya

Thesis: Social-Cognitive Determinants of Voluntary Counseling and Testing among Married Partners in Tanzania

1994-1998 Bachelor of Arts in Community Development

Daystar University, Kenya

Work Experience/Employment

Current: Swiss Tropical and Public Health Institute

PhD student in Epidemiology

2004-2014 Ifakara Health Institute in Tanzania

Recent Position: Co- Principal Investigator in an HIV and NCDs surveillance project

- Assist in the management and coordination of the study activities
- Participate in the training and re-training of HIV-VCT counselors and study enumerators

- Supervise quality monitoring of data collection, HIV-counseling and testing procedures
- Advisor for the community liaison and health promotion
- Review, write of project progress reports
- Data analysis and publication

Additional work related experience at Ifakara Health Institute (summary)

1. Site principal coordinator for research on: “Formative Research on Heterosexual Anal Sex in Tanzania”
2. Site coordinator for a multi-country study evaluation using qualitative design on: “the contribution of malaria vaccine trials on the health services delivered to women and children in Tanzania”
3. Project manager in a pro-poor study: “Reaching the poor with Voluntary counseling and testing services in Kilombero district”
4. Coordinator for the qualitative study component: “Community response and perceptions regarding the anticipated malaria vaccine in Tanzania”
5. Management of qualitative study component, assistant in study coordination and community mobilization in a project: “Incentivizing behavior change through Conditional Cash Transfer (RESPECT)”
6. Management of qualitative study component and mapping of National research and activities on the Social Determinants of Health. Assistant to the site coordinator in a project “Building Sustainable Capacity for Health in its Social Determinants”

2000-2004 CARE International in Tanzania

Position: Project Officer in a community health project “Imarisha Mapato Riziki na Afya (IMARA)”

(Literary: Strengthen income and health)

- Management of 9 implementing agencies (Non-governmental Organizations) from 9 regions of Tanzania
 - Participatory implementation, monitoring and evaluation of health interventions
 - Grants management and approval
 - Coordination of Behavior Change Communication activities
 - Report writing and dissemination

Publications

Mtenga S, Geubbels E, Marcel T, Merten S, Pfeiffer C. "It is not expected for married partners"- Challenges to safer sex dialogue between monogamous and polygamous married partners in South-eastern Tanzania. *Glob Health Action* 2016, 9: 32326.

Mtenga S, Pfeiffer C, Merten S, Mamdani M et al. Prevalence and social drivers of HIV among married and cohabitating heterosexual adults in south-eastern Tanzania: analysis of adult health community cohort data *Glob Health Action*. 2015; 8: 2894.

Mtenga S, Exavery A, Kakoko D, Geubbels E. Social cognitive determinants of HIV voluntary counseling and testing uptake among married individuals in Dar es Salaam Tanzania: Theory of Planned Behaviour (TPB). *BMC Public Health*. 2015; 15:213.

Mtenga S, Shamba D, Wamoyi J et al. "How long-distance truck drivers and villagers in rural southeastern Tanzania think about heterosexual anal sex: a qualitative study." *Sexually transmitted infections*, 2015; 91.8: 576-580.

Mtenga S, Masanja I, Mamdani M. Strengthening national capacities for researching on social determinants of health (SDH) towards informing and addressing health inequities in Tanzania. *International Journal for Equity in Health*. 2016.15:23.

Mtenga S, Kimweri A, Romore I. et al. Stakeholders' opinions and questions regarding the anticipated malaria vaccine in Tanzania. *Malaria Journal* 2016:15:189.

Packel L, Keller A, Dow WH, de Walque D, Nathan R, **Mtenga S**. (2012) Evolving Strategies, Opportunistic Implementation: HIV Risk Reduction in Tanzania in the Context of an Incentive-Based HIV Prevention Intervention. *PLoS ONE* 7(8).

Damien de Walque, William H Dow, Rose Nathan, **Sally Mtenga** et al, "Incentivising safe sex: a randomised trial of conditional cash transfers for HIV and sexually transmitted infection prevention in rural Tanzania." Mathew Alexander Mwanyangala, Laura Packel, Julius Schachter, Kizito Shirima, Carol A Medlin in *BMJ Open*. 2012: (2). Saidi Egwaga, Nyagosya Range, Fred Lwilla, Abdallah Mkopi, Vivien Barongo, **Sally Mtenga**, Hassan Mshinda, Frank Cobelens, Vera Haag, Frank van Leth, Penny Grewal. Assessment of patient preference in allocation and

observation of anti-tuberculosis medication in three districts in Tanzania. Patient Preferences and Adherence 2008:2.

Aceme Nyika, Roma Chilengi, Deus Ishengoma, **Sally Mtenga** et al, Engaging diverse communities participating in clinical trials: case examples from across Africa. Malaria Journal 2010, 9:86.

Msecha J and **Mtenga S** (2005). Poverty and Vulnerability: Improving Quality of Life and Social Well-Being. Prepared for Poverty and Health Development Review, Tanzania.

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