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Male Involvement in Maternal Health in Rural Malawi

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ACADEMIC DISSERTATION
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ABSTRACT

Maternal death and illness remain a pertinent problem in low-income countries and the poor areas in many middle-income countries despite of decades of various interventions. Involving male partners has long been acknowledged as an important strategy to improve the health of pregnant mothers and their families. Very few male partners take part in maternal health services and little is known about men's contribution to maternal health at the community level. The possibility to improve maternal health by involving men remains a missed opportunity.

Malawi, a low-income country in southeast Africa, faces high maternal mortality, and male-partner involvement in maternal health is limited. At the time of the study in 2006, HIV testing and treatment in antenatal care was being scaled up in the country, and knowledge about how to involve male partners was essentially needed.

The aim of this doctoral thesis in the field of public health is to explore husbands' perceptions of and their role in maternal health and wellbeing in rural Malawi. The thesis is part of the long-term reproductive and child-health research collaboration between the University of Tampere and the Malawi College of Medicine in the rural Mangochi district, Malawi. The thesis consists of two parts. Part 1 investigates men's perceptions of HIV in pregnancy and their specific role as husbands in relation to voluntary counselling and HIV testing in antenatal care. Part 2 explores how husbands perceive their role during pregnancy and delivery and in seeking health care for pregnancy complications.

A mixed-methods design with focus group discussions, in-depth interviews and cross-sectional surveys was applied. In part 1, 11 focus- group discussions were held to explore men's perceptions and then a survey with 388 men in reproductive age was conducted to find out frequencies of the attitudes and practices. The survey contained a self-interview component to assess accuracy of responses to sensitive questions. In part 2, a survey with men (n= 389) was first conducted, then 30 in-depth interviews with husbands, wives and key informants were held to elaborate on the complex phenomenon of seeking health care for pregnancy complications that arose in the survey.

According to the findings, the husbands were concerned for the health of their pregnant wives. They perceived health problems in pregnancy to be due mainly to

poor life circumstances such as inadequate nutrition. They acknowledged that husbands can negatively affect pregnancy health if they exercise physical violence towards their wives or engage in extramarital, unprotected sex. Men regarded their knowledge on maternal health insufficient to make sound decisions when seeking health care for their pregnant wives. Some crucial misconceptions, such as convulsions being caused by witchcraft, prevailed.

Very few men had joined their wives to attend maternal health services. At the community level, husbands supported their wives emotionally, financially and in practical matters. They were actively involved in planning for the birth, made decisions on health-care seeking and provided transport to maternal health services. The husband's power to decide on health-care seeking was justified by his economic resources and position as the head of the household. The wife had no power to decide but had to obey her husband, whom she depended on for long-term support. A shortage of money and lack of transport posed significant barriers to timely seeking for maternal health care.

Men stressed that the couple needs to decide jointly about HIV testing in antenatal care and that they need health workers to assist them in disclosing HIV-positive test results to their spouses. Men's fear of being tested for HIV and their perception of maternal health services as female territory were the main barriers for them to participate in maternal health services.

A recommendation based on the findings is that men are given access to maternal health information tailored to their needs. Men's significant roles at the community level should be acknowledged and supported. Male involvement interventions need to adopt a gender-sensitive approach that supports couple dynamics and early involvement of men in maternal health services and antenatal HIV testing. For a sustainable change, underlying factors that pose barriers to male involvement and health-care seeking in emergencies, especially HIV-related stigma and poverty, should be addressed.

TIIVISTELMÄ

Äitiyskuolleisuus on edelleen vakava ongelma alhaisen tulotason maissa huolimatta vuosikymmenten työstä tilanteen parantamiseksi. Yksi laajalti tunnustettu strategia äitiysterveyden edistämiseksi on miesten osallistaminen. Kuitenkin nykyisinkin alhaisen tulotason maissa hyvin harva mies osallistuu vaimonsa kanssa äitiyshuollon palveluihin ja miesten roolista yhteisötasolla tiedetään vain vähän. Näin ollen miesten osallistamisen edut jäävät hyödyntämättä.

Malawissa, eteläisessä Afrikassa, äitiysterveyden ongelmina ovat etenkin äitiyskuolleisuus, teiniraskaudet ja HIV, ja miesten osallistuminen äitiyshuollon palveluihin on vähäistä. Väitöskirjatutkimuksen alkaessa vuonna 2006, Malawissa laajennettiin äitiysneuvolan HIV-palveluita ja tietoa miesten roolista tarvittiin suunnitelmien tueksi.

Tämän kansanterveyden alaan kuuluvan väitöskirjatutkimuksen tavoite oli tuottaa tietoa miesten näkemyksistä ja osallistumisesta äitien terveyden ja hyvinvoinnin edistämiseen Malawin maaseudulla. Tutkimus on osa pitkään jatkunutta lisääntymisterveyden alan yhteistyötä Tampereen yliopiston ja Malawi College of Medicine:n välillä Mangochin alueella Malawissa ja se pyrkii tuottamaan lisätietoa äitiyskuolleisuuden taustatekijöistä. Tutkimus koostuu kahdesta osasta. Ensimmäisessä osassa selvitettiin miesten näkemyksiä raskaudenaikaisesta HIV:sta ja heidän rooliaan äitiysneuvolan HIV:n testauksessa. Toisessa osassa tutkittiin miesten näkemyksiä heidän roolistaan raskauden ja synnytyksen aikana ja erityisesti hoitoonhakeutumisessa raskaus- tai synnytyskompilikaatioiden sattuessa.

Ensimmäisessä osassa menetelmänä olivat miesten ryhmäkeskustelut (n=11) sekä kyselytutkimus (n=388), jolla kartoitettiin ryhmäkeskusteluissa esiin tulleiden näkemysten yleisyyttä. Sensitiivisten vastausten luotettavuutta selvitettiin itsehaastattelumenetelmällä. Toisessa osassa miesten kyselytutkimuksessa (n=389) ilmennyttä hoitoonhakeutumisen ongelmaa tutkittiin tarkemmin komplikaation kokeneiden pariskuntien miesten ja naisten sekä avaintiedottajien laadullisilla yksilöhaastatteluilla (n=30).

Tulokset osoittivat, että miehet välittivät vaimonsa raskaudenaikaisesta hyvinvoinnista. Raskaudenaikaiset terveysongelmat johtuivat heidän käsityksensä mukaan usein heikosta ravitsemuksesta tai huonoista elinoloista, mutta myös

aviomieheltä saaduista sukupuolitaudeista ja lähisuhdeväkivallasta. Miehet pitivät tietojaan äitiysterveydestä riittämättöminä päätöksentekoon hoitoonhakeutumisesta. Heidän tiedoissaan olikin joitakin merkittäviä aukkoja, esimerkiksi raskaudenaikaisia kouristuksia pidettiin noituuden aiheuttamina.

Vaikka hyvin harva miehistä oli ollut mukana äitiyshuollon palveluissa, he osallistuivat yhteisötasolla monin tavoin äitiysterveyteen liittyviin asioihin. He tukivat vaimoaan tarjoamalla ravitsevaa ruokaa, vähentämällä heidän työtaakkaansa ja tarjoamalla rahaa ja apua äitiyshuollon palveluihin hakeutumisessa. Miehillä oli tärkeä rooli päätöksenteossa hoitoon hakeutumisessa, koska he ansaitsivat pääosan perheen tuloista ja heillä oli perinteisen perheenpään roolin tuoma auktoriteetti. Naisilla ei ollut sananvaltaa omasta hoitoon hakeutumisestaan, vaan heidän tuli totella ensisijaisesti miestään ja myös omia vanhempiaan. Rahan ja kuljetusmahdollisuuksien puute olivat tärkeimmät hoitoon hakeutumista estävät tekijät miesten näkökulmasta.

Äitiysneuvolan HIV-testauksesta miehet toivoivat voivansa päättää rauhassa perheen kesken. He toivoivat myös saavansa tukea mahdollisen HIV-diagnoosin jälkeen, jotta perhe välttyisi riidoilta ja avioerolta. Miesten osallistumista äitiysneuvolan HIV-testaukseen estivät heidän pelkonsa HIV-positiivisesta testituloksesta ja kokemus äitiysneuvolasta vain naisille kuuluvana alueena.

Tulosten pohjalta suositellaan, että miehille tarjotaan suoraan heidän tarpeisiinsa vastaavaa tietoa äitiysterveydestä. Miesten tärkeä rooli äitiysterveyden edistämisessä yhteisötasolla tulee tunnustaa ja sitä tulee tukea. Äitiyshuollossa mukaan lukien HIV-testauksessa tulee vahvistaa miesten varhaista osallistumista sekä pariskuntia tukevaa lähestymistapaa. Hoitoon hakeutumista ja miesten osallistumista rajoittaviin taustatekijöihin, etenkin HIViin liittyvään stigmaan ja köyhyyteen tulee puuttua.

CONTENTS

List of Attachments

ABBREVIATIONS

ACASI	Audio computer-assisted self-interview
ANC	Antenatal care
ART	Antiretroviral treatment
DHS	Demographic and health survey
FGD	Focus group discussion
FTFI	Face-to-face interview
HIV	Human immunodeficiency virus
IDI	In-depth interview
MMR	Maternal mortality ratio
PIASI	Picture- and audio-assisted self-interview
PMTCT	Prevention of mother-to-child transmission of HIV
SRH	Sexual and reproductive health
STI	Sexually transmitted infections
TBA	Traditional birth attendant
VCT	Voluntary counselling and testing of HIV

ORIGINAL PUBLICATIONS

Publication I Aarnio, P., Olsson, P., Chimbiri, A., Kulmala, T. (2009). Male involvement in antenatal HIV counselling and testing: exploring men's perceptions in rural Malawi. AIDS Care, 21, 1537-1546. doi: 10.1080/09540120902903719.

Publication II Aarnio, P., Chipeta, E., Kulmala, T. (2013). Men's Perceptions of Delivery Care in Rural Malawi: Exploring Community Level Barriers to Improving Maternal Health. Health Care for Women International, 34, 419-439. doi: 10.1080/07399332.2012.755982.

Publication III Aarnio, P., Kulmala, T. (2016). A Pilot Study of a Picture- and Audio-assisted Self-interviewing Method (PIASI) for the Study of Sensitive Questions on HIV in the Field. Field Methods, 28, 38-49. doi: 10.1177/1525822X15579652.

Publication IV Aarnio, P., Kulmala, T., Olsson, P. (2018). Husband's role in handling pregnancy complications in Mangochi district, Malawi: A call for increased focus on community level male involvement. Sexual & Reproductive Healthcare, 16, 61-66. doi:10.1016/j.srhc.2018.02.005.

1 INTRODUCTION

Maternal health was raised on the global agenda at the 1994 United Nations Conference on International Population and Development (ICPD) in Cairo, which was an important landmark in sexual and reproductive health (SRH). A total of 179 nations adopted a programme of action that promoted reproductive health and rights, women's empowerment and gender equity in a way that had not been seen before (United Nations [UN], 1994). Next, in 2000, all the countries in the world agreed on the eight Millennium Development Goals (MDG). The MDG number 3, 'Promote gender equality and empower women', and the MDG number 5, 'Improve maternal health', as well as other MDGs more indirectly, continued on the same path of committing nations to work towards improved reproductive health and women's rights (UN, 2014). The same priorities are echoed in the more recent Sustainable Development Goal number 3 to reduce the maternal mortality ratio (MMR) to less than 70 per 100000 live births by 2030 (World Health Organization [WHO], 2015b).

Despite these policies and interventions, maternal death and illness remain pertinent challenges today (Thomas et al., 2014). In 2015, an estimated 303,000 women worldwide, mainly in low-income countries, died of largely preventable pregnancy-related causes (WHO, 2015b). Maternal death and suffering in low-income countries are due to five main reasons: poverty, long distance to a health facility, lack of information on maternal health, inadequate maternal health services and cultural practices that hinder health-care seeking (WHO, 2014). Underlying factors behind maternal death are yet to be addressed. Early childbearing is still common, and young pregnant women face a high risk of maternal death and disability. There is still a high unmet need for contraception, leading to unwanted, risky pregnancies. Low social status and gender disparities favouring men additionally reduce women's knowledge of and ability to access maternal health services (Thomas et al., 2014).

Male involvement in maternal health is an approach that aims to increase men's opportunities for learning and development and thereby improve the health of pregnant women and their families and promote gender equity (Greene et al., 2006; WHO, 2012). The ICPD has already called for the partnership of nations in

involving men in SRH (UN, 1994). The human immunodeficiency virus (HIV) epidemic in its turn increased interest in involving men in HIV testing in antenatal care (ANC), as a presumably effective way to enhance efforts in HIV prevention for couples as well as the prevention of mother-to-child transmission of HIV (PMTCT) (Mills, Beyrer, Birungi, & Dybul, 2012). Male involvement is necessary, since men's attitudes, behaviours and involvement influence all aspects of SRH, including maternal health, family planning, prevention and treatment of HIV and other STIs (Greene et al., 2006; WHO, 2012). Likewise, men are influenced by any reproductive health decisions made by their partners (Sherr & Croome, 2012). In practice, developments in male involvement in low-income countries have been slow, and even today men are rarely involved in SRH services and interventions (Chideme et al., 2017; Craymah, Oppong, & Tuoyire, 2017; Haile & Brhan, 2014).

In 2006, when this study began in Malawi, the Ministry of Health (2005) was promoting male involvement as one of its strategies to improve maternal health. Close to the study area in Mangochi district in central Malawi, maternal and child health studies and interventions had been carried out for 12 years by the Malawi College of Medicine, University of Tampere, Finland, Väestöliitto (the Family Federation of Finland) and other partners around the training health centre of Lungwena. The maternal health situation in the area was well documented in terms of maternal and child health indicators, but little was known about cultural-specific causes of maternal death and illness (Ashorn, 2003; Launiala, 2010; Luntamo et al., 2010; Kulmala et al., 2000; Vaahtera et al., 2000). To move forward in improving maternal health, it was essential to gain better understanding of the role of men. This thesis aims to explore husbands' perceptions of and involvement in maternal health and wellbeing in rural Malawi. It belongs to the field of public health and is part of a University of Tampere project: 'Male involvement in reproductive health in India and Malawi.'

In the first part of the thesis, I focus on male involvement in HIV testing in ANC. In 2006 a PMTCT programme, with HIV testing for pregnant women as an important component, was recently enrolled in Malawi. Male partner-related barriers had been found to hinder women's uptake of the services (Farquhar et al., 2004; Medley, Garcia-Moreno, McGill, and Maman, 2004), which called for more research on the role of male partners. The second part of the thesis examines male involvement in pregnancy, childbirth and handling pregnancy complications. These issues have received relatively little attention in research, although understanding them better would be helpful when seeking ways to reduce maternal mortality and morbidity (Yargawa & Leonardi-Bee, 2015). The thesis anticipates assisting policy

makers and programme planners in Malawi in finding practical solutions to reduce maternal deaths in the country, as well as providing new insights into male-involvement research.

The thesis summary consists of a literature review on maternal health and male involvement in Sub-Saharan Africa as well as on methodological issues with relevance to mixed-methods research on sensitive topics. It covers the study aims, methods and findings of the study, as well as a discussion on the methods and main findings. The four publications and the study tools are included at the end.

2 LITERATURE REVIEW

2.1 Scope of the literature review

In this literature review, I aim to determine what is known based on research on the main topic of this thesis, namely men's involvement in maternal health in low-income countries, especially in Sub-Saharan Africa. I also review literature on application of mixed methods and on the research of sensitive topics, which were the two methodological points of interest in this thesis. To understand the wider context, I include an overview of the maternal health situation in low-income countries and in particular in Malawi, where the study took place. The literature review provides an up-to-date picture of men's involvement in maternal health as well as of the situation in 2006, when the study was conducted.

Literature searches were carried out using the Medline, CINAHL and ISI databases. The main search terms were men, male, spouse, partner, couple, involvement, maternal health, pregnancy, antenatal, prenatal, delivery, HIV, PMTCT, voluntary counselling and testing, self-interview, ACASI, focus group discussion, in-depth interview, couple interview, sensitive topics, mixed methods. Qualitative and quantitative studies on Sub-Saharan Africa in the English language were included. Selected studies from other countries were included if they were interesting in terms of methodology or if there were no studies available on Sub-Saharan Africa on a particular aspect of the topic. Relevant grey literature was searched through Google and from Malawi national sources. Methodological studies and textbooks in the Tampere, Helsinki and Uppsala University collections, which I used in planning and conducting the study, were also included.

2.2 Definitions

Maternal health refers to the health and wellbeing of the mother during pregnancy, childbirth and in the first weeks after birth. It is intertwined with SRH and gender (WHO, 2016).

Reproductive health is defined as complete physical, mental and social wellbeing, not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes (WHO, 2016).

Sexual health is the state of physical, mental and social wellbeing in relation to sexuality (WHO, 2016).

Maternal mortality refers to the death of women while pregnant or within 42 days after birth due to causes related to or aggravated by the pregnancy or its treatment (WHO, 2016).

Maternal mortality ratio is the number of maternal deaths per 100,000 live births in a given time period (WHO, 2016).

Pregnancy and delivery complications have no single, commonly agreed-upon definition. They refer to health problems that occur during pregnancy and delivery and may or may not be life-threatening to the mother and/or the baby (Centers for Disease Control and Prevention [CDC], 2018).

Gender refers to socially constructed characteristics of men and women (WHO, 2015a).

Women's autonomy and empowerment are closely linked concepts, but autonomy may be defined as the freedom to do certain things, while empowerment is the ability to resist controls over one's life or resist the denial of one's rights (Dixon-Mueller, 1998).

Male involvement in maternal and reproductive health has no single, commonly agreed-upon definition. Since the ICPD in 1994, male involvement has programmatically come to entail different approaches that focus on men as health-care clients, as partners of women with a responsibility to improve women's health, or as active agents of change who have individual reproductive-health histories and needs and who can transform underlying gender norms (Greene et al., 2006; UN, 1994). The third approach, which is the standpoint taken in this thesis, serves the interests of men and women by increasing men's opportunities for learning and development, at large aiming to promote gender equality (Greene et al., 2006). The 'men' in male involvement has so far meant married or co-habiting male partners; men in other long-term or unstable relationships are only sometimes included (Katz et al., 2009; Yargawa & Leonardi-Bee, 2015). 'Involvement' has mainly, but not exclusively, meant participation in maternal health services; only rarely have more comprehensive definitions have been used (Kalembo, Zgambo, Mulaga, Yukai, & Ahmed, 2013; Sherr & Croome, 2012; Yargawa & Leonardi-Bee, 2015). Overall, there is ambiguity in male-involvement research regarding the definition and aims of male involvement as well as the underlying conceptual base (Comrie-Thomson et al., 2015). In this study, male partner involvement is viewed as a comprehensive set of male practices and attitudes related to maternal health.

2.3 Maternal health in a global perspective

2.3.1 Maternal mortality

Global maternal mortality has almost halved in the last 20 years, but maternal health remains an area of large disparities between the richest and the poorest countries (WHO, 2015b). Within countries, large urban-rural and rich-poor gaps remain in maternal health and service coverage (United Nations Children's Fund [UNICEF], 2017). The lifetime risk for a woman to die a maternal death is 1 in 41 in low-income countries, compared to 1 in 3300 in high-income countries. Sub-Saharan Africa has the highest MMR with 546 maternal deaths per 100,000 live births, which accounts for 66% of all maternal deaths worldwide. However, many countries in the region have made significant progress in reducing maternal deaths (WHO, 2015b).

The causes of maternal deaths in low-income countries are well known, and they can mostly be treated or prevented. Indirect causes of maternal deaths are pre-existing diseases, such as malaria, anaemia, HIV or tuberculosis. Direct causes refer to pregnancy complications and incorrect treatment, mainly haemorrhage, hypertensive disorders, sepsis, obstructed labour and abortion complications. Direct causes account for three quarters of maternal deaths, and their treatment requires prompt access to skilled emergency obstetric services (Campbell & Graham, 2006; Say et al., 2014; WHO, 2015c).

Half of the women (50%) in Sub-Saharan African countries currently receive the recommended minimum of four ANC visits during pregnancy, and half of deliveries (53%) are attended by a skilled birth attendant (UN, 2014). If maternal deaths in low-income countries are to be reduced, there is a need to tackle challenges like adolescent childbearing and unsafe abortions, reduce the unmet need for contraception and scale up emergency obstetric services to ensure more equal accessibility (Campbell & Graham, 2006; Thomas et al., 2014; WHO, 2015c).

Long-lasting changes in maternal health require underlying conditions like poverty and gender inequity to be addressed (Hunt & Bueno de Mesquita, 2007; UN, 1994). According to WHO, reasons why women die and suffer during pregnancy are poverty and lack of funds to pay the direct and indirect costs of basic health care and referrals, the long distance to health facilities, lack of knowledge about maternal health, inadequate maternal health services and cultural practices that hamper health care seeking (WHO, 2014). The increasing trend in international development-assistance funding for reproductive health indicates a positive change in attitude towards improving the health of pregnant women and their families. However, this

trend needs to be sustained and reflected in national budget allocations before improvements in maternal health can be seen (Arregoces et al., 2015; WHO, 2015c).

2.3.2 HIV and maternal health

An estimated 1.5 million pregnant women worldwide are living with HIV, and many do not know their HIV status. In Sub-Saharan Africa, the coverage of HIV testing services among pregnant women ranges from 34% in Angola and 43% in Nigeria to over 95% in Uganda and Mozambique (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2015). Prevention of mother-to-child transmission of HIV programmes aim to prevent HIV in children and in pregnant mothers, and to improve the survival and life quality of HIV-positive mothers (UNAIDS, 2011). They also provide an opportunity to reach out with interventions for pregnant mothers' partners and thereby a large part of the reproductive-age population (Desgrées-Du-Loû et al., 2007).

At the time of this study in 2006, PMTCT was a fairly new phenomenon; 71 countries were implementing national PMTCT programmes, but only 11% of pregnant women diagnosed as HIV-positive received antiretroviral treatment (ART) for HIV (WHO, 2007). Since then, the coverage of PMTCT has increased significantly. By 2014, eight out of ten HIV-positive pregnant women in the 21 countries most affected by HIV – all in Sub-Saharan Africa - received some type of ART, and new HIV infections among children had subsequently halved in the past five years. Lifelong ART for pregnant women living with HIV (PMTCT Option B+) is also increasingly available, but adherence to treatment and reducing new HIV infections in young women remain challenges that hamper pregnant women's health in the region (UNAIDS, 2015).

2.4 Male involvement in maternal health

2.4.1 Rationale for male involvement

Men's attitudes, behaviours and involvement influence all aspects of SRH, including family planning, prevention of HIV and other STIs, health seeking in pregnancy and delivery, breastfeeding decisions and parenthood. The rationale for involving male partners is conceptualised through men's roles as gatekeepers and decision makers for access to maternal health services in many cultural contexts, as responsible

partners, as individuals with their own SRH needs and as fathers (WHO, 2015c). Involving men meaningfully in maternal health improves the health of pregnant women, their partners and the newborn babies (Greene et al., 2006; WHO, 2015c). Male involvement in maternal health also allows the opportunity to address broader development challenges such as gender inequity, which is well known to negatively influence the health of women and children (Promundo, MenEngage, & United Nations Population Fund [UNFPA], 2010; WHO 2015c). In this process, men are not to be seen as obstacles or facilitating factors to help women access services but as husbands and partners of pregnant women and expectant fathers who are constitutive parts of the services themselves (Greene et al., 2006; WHO, 2002).

Both men's and women's gender roles need to be addressed to improve the health of pregnant women and their families (Comrie-Thomson et al., 2015). Gender norms, roles and relations influence men's and women's health and access to health care by affecting risks and vulnerabilities, time and financial resources available for health, access to information, personal and social barriers to health-care attendance and the effects of ill health (WHO, 2015a). For example, being female increases vulnerability to sexual coercion, while expectations of dominant, masculine behaviour and strength pushes men into risky health behaviour, including sexual relations and late health-care seeking (Chikovore et al., 2014; Connell, 2012).

The first global commitment to male involvement in reproductive health, 'A call for gender equality and partnership in male involvement in responsible parenthood, sexual and reproductive health for the benefit of both men and women', was made at the ICPD in Cairo in 1994 (UN, 1994). Men had previously been seen to impact women's lives negatively, and the main strategy to protect women´s health was female empowerment and the exclusion of men from reproductive-health matters (Sternberg & Hubley, 2004). Through a more reflective understanding of gender dynamics since the Cairo Conference, the global reproductive-health agenda has begun to contain actions to involve men, in close relation to the promotion of reproductive rights and gender equality and contributing to a larger development and rights agenda (Greene et al., 2006; WHO, 2002; WHO, 2015c)

The male-involvement policies have been slowly translated into national maternal-health strategies and practice (WHO, 2002; WHO, 2015c). Male involvement in maternal health has been hampered by the view that pregnancy and delivery represent a strictly female area. However, positive outcomes of male-involvement interventions in other areas of reproductive health have inspired male involvement in maternal health (Dudgeon & Inhorn, 2004; WHO, 2002). For example, male involvement has been associated with the increased use of

contraceptives (Vouking, Evina, & Tadenfok, 2014) and safe-sex behaviour favouring condom use (Farquhar et al., 2004; Nebié et al., 2001).

Social, cultural and economic factors in different contexts determine the relative importance of male partners and other family members on the woman and child's life possibilities (Magoma, Requejo, Campbell, Cousens, & Filippi, 2010; Somé, Sombié, & Meda, 2013). In relation to HIV, without the support of the family and society, living with the knowledge of being HIV-positive may be too overwhelming and stressful, and secondary prevention and treatment measures may be hard to carry through (Csete, Schleifer, & Cohen, 2004; Medley et al., 2004).

Concerns have been raised that male involvement in maternal health would reduce women's autonomy. Therefore, all male-involvement interventions must be designed to respect and promote women's free choice and autonomy, and gender equality (WHO, 2015c). Care must be taken not to reinforce stereotypes of men as decision makers and to mitigate eventual negative effects of male involvement, such as intimate partner violence, by keeping male involvement optional and women's health information confidential (Davis, Vyankandondera, Luchter, Simon, & Holmes, 2016; WHO, 2015c). Male-involvement interventions should ideally seek to transform gender norms that influence long-term health outcomes (Comrie-Thomson et al., 2015).

2.4.2 Negative influence of male partners

The harmful involvement of male partners in pregnancy and delivery mainly entails intimate partner violence and risky sexual behaviour leading to the acquisition of HIV or other STIs, and divorce or rupture of the relationship following the disclosure of HIV-positive results. One of the goals of male involvement is that these harmful behaviour patterns are abandoned in favour of meaningful participation (WHO, 2015c).

Intimate partner violence during pregnancy is common in Sub-Saharan Africa. A meta-analysis of 13 studies yielded an overall prevalence of 15.2% (range 2-57%) of any type of physical, sexual or emotional violence during pregnancy (Shamu, Abrahams, Temmerman, Musekiwa, & Zarowsky, 2011). Such violence has detrimental effects on maternal and newborn mental and physical health and can lead to foetal loss and maternal death (Garcia-Moreno, 2009; Ntaganira et al., 2008).

Pregnancy, HIV and intimate partner violence are closely linked together. Pregnant women with partners who are violent or controlling have been found to be at greater risk of HIV (Dunkle et al., 2004). On the other hand, many studies have

associated HIV-positive status with an increased risk of intimate partner violence during pregnancy (Ntaganira et al., 2008; Shamu et al., 2011). However, divorce or violence rates have not been found to be higher among women who disclose their HIV-positive status to their partner or participate in voluntary counselling and testing of HIV (VCT) for couples (Medley et al., 2004; Mohlala, Boily, & Gregson, 2011; Semrau et al., 2005). It has been suggested that disclosure of HIV may especially lead to adverse outcomes, such as violence, abandonment, blame and stigma, in a non-supportive relationship (Kilewo et al., 2001; Medley et al., 2004; Nebié et al., 2001). It is well documented that fear of intimate partner violence, divorce and abandonment are major barriers for pregnant women to accept HIV testing in ANC, disclose their HIV status to their partners and involve their husbands in antenatal HIV testing and counselling (Kowalczyk et al., 2002; Medley et al., 2004; Mlay, Lugina, & Becker, 2008; Morfaw et al., 2013; Nebié et al., 2001; Nyondo, Chimwaza, & Muula, 2014a).

2.4.3 Concept of male involvement

Male involvement in maternal health is a complex concept that can entail practical involvement in care of the mother and maternal health services, economic support and joint decision making (Yargawa & Leonardi-Bee, 2015). Six key roles of male partners in relation to pregnancy and delivery have been suggested. Men should (1) engage in family planning and contraceptive use, (2) support the good health of the pregnant woman (mental, economical and practical support to health care attendance, provision of providing nutritious food, seeking knowledge on danger signs), (3) continue to be a respectful sexual partner, (4) provide support for seeking skilled assistance at birth and reducing delays, (5) assist mentally during birth and (6) provide support after birth and be a responsible father (Promundo, MenEngage, & UNFPA, 2010). Male involvement in ANC has been defined as the partner's attendance at ANC visits, awareness of ANC functions, financial support for visits and spousal discussion on ANC and condom use (Byamugisha et al., 2010a). No definition is used systematically, and studies have been criticised for relying on measuring male partners' single actions without linkages to a conceptual base (Comrie-Thomson et al, 2015; Sherr & Croome, 2012).

Male involvement in PMTCT programmes is commonly defined as the participation of male partners in HIV testing or VCT for couples in ANC (Ditekemena et al., 2012; Farquhar et al., 2004; Msuya et al., 2008), or as willingness to test for HIV (Kiarie, Kreiss, Richardson, & John-Stewart, 2003). Some researchers

consider a woman voluntarily disclosing HIV test results to her husband as well as whether a woman perceives her partner to support interventions, such as ART, as indicating male involvement (Farquhar et al., 2004; Kiarie et al., 2003; Nebié et al., 2001). Kalembo et al. (2013) defines male involvement comprehensively to include VCT attendance alone or jointly, mutual disclosure or HIV status and male partner support to PMTCT adherence financially or through joint decision making. Betancourt, Abrams, McBain, and Fawzi (2010) go a step further from male involvement towards a family-centred PMTCT programme, which has been defined as one that encompasses the family members' comprehensive health needs and involves all members in its care paradigm.

2.4.4 Status of male involvement

Most low-income countries still struggle with low levels of male involvement due to gender structures in the society and health-system challenges in incorporating men (Aborigo, Reidpath, Oduro, & Allotey, 2018; Promundo, MenEngage, & UNFPA, 2010). Studies from Zimbabwe, Ghana and Nigeria have reported male partner attendance rates from less than 20% to 44% in ANC, delivery and post-partum care services (Chideme et al., 2017; Craymah et al., 2017; Iliyasu Abubakar, Galadanci, & Aliyu, 2010). The rather small studies provide questionnaire-based data, and one also includes a review of health-facility records. In a district-wide survey in central Tanzania and a peri-urban setting in Uganda, participation was higher; 63% and 65% of male partners attended at least one ANC visit, respectively (Gibore, Bali, & Kibusi, 2019; Tweheyo et al., 2010). However, only 23.5% of the men in the Tanzanian study actually interacted with the health-care providers, questioning the definition of participation (Gibore et al., 2019). In Sub-Saharan Africa, decision making on maternal health-care seeking and the provision of economical support for health-care costs have been identified as the main, if not only, duties of male partners in relation to pregnancy and delivery (Aborigo et al., 2018; Amooti-Kaguna & Nuwaha, 2000; Bougangue, & Ling, 2017; Ganle et al., 2015; Iliyasu et al., 2010; Pembe, Urassa, Darj, Carsted, & Olsson, 2008; Somé et al., 2013; WHO, 2012).

Few men are similarly involved in PMTCT in low-income countries despite an overall accepting attitude towards the provision of PMTCT services (Medley et al., 2004; Sherr & Croome, 2012; Theuring et al., 2009). Studies from Sub-Saharan Africa report low levels of male involvement, ranging from less than 5% up to 31% (Aluisio et al., 2011; Byamugisha et al., 2010b; Farquhar et al., 2004; Homsy et al., 2006; John, Farquhar, Kiarie, Kabura, & John-Stewart, 2008; Mirkuzie, Hinderaker, & Mørkve,

2010; Msuya et al., 2008), with a few positive exceptions, like 65% male involvement reported in a study in Uganda (Tweheyo, Konde-Lule, Tumwesigye, & Sekandi, 2010). Men who are older, well educated, aware of their HIV status and the available PMTCT services, and communicate with their wife on pregnancy issues are likely to participate in PMTCT services (Aluisio et al., 2011; Byamugisha, Tumwine, Semiyaga, & Tylleskär, 2010a; Ditekemena et al., 2012; Msuya et al., 2008; Ntaganira et al., 2008).

2.4.5 Barriers to male involvement

Three systematic reviews have compiled evidence on the determinants, barriers and facilitators of male involvement in PMTCT in low-income countries, with the majority of studies conducted in Sub-Saharan Africa (Ditekemena et al., 2012; Morfaw et al., 2013; WHO, 2012). The main barriers found in the reviews and in recent studies are firstly health service-related factors such as long waiting times, unsuitable opening hours and clinic spaces, costs of ANC attendance (mainly transport costs and time spent away from other duties) and perceived unfriendly treatment at antenatal clinics. Secondly, individual factors like men and women perceiving antenatal clinics as female areas, lack of knowledge or spousal communication on services for men and the importance of men's attendance, men's fear of learning their own HIV status, and women's unwillingness to involve their partners due to fear of negative consequences following disclosure of HIV status prevent men from attending (Bwirire et al., 2008; Larsson et al., 2010; Misiri, Tadesse, & Muula, 2004; Morfaw et al., 2013; Nyasulu & Nyasulu, 2011; Nyondo, Chimwaza, & Muula, 2014b; Theuring et al., 2009; WHO, 2012). The WHO review (2012) explained the individual barriers through the underlying HIV-related stigma and discrimination in society and stressed that men's exclusion from reproductive health services in an unfortunate way exacerbates already-existing cultural gender barriers.

Many of the barriers that hinder men to attend PMTCT also hinder their attendance of maternal health services at large, like exclusion of men from maternal health care, time and distance barriers, and cultural barriers (Ditekemena et al., 2012; Morfaw et al., 2013; WHO, 2012). Women may be unwilling to involve their husbands in any services provided at ANC due to fear of disclosing their HIV status (Kululanga, Sundby, Malata, & Chirwa, 2011). Some studies have pointed out that men may not feel pregnancy and delivery care are their responsibilities, or they may take their responsibilities at work more seriously (Aborigo et al., 2018; Andersson et al., 2011; Lowe, 2017). According to Bougangue and Ling (2017), the traditional

gender division of labour in Ghana provides men with limited space to be involved in maternal health, and the uptake of female duties is met with disrespect, which leads to men's inactivity regardless of their willingness to take part. Most studies on barriers to male involvement rely on the pregnant women's reports, but men's perceptions are increasingly included (Katz et al., 2009; Larsson et al., 2010; Mlay et al., 2008; Nkuoh, Meyer, Tih, & Nkfusai, 2010; Theuring et al., 2009).

2.4.6 Male involvement strategies

Male involvement commonly relies on provider-initiated strategies, like partner notification of STIs in ANC (Kululanga et al., 2011; Tokhi et al., 2018). In the few available studies from Sub-Saharan Africa, mass media campaigns, invitation letters to male partners to attend ANC, and community and workplace outreach have been applied with some success to increase male involvement (August, Pembe, Mpembeni, Axemo, & Darj, 2016; Midhet, 2010; Mushi, Mpembeni, & Jahn, 2010; Turan, Tesfagiorghis, & Polan, 2011; Zamawe, Banda, & Dube, 2015). Researchers have also suggested other approaches to involve men, like interventions that targets opinion leaders and young men (Aborigo et al., 2018), reaching men through their peers (Kululanga et al., 2011), addressing negative health-worker attitudes towards men (Davis et al., 2016) and obligatory involvement in ANC (Chattopadhyay, 2011).

Actions to involve men in PMCTC have focused on health workers encouraging pregnant women to invite their spouses to antenatal VCT (Betancourt, et al., 2010; Sherr & Croome, 2012). However, in many societies, it is unacceptable that women suggest HIV testing to their husbands. This is often interpreted as mistrust or as a sign of infidelity, and women may fear violent reactions (Falnes et al., 2011, Farquhar et al., 2004, Larsson et al., 2011; Msuya et al., 2008; Nyondo et al., 2014a). When health workers invited men to HIV testing in written letters, male attendance increased slightly (Falnes et al., 2011; Mirkuzie et al., 2010; Mohlala et al., 2011; Nyondo, Choko, Chimwaza, & Muula, 2015; Theuring et al., 2009). Offering VCT around the time of delivery attracted more male partners to test than during pregnancy, supposedly since many male partners accompany pregnant women to maternity wards anyway (Homsy et al., 2006). Fast-track approaches, like opt-out HIV testing in ANC, seem to have attracted women to attend but failed to increase male involvement or HIV testing (Byamugisha et al., 2010b; WHO, 2012). It is also concerning that the fast-track approaches for VCT do not leave ample time for women and men to consider the consequences of eventual positive HIV test results and do not support joint decision making in marriage (Kowalczyk et al., 2002). This

may be the reason for the lower adherence to ART seen in connection to some fast-track protocols (Chan et al., 2016). The ability of community-outreach interventions to attract men to get involved in HIV testing is so far not well established (Mburu, Iorpenda, & Muwanga, 2012; Semrau et al., 2005).

2.4.7 Effects of male involvement on maternal and child health outcomes

A recent WHO systematic review on the effect of male-involvement interventions on maternal and child health outcomes in low- and middle-income countries concluded that male-involvement interventions increased ANC attendance, facility births, skilled-birth attendance, post-partum care, maternal nutrition and complication readiness. No clear effects on morbidity or mortality were found, and the level of evidence was too low to compare the effectiveness of the used interventions (Tokhi et al., 2018). Tokhi et al. also presented an explanatory model for the effect of male involvement interventions on maternal health outcomes (figure 1).

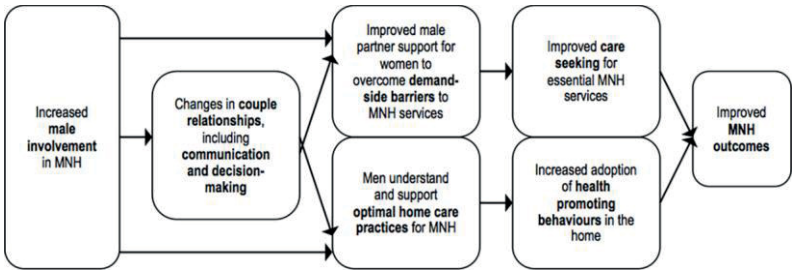

Figure 1. Explanatory model for the effect of male involvement on maternal and newborn health outcomes (Tokhi et al., 2018)

A systematic review and meta-analysis of male involvement on maternal health outcomes in developing countries found similar results and added reduced postnatal depression as an advantage of male involvement (Yargawa & Leonardi-Bee, 2015). In studies from Sub-Saharan Africa, community interventions including men have led to increased ANC attendance in Eritrea (Turan et al, 2011), earlier ANC attendance and increased use of skilled birth attendants in Tanzania (Mushi et al., 2010).

The effects of male involvement in PMTCT have been studied in relation to maternal and child health outcomes, and less so in relation to benefits for the men themselves (Sherr & Croome, 2012). In terms of child health outcomes, a prospective cohort study in Kenya found that children of HIV-positive women who

opted to attend ANC together with their partners were less likely to acquire or die from HIV (Aluisio et al., 2011). Antenatal VCT for couples was found to be a more cost-effective intervention than individual VCT for reducing HIV-acquisition in children (John et al., 2008). Partner involvement in PMTCT, measured with a six-item index, was found to be associated with increased adherence to infant ART (Peltzer, Sikwane, & Majaja, 2011). Better infant-feeding strategies following antenatal VCT for couples have been found in several studies (Farquhar et al. 2004; Msuya et al., 2008)

Partner support and antenatal VCT for couples have been associated with positive reproductive health outcomes for the mother and her partner, including sexual-behaviour changes favouring condom use, increased VCT uptake following counselling, increased return for results and improved ART compliance (Farquhar et al., 2004; Jones et al., 2013; Kakimoto et al., 2007; Kiarie et al., 2003; Msuya et al., 2008). However, some studies have found no effect of VCT for couples on ART compliance (Conkling et al., 2010). In Malawi, comprehensive partner involvement was associated with increased condom use, hospital delivery and completed follow up of the PMTCT programme (Kalembo et al., 2013).

2.4.8 Research gaps and challenges

Maternal health programmes and studies commonly focus on women (Magoma et al., 2010). Interventions that involve male partners in maternal health are rare, because involving men has shown to be difficult (Sherr & Croome, 2012; Sternberg & Hubley, 2004; WHO 2012). When men are included, it is only men in steady relationships (Katz et al., 2009). The majority of male-involvement studies focus on male involvement in maternal health services and in PMTCT, and there is a relative shortage of studies on male partners' roles at the community level and in other areas of maternal health with relevance to reducing maternal mortality (Dudgeon & Inhorn, 2004). The effects of male involvement in maternal health on gender equality and vice versa are not well established (WHO, 2015c). Couples in which one partner is HIV-positive and the other is HIV-negative, very young couples as well as couples who belong to disadvantaged populations need special attention in research.

Research gaps in the literature on male involvement in maternal health include studies on

- male involvement in pregnancy, birth preparedness and handling pregnancy complications;
- male involvement in post-partum care;
- involvement of male partners in unstable relationships;

- community-level involvement of men;
- men's perspectives on male involvement;
- male involvement in couples with an HIV-positive and HIV-negative partner.

2.5 Malawi context of male involvement

2.5.1 Gender, masculinity and women's autonomy

In Malawi, gender inequalities are significant in most social and economic indicators, including access to productive resources, education, literacy, decision making in the family and political representation. Equal primary-school enrolments show increasingly positive attitudes towards girls' schooling (Government of Malawi, 2010; White, 2007). Social and cultural values that favour men over women are traditionally dominant, particularly in the rural regions and among the least educated (National Statistics Office [NSO] & ICF Macro, 2011). Matrilineal and patrilineal lineage patterns are followed in different parts of the country, but the position of the woman is inferior to the man in both, and decisions are made by male members of the family, while women's status depends on her success in childbearing (Kishindo 1994; White, 2007). Women in Malawi are less frequently employed than men, and the women who are employed are mostly not paid for their work; they contribute less to the family income than their husbands, thus making them economically dependent (NSO & ICF, 2017). This lack of economic power is linked to women's limited power in reproductive health decision making (Nyasulu & Nyasulu, 2011).

Table 1. Summary of gender indicators in Malawi in 2004 and 2015-16, %

	2004 DHS	2015-16 DHS
Literate men	79	83
Literate women	62	72
Married or co-habiting women who report that they participate in decisions on		
- large household purchases	18	55
- the woman's health care	28	68
- visits to the woman's own family or friends	60	78
Married women who were employed in the last 12 months	58	72
Married women who were employed in the last 12 months, who were not paid for their work	66	59
Men who indicate at least one acceptable reason for a husband to beat his wife	16	13
Women who indicate at least one acceptable reason for a husband to beat his wife	28	16

The Malawi demographic and health surveys (DHS) 2004 and 2015-16 showed some development in women's status and empowerment, particularly regarding their right to decide on their own health-care seeking (NSO & ICF, 2017; NSO & ORC Macro, 2005) (Table 1).

2.5.2 Maternal health and HIV

Malawi's MMR at 495/100,000 life births is among the highest in the world, although there is a promising, steady declining trend (NSO & ICF Macro, 2017). The total fertility rate is still high, at 4.4 but also on the decline. Teenage pregnancies are common. One third of Malawi women (29%) have started childbearing by the age of 19. Almost all women attend ANC at least once during pregnancy, and 90% deliver with the help of a skilled birth attendant. Older and less-educated women in rural areas are most likely to deliver at home (NSO & ICF Macro, 2017). The HIV prevalence in Malawi was 12% at the time of the study in 2006, with the highest rates among women, and there have not been any significant changes to the parameters since then. The transmission of HIV from mother to child accounted for an estimated 10% of new HIV infections in 2010 (Government of Malawi, 2010; NSO & ICF, 2017; NSO & ICF Macro, 2011; NSO & ORC Macro, 2005). The development in maternal health indicators from 2004 to 2011 is promising, particularly in terms of the increased use of skilled attendants at birth (table 2).

Table 2. Summary of maternal health indicators in Malawi in 2004 and 2015-16

	2004 DHS	2015-16 DHS
Maternal mortality rate (/100,000 life births)	984	497
Births attended by a skilled birth attendant (%)	56	90
Women who attended ANC in their latest pregnancy		
- at least once (%)	95	95
- at least the recommended four times (%)	57	51
Men (15-49 years) living with HIV (%)	10	6
Women (15-49 years) living with HIV (%)	13	11
Men (15-49 years) with comprehensive knowledge on HIV * (%)	39	48
Women (15-49 years) with comprehensive knowledge on HIV * (%)	22	42
* Knows two primary prevention methods, knows that a healthy-looking person can have HIV and rejects local misconceptions about HIV prevention and transmission		

Maternal health care is organised in public (around 60%) and private facilities. The availability and quality of the services varies significantly between regions and rural and urban areas (NSO & ICF, 2017; NSO & ICF Macro 2011). Traditional birth attendants (TBAs) are respected members of the societies and play an active role in

community health care (O'Gorman, Nyirenda, & Theobald, 2010), but currently only 3% of births are assisted by TBAs (NSO & ICF, 2017).

The national PMTCT programme was introduced in Malawi in 2003 with a single-dose Nevirapine regimen. At the time of the study in 2006, PMTCT was being rolled out, with an estimated 26% of pregnant women tested for HIV at ANC, out of which 14% were found HIV-positive. Out of those, 14% received antiretroviral prophylaxis in the form of a single dose of Nevirapine (Ministry of Health, 2007). In 2011, the programme was expanded to start all HIV-positive pregnant or breastfeeding women on triple ART (Option B+), using an opt-out approach of HIV testing and group education on HIV and PMCTC. The babies receive Nevirapine for six weeks (WHO Regional Office of Africa, 2014). Now, 80% of pregnant women are tested for HIV and receive counselling and test results in ANC. Six out of ten women who are found HIV-positive are initiated on ART (NSO & ICF, 2017).

The main challenges to improving maternal health in Malawi are reducing teenage pregnancies, HIV and unsafe abortions, as well as improving maternal health services and increasing the availability of comprehensive emergency obstetric care, which is now provided at only 53% of the hospitals due to a shortage of staff and supplies (Government of Malawi, 2017; NSO & ICF Macro, 2011). Although the use of skilled attendants at birth is high, it has been estimated that the met need for treatment of emergency obstetric complications is still only around 20% (Kongnyuy, Hofman, Mlava, Mhlango, & van den Broek, 2008; Leigh, Mwale, Lazaro, & Lunguzi, 2008; NSO & ICF Macro, 2011). At the time of the study, the use of skilled attendants at birth was still less common due to barriers such as expected or experienced poor quality of delivery care, poor access to health services, no money for transport and cultural factors that promote home delivery, like preserving the normality of birth, reliance on traditional knowledge of elders and no permission to attend (NSO & ORC Macro, 2011; Seljeskog, Sundby, & Chimango, 2006). Even these days, 70% of women report that they have serious challenges accessing maternal health care, particularly in terms of getting money for treatment and the distance to the health facilities, but also because they need permission to attend (NSO & ICF, 2017).

Prevention of mother-to-child transmission of HIV programmes have suffered from high loss to follow-up, which is partly explained by the scattered structure of PMTCT services and staffing shortages (Kim et al., 2012). Qualitative studies investigating non-attendance and drop-out of PMTCT programmes have found male partner-related underlying factors, like fear of partner reactions, stigma and divorce related to disclosure of HIV status, lack of decision-making power and life

opportunities due to economic dependence on the husband, and inability to uphold treatment adherence without partner support (Bwirire et al., 2008; Chinkonde, Sundby, & Martinson, 2009; Kim et al., 2012; Nyasulu & Nyasulu, 2011; O'Gorman et al., 2010). Expected stigmatisation and discrimination by the community and health workers, as well as grandmothers' views, are other influential factors (Bwirire et al., 2008; Iroezi et al., 2013; O'Gorman et al., 2010).

2.5.3 Male involvement in maternal health

On the policy level, Malawi has actively adopted male involvement as a strategy in maternal health. Male involvement, in particular strengthening the role of men in arranging timely referrals, was already noted in the Safe Motherhood Roadmap in 2005 as one key solution (Ministry of Health, 2005). The national AIDS policy has promoted antenatal VCT and disclosing HIV results to partner or attendance of couple counselling since 2003 (National AIDS Commission, Malawi [NAC], 2003).

Men, particularly young men in Malawi, had limited knowledge on maternal health (NSO & ORC Macro, 2005). However, they are eager to learn about maternal health and indicate their own limited maternal health knowledge as a major reason for why their wives may not receive timely emergency obstetric care (NSO & ORC Macro, 2005; Nyondo et al., 2014b). Male partners are rarely involved in maternal health services (Leigh et al., 2008; WHO Regional Office of Africa, 2014). Men perceive difficulty in maintaining their masculinity in the environment of health care, since they are normally only expected to seek health care when severely ill, based on expectations of male bodily strength (Chikovore et al., 2014). Moreover, health care professionals are not always ready to involve men (Kululanga Sundby, Chirwa, Malata, & Maluwa, 2012; Misiri et al., 2004). To promote male involvement, women whose partners attend ANC are sometimes given preferential treatment, such as 'fast-track' services ahead of other women, the positive and negative effects of which have been debated (Kululanga et al., 2011; Nyondo et al., 2014a). Another study on a community initiative including the provision of bicycle ambulances was successful in increasing satisfaction and involvement of male partners in handling obstetric complications and in ANC (Sibande & Hutter, 2011).

A number of studies have investigated male involvement in PMTCT. A qualitative study with health workers and male and female ANC attendees suggests that male involvement in antenatal VCT is significant mainly because it enables facilitated disclosure and subsequent support for treatment adherence and positive living with HIV (Nyondo et al., 2014a). Another qualitative study showed that

women and their husbands are willing to share the responsibility of ART treatment for the woman and the baby (O'Gorman et al., 2010). Although women bear the main responsibility for infant feeding, their husbands act as monetary and emotional supporters and take part in decisions on the child's health (Bedell, van Lettow, & Landes, 2013; Flax et al., 2016). However, when community attitudes towards HIV-positive people are stigmatising, men may or may not remain supportive (Iroezi et al., 2013; Nyondo et al., 2014b). Male involvement in PMTCT is limited despite efforts to engage civil-society organisations, traditional leaders and communities in motivating men to attend (Kululanga et al., 2011; WHO Regional Office of Africa, 2014). Estimates of male participation in antenatal VCT for couples range from 3.2% to 19% (Kalembo et al., 2013; Nyondo et al., 2015; Tadesse, Muula, & Misiri, 2004; WHO Regional Office of Africa, 2014).

2.6 Mixed methods and sensitive topics in maternal health research

2.6.1 Sensitivity in maternal health research

Sensitive research can be defined as 'research, which potentially poses a substantial threat to those who are or have been included in it' (Lee, 1993, p. 4). 'Threat' here can mean both an intrusive threat, dealing with private, stressful or sacred areas, as well as a social threat related to the possibility of stigmatising information being revealed. In some contexts, even a more political threat with the possibility for coercion by those in power can be involved. Research subjects, researchers and others involved may all be threatened (Lee, 1993). Depending on the context, any topic theoretically has the potential to be sensitive. In maternal health, issues of a traumatising or stigmatising nature, such as pregnancy complications, HIV, rape and abortion among others are often found to be sensitive (Elmir, Schmied, Jackson, & Wilkes, 2011).

2.6.2 Research methods on sensitive topics

Face-to-face interviews (FTFIs) are considered to yield socially desirable answers on sensitive and stigmatised topics. The respondent has a wish to be accepted in the eyes of the interviewer, therefore their answers may reflect perceived social expectations rather than real behaviour or opinions (Hewett, Mensch, & Erulkar,

2004). This social-desirability bias may be reduced to a certain extent with in-survey techniques, like asking for indirect information or loading questions in a way that underlines the normality of the topic behaviour. One may also try to estimate the level of under-reporting on stigmatised or sensitive behaviours in different ways (Lee, 1993).

Other research methods are considered to better suit investigating sensitive topics. Self-interviewing, primarily through audio computer-assisted self-interviewing (ACASI), increases the level of privacy of the interview situation. In-depth interviews, participant observation or daily diaries engage the person for longer times to build rapport with the investigator. Both types of approaches can suit the investigation of sensitive topics (Lara, Strickler, Olavarrieta, & Ellertson, 2004; Morrison-Beedy, Carey, & Tu, 2006; Plummer et al., 2004). However, these methods do not offer a magic bullet to research sensitive topics. Overall, understanding how social-desirability bias works and which methods can best be applied to investigate sensitive topics requires understanding how the social norms work in that particular study context (Dolezal et al., 2011; NIMH Collaborative HIV/STD Prevention Trial Group, 2007; Potdar & Koenig, 2005). Combining qualitative and quantitative methods

2.6.3 Rationale of mixed methods

Research questions requiring contextual and multi-level perspectives can be studied using mixed methods. Qualitative methods are applied to understand constructs and combined with quantitative methods used to assess their magnitude and frequency (Creswell, Klassen, Plano Clark, & Smith, 2011). Mixed methods are increasingly used in health research, particularly in low-income country settings, where understanding the sociocultural context is key for assessing health systems (Ozawa & Pongpirul, 2013). The adoption of mixed methods has enabled better co-operation across disciplines and helped develop health programmes that work in real-life situations (Ozawa & Pongpirul, 2013).

It is debatable whether it is possible or even desirable to mix qualitative and quantitative methods, since it may lead to conflict with the paradigms of the different science traditions (Morgan, 2007). Mixed-methods researchers' philosophical standpoint needs to value both subjective knowledge and inductive reasoning, based on the interpretative paradigm of qualitative tradition, as well as objective knowledge and deductive reasoning, based on the positivist paradigm of the quantitative tradition – none of them being absolutely 'objective' or 'subjective'. One common

but not exclusively taken standpoint is the pragmatic perspective, which prioritises the research question and allows for application of both types of methods to answer it (Morgan, 2007; Ozawa & Pongpirul, 2013).

Data gathered using mixed methods need to be combined to get most out of them. The different data may be merged at the level of presentation, where the datasets are compared to support or contradict each other. Data may also be connected, where one dataset informs the design of the other. Lastly, a smaller dataset may be embedded in a larger one (Creswell et al., 2011).

Any type of data obtained through quantitative and qualitative methods can be mixed, depending on the situation (Creswell et al., 2011). Surveys are a relatively fast and inexpensive means to provide quantifiable and generalisable information, an aspect which is important in research settings with limited financial resources. With the help of a thorough survey design, pre-testing, the translation of survey instruments, interviewer training and careful follow up of the conduction, surveys can provide valuable information on issues that are fairly straightforward without much possibility for misinterpretation (deLeeuw, Hox, & Dillman, 2008). Surveys can, to a certain extent, also be used to investigate more complex issues like attitudes and behaviour. However, only normative behaviours can be investigated in most cases. The overall depth and usefulness of behavioural data obtained through surveys on programme planning has been widely questioned (Haussmann-Muela, 2003; deLeeuw, Hox, & Dillman, 2008).

Qualitative methods are suited for exploring new issues, complex phenomena, meanings, perceptions and practices as well as answering research questions of the 'how' and 'why' type (Dahlgren, Emmelin, & Winqvist, 2004). Multiple factors that influence behaviours, such as health-seeking behaviours, can be investigated and explained by applying qualitative methods (Haussmann-Muela, 2003). Qualitative data in individual in-depth interviews (IDIs) and focus group discussions (FGDs) describe participants' multiple, subjective and socially constructed realities. The data are created in an interaction between the researcher and the respondent and affected by the researcher's pre-understanding of the question in study; the data are therefore value-bound (Dahlgren et al., 2004).

In-depth interviews are useful in gaining contextual, in-depth information on personal experiences and views. Using them requires good interviewer skills to establish rapport. Transcription is time consuming, and analysis is demanding. Focus group discussions replicate social interactions and produce large quantities of data, but good moderator skills are needed, and confidential issues may not be suitable topics for FGDs. The analysis is complex, as the study unit is the group, not the

individual (Hennink, Hutter, & Bailey, 2011; Kitzinger & Barbour, 1999). The group interaction can make the participants try to reach consensus, encourage extreme views, or it can make the participants to play roles aiming at social desirability, and the interaction itself can be used to produce and analyse the data (Hollander, 2004).

Depending on the type of research tradition and research questions, IDI and FGD data can be analysed with varying degrees of interpretation, abstraction and distancing from the respondents´ stories (Dahlgren et al., 2004). The analytical process consists of condensing, coding and categorising of the data to distil out the manifest content or the deeper meanings – the latent content (Graneheim & Lundman, 2004).

In an IDI or FGD that contains sensitive topics, the interviewer needs to be particularly aware of how to build rapport without confusing the roles of a friend and a researcher. The questions need to be open-ended, and there must be ample time for the respondent to express feelings that rise from discussing the sensitive topics and for the researcher to show empathy (Elmir et al., 2011).

2.6.4 Social and behavioural theories in maternal health research

The theoretical background of maternal health research relies on a number of traditions within social science, medicine, nursing science, anthropology and gender research, among others. The topic cannot be comprehensively covered here, but some aspects with relevance to maternal health seeking are discussed, as they form the basis for applying Bourdieu's social field theory in this thesis.

The understanding of reproductive behaviour and health seeking is predominantly built on individualistic frameworks that rely on the individual's evaluation of the situation based on a number of underlying social, cultural and personal factors (Hounton, Carabin, & Henderson, 2005; Price & Hawkins, 2007). The most commonly used models include the health belief model and the theory of planned behaviour. The latter also includes the aspect of social network support (Hausmann-Muela, Muela, & Nyamongo, 2003). Besides theories, frameworks such as the three delays model by Thaddeus and Maine (1994) are commonly used to conceptualise health seeking. The individual models are criticised for a lack of understanding of provider factors, influence of emotions and social pressure that may lead to choosing 'second-best' options (Hausmann-Muela et al., 2003). Social science-oriented researchers prefer to view health seeking as a strategy embedded in the real-life situations and their social context. Often neglected aspects that influence reproductive health behaviour include livelihood-seeking strategies, gender identities

and marginalisation dynamics, which are particularly relevant in HIV research (Price & Hawkins, 2007). Bourdieu's social field theory looks at power dynamics in decision making, which brings another angle into determining how decisions on health care seeking in case of pregnancy complications are made (Bourdieu & Wacquant, 1996). His concepts habitus, capital and field have been investigated as alternatives to rational choice in the study of health-care choice (Collyer, Willis, Franklin, & Short, 2015).

2.6.5 Ethical considerations

Research on sensitive topics poses ethical challenges. National laws and regulations as well as professional ethical codes guide research to protect the research subjects. However, it is the researchers themselves who need to carefully consider the potentially harmful implications of carrying out research on sensitive topics (Hennink et al., 2011; Launiala, 2009). On the other hand, one can consider the researchers to have an ethical responsibility to illuminate sensitive topics that often represent hidden and unwanted aspects of society, despite eventual political and social discouragement (Kvale, 2007; Lee, 1993).

Ethical dilemmas in sensitive-topics research are related to seeking informed consent, voluntary participation, minimisation of harm, confidentiality and anonymity. Illiterate respondents must be carefully informed about the study, particularly the implications of written or oral consent must be explained. Truly voluntary participation is only ensured if context-bound factors that may lead to coercion to participate or denial of participation are understood and considered in the study design (Hennink et al., 2011). Illiterate participants need special attention in this. Particularly in the FGDs, the implications of anticipated or unanticipated disclosure of sensitive information must be well understood and explained to the participants (Lee, 1993; Patton, 2002). Keeping information fully confidential in qualitative research is not possible, since direct words are shared in quotes; therefore, anonymity is the key aim through removal of all identifiable information (Hennink et al., 2011).

In financially poor or otherwise disadvantaged study environments, the realistic benefice of the study for the community should go in hand with the academic benefits. Minimisation of harm in terms of ensuring that the incentives cover the loss of income during participation in the study should be carefully balanced (Hennink et al., 2011).

2.7 Justification of the present study

Maternal mortality and morbidity remains one of the most pertinent public health challenges in low-income countries and among the poor in many middle-income countries. Male involvement in maternal health is an acknowledged strategy in international policies, and it has been shown effective in improving maternal and child health (Aluisio et al., 2011; John et al., 2008; Tokhi et al., 2018; UN, 1994; WHO, 2015c). In practice, male involvement is still very limited in low-income countries, and little is known about how to overcome barriers to male involvement (Promundo, MenEngage, & UNFPA, 2010; WHO, 2012). This thesis aims to increase understanding of the potential ways to improve maternal health by adding to the knowledge base on the role of male partners in maternal health.

This thesis seeks to fill some gaps in male-involvement research. I have studied poor, semi-rural, partly illiterate populations where women suffer from maternal death and illness, but where men's and women's perceptions are seldom heard (Falnes et al., 2011; Homsy et al., 2006; Kiarie et al., 2003). I have in this thesis focused on the male perspective, because husbands' involvement in maternal health is often studied only indirectly through investigating women's perceptions (Theuring et al., 2009). This thesis looks beyond male involvement at health service level or in single maternal-health interventions and instead attempts to address male involvement as a continuum throughout pregnancy and delivery, including male roles at home and in the community. It makes use of novel methodological approaches to find new angles to the research questions.

In Malawi, male involvement has been studied at the facility level and within large PMTCT trials, but there is need for more contextual knowledge on male involvement. (Kalembo et al., 2013; Kululanga et al., 2011; Nyondo et al., 2015). This thesis aims to provide information for programme planners and policy makers in Malawi.

This thesis provides

- a community-level male perspective to male involvement
- a comprehensive approach to male involvement in pregnancy and delivery
- the perspectives of disadvantaged, illiterate populations
- new theoretical and methodological perspectives

3 AIM AND SPECIFIC OBJECTIVES OF THE STUDY

The overall aim of the thesis is to explore husbands` perceptions of and involvement in maternal health and wellbeing in a low- income country, namely Malawi.

The specific research objectives are to

- examine husbands' perceptions and knowledge of maternal health and maternal health services
- explore how husbands perceive their role in maternal health at home and in health care
- investigate the role of husbands in seeking health care for complications during pregnancy
- explore how husbands perceive HIV in relation to pregnancy and HIV testing in antenatal clinics
- develop and pilot a self-interview method for sensitive questions related to HIV

4 MATERIALS AND METHODS

4.1 Overall study design

I apply a combination of qualitative and quantitative study methods consisting of FGDs, IDIs and face-to-face survey interviews with closed and open questions, and self-interviews. A mixed-methods approach is chosen for the study of a rather novel, complex phenomenon, here male involvement, where both gaining contextual understanding and discovering frequencies of specific attitudes and practices would add value (Creswell et al., 2011; Marshall & Rossman, 1995; Sandelowski, 2000). Applying different study methods makes it possible to investigate public and private perspectives of the matter (Sandelowski, 2000), which I consider helpful for creating a comprehensive picture of the study questions.

Qualitative and quantitative methods are connected at the level of study design (table 3). Part 1 uses an exploratory sequential design (Creswell et al., 2011). Eleven FGDs with married men guided the development of a survey with married men (n 388). The survey was carried out as structured FTFIs, because many men were illiterate. It contains both closed and open questions and a self-interview component (n 96) that utilises a novel approach: a picture- and audio-assisted self-interview (PIASI). The self-interview component is used to assess the accuracy of sensitive responses in survey FTFI. In article I, qualitative and quantitative data are also merged at the level of result presentation, and a conceptual framework on male involvement in HIV testing in ANC is developed.

Part 2 uses an explanatory sequential design (Creswell et al., 2011). A cross-sectional survey with married men (n 389) containing closed and open questions was administered as FTFIs, like in Part 1. It was followed by 30 individual IDIs, with 12 husbands and 12 wives of married couples and six key informants, to elaborate on a complex phenomenon of seeking health care for pregnancy complications that arose from the survey (Creswell & Plano Clark, 2011). The qualitative analysis of the IDI data is based on Bourdieu's social theory concepts. Two separate data sets were collected because of practical constraints in planning and carrying out the studies.

Table 3. Design of the study and eligibility criteria of the participants

PART 1: Male involvement in relation to HIV testing in pregnancy *Exploratory sequential design*		
METHODS	PARTICIPANTS	ELIGIBILITY CRITERIA
Focus group discussions	81 men in the 11 FGDs	Married man with wife of reproductive age
Structured interviews and self-interviews	388 men in structured interviews (96 of them also in the self-interview component)	Married man with wife of reproductive age
PART 2: Male involvement in pregnancy and delivery *Explanatory sequential design*		
METHODS	PARTICIPANTS	ELIGIBILITY CRITERIA
Structured interviews	389 men in structured interviews	Married man (or divorced man, n=2), whose wife has been pregnant at least once within the past five years
Individual in-depth interviews	12 husbands, 12 wives and six key informants	Husband and wife of a married couple who have experienced pregnancy complications within the past five years. Key informants with knowledge of local context.

4.2 Study setting

The data collection was carried out in two rural areas in the Mangochi district of Malawi in two phases: May-July 2006 (part 1) and November–December 2006 (part 2). The study areas were comprised of 11 villages (part 1) and 26 villages (part 2), with a total population of 38,704 people.

The most common tribe in the study area is the Yao. The Yao follow matrilineal and matrilocal tradition, but in current practice married couples may choose to live in either the husband's or wife's village. Islam is their predominant religion, and polygamy is fairly common. The studied villages are located on the Eastern lakeshore of Lake Malawi or nearby, and fishing and subsistence farming are the most important livelihoods in the area. Women are often economically dependent on their husbands. The Mangochi district has the lowest education levels for both men and women in the country but does not differ from other areas in terms of women's empowerment (NSO & ORC Macro, 2005).

Both study areas had, at the time of the study, good access to maternal health services compared to many rural areas in Malawi. Villages in part 1 of the study were located within 10 km of the St Martin's Hospital of the Christian Health Association

of Malawi and the Lungwena public health centre, the latter of which provided VCT and treatment for HIV in ANC as part of a research project. The villages in part 2 were located within 10 km of the Mangochi district hospital and the St. Martin´s Hospital. Both hospitals provided delivery care and ANC services, including VCT and ART. For comparison, in 2006 only 22% of health facilities in Malawi provided VCT (Ministry of Health, 2008). Prevention of mother-to-child transmission of HIV was being rolled out at the time, inclusive of a policy on encouraging partner notification of HIV testing (NAC, 2003).

4.3 Participants

The primary participants in the structured interviews, FGDs and IDIs were married men. In part 2, married women and key informants were also interviewed in-depth. Eligible participants for the structured interviews in part 1 were married men who had a wife of reproductive age (15–49 years). Participants who had taken part in the FGDs were excluded. In the structured interviews in part 2, married or divorced men whose wife had been pregnant within the past five years were eligible (table 3). The required sample size for the survey was 384 for the proportions to lie within a 5% interval with 95% confidence (Lemeshow, Hosmer, Klar, & Lwanga, 1990). Prior to the interview, oral (part 1) or written consent or fingerprinting (part 2) was obtained from all participants. Participants were selected using systematic sampling with random start. In part 1, all the villages in the study area were visited. In part 2, to get a representative sample of the area in terms of access to health services, the study villages were divided into two groups according to distance from the tarmac road. Six villages in each group were randomly selected. In both surveys, every fourth household in the selected villages was visited, and the first eligible member in the household was interviewed. If no eligible member was identified, the next household was visited.

The focus group participants were 81 married men with wives of reproductive age (table 3). Six FGDs were held separately for young (15-19 years), adult (20-35 years) and old men (36-50 years), and five were mixed. An herbalist and a chief's counsellor were included in two of the groups as 'wild cards' to enhance lively discussion (Kitzinger & Barbour, 1999). The participants were sampled purposively by one local research assistant with support from chiefs' counsellors in each village. Recruitment was aimed at demographic variability of the participants (Kitzinger & Barbour, 1999), and as little familiarity between the participants as possible. Participants without children were only included in the youngest age group (15-19

years). All participants gave their oral consent during recruitment, and one participant gave written consent as the representative of the group at the start of the discussion.

The IDI participants were 12 husbands and 12 wives of married couples who had experienced complications during pregnancy or delivery within the past five years (table 3). They were recruited by a local research assistant with the help of village headmen and their wives in two villages using convenience sampling. A lay definition of pregnancy complications was used, and the following statuses were identified in the interviews: prolonged labour (mentioned in four interviews), abnormal position of baby (4), small pelvis (2), twin pregnancy (1), miscarriage (1) and malaria (1). All participants gave their oral consent prior to the interview. We also carried out IDIs with six key informants. The key informants were two TBAs, a village chief, the wife of a village chief, and the uncle and grandmother of a female participant. They were chosen based on the expectation that they could add valuable new angles to the study topic and increase the research team's understanding of the context.

4.4 Data collection and management

4.4.1 Focus group discussions and in-depth interviews

The FGDs and IDIs were carried out in the participants' home villages, sitting on mats in a secluded yard or another peaceful place. The IDIs lasted 45-90 minutes and the FGDs 60-90 minutes. The local interviewers used either local language, Chiyao or Chichewa, at a participants' preference. In the FGDs, two local research assistants took turns moderating and taking notes. In the IDIs, one research assistant interviewed all the participants. The husband and wife in each couple were interviewed in direct succession without the possibility for interaction between the interviews. To observe and at times take part in the discussions, I was present in half of the FGDs and all but one interview.

The FGD question guide covered perceptions of HIV in pregnancy, antenatal VCT and male involvement. The interview guide for the IDIs contained the husbands' and wives' experiences of pregnancy complications and their perceptions of the husband's role in health-care seeking during the complications. Both guides were pre-tested before the study. A preliminary analysis of the data during the data collection was used to modify the guides for subsequent sessions, following the

principle of emergent design (Dahlgren et al., 2004). The guides are included as attachments.

The FGDs and IDIs were tape-recorded, transcribed and translated into English by a local research assistant who had not acted as the moderator or interviewer. In part 1, all tapes were checked for incongruence with the translated text, and 15% were double transcribed and translated. In part 2, when the research team's skills had improved and the principal investigator and interviewer discussed all interviews in detail, double translation of four interviews (13%) was considered sufficient for quality control. No major discrepancies were identified. Open Code software (Umeå University) was used for storing and organising the qualitative data.

4.4.2 Structured survey interviews

The structured survey interviews were conducted by local male research assistants in a secluded setting in the participants' home villages. The structured questionnaires contained closed and open questions. In part 1, the questions covered men's knowledge and perceptions of and involvement in antenatal HIV testing, and the questionnaire design was guided by the FGDs. In part 2, the topics were men's perceptions of and involvement in ANC, birth preparedness, choice of delivery place, pregnancy complications, delivery care and post-partum care. The questionnaire design was informed by part 1. The questionnaires were translated into Chiyao and Chichewa, pre-tested and modified before the survey. To control the quality of the translations, the texts were double translated and translated back into the original language. The questionnaires are included as attachments.

The data from the structured interviews were entered into Excel software (Microsoft), and all entries were double checked and cleaned. The narrative responses to open questions were written down as notes in English by the research assistants as part of the structured interview and discussed with the researcher on the same day.

4.4.3 Pilot study of a novel self-interview method (PIASI)

As part of part 1, a new self-interview method, PIASI, was piloted. A self-interview component was included to better assess to what extent responses to sensitive questions in structured FTFIs could be relied on. Self-interviews are usually carried out as computer-assisted. As the use of computers is often not feasible in field settings with no electricity and may not be well accepted among illiterate respondents, I developed a new approach using a printed picture booklet and a tape

recorder with earphones. The tape contained six questions from the survey questionnaire that were found to be sensitive in the FGD, two control questions, two questions on the acceptability of the method and the response options to each question. Participants listened to the questions and ticked their answers in the picture booklet.

A subsample of 96 out of the 388 survey participants was randomly selected and their consent was sought to respond to six sensitive questions using PIASI at the end of the FTFI. The size of the subsample, 96, was defined to detect a 20% or smaller difference in reporting between the two interview modes, depending on the prevalence of the response options (Lwanga & Lemeshow, 1991). The self-interview section was included at the end of the FTFI to save time and help illiterate participants concentrate (Potdar & Koenig, 2005). The rest of the participants (n 292) responded to all questions in FTFI.

4.5 Data analysis and theoretical frameworks

I analysed the data gathered in the FGDs using qualitative content analysis. The text was divided into meaning units and coded, and the codes were then categorised. The analytical work was a process of going back and forth between the categories, codes and the original text to verify the links (Graneheim & Lundman, 2004). I organised the findings to form a conceptual framework of male involvement in HIV testing in ANC. The open-ended survey questions in part 2 with narrative responses were similarly analysed with qualitative content analysis looking for the manifest content.

The IDI data were analysed using thematical analysis with Bourdieu's social field theory concepts of 'capital' and 'field' (Jenkins, 2002). 'Capital' means a set of assets, like skills and qualifications, and is divided into economic, cultural, symbolic and social capital. 'Field' refers to a set of objectively defined positions that are anchored to certain forms of power or capital. In this study, the field is made of the positions involved in taking care of the pregnant woman (Bourdieu & Wacquant, 1996). I use the theoretical concepts to help to understand the complex process of decision making about seeking health care for complications in pregnancy. In the analytical process, the interview texts were first divided into meaning units, looking for content on the role of husbands in decision making, and theory-based themes were developed for the concepts. Next, codes and categories were developed by linking the themes with the meaning units in a process of constant comparison (Boyatzis, 1998). To increase the credibility of the findings, I discussed the components of the

analysis and emerging findings with the co-researchers throughout the process (Graneheim & Lundman, 2004).

Data from the structured interviews were analysed using SPSS software (SPSS-Inc., Chicago), looking for simple frequency distributions. The PIASI responses were compared with the FTFI responses using cross-tabulations. A $\chi 2$ test was used to determine the statistical significance of the differences. Missing responses accounted for less than 3% of all survey answers on average and less than 6% of the answers in the PIASI subsample.

4.6 Ethical considerations

The main ethical questions in the study evolved around the sensitive issues discussed in the focus groups and to a lesser degree in the interviews. Although there was no HIV testing or disclosure of HIV status involved, the FGD participants discussed sensitive topics like intimate partner violence, unfaithfulness and divorce due to HIV. There was thus a potential risk of the participants using the shared information against one another afterwards. In the IDIs with husbands and wives, all information was kept confidential from the partner, but there is still a potential risk for conflict due to suspicion about what the partner disclosed to the interviewer (Taylor & de Vocht, 2011). To my knowledge, the participants did not experience any such harm due to our study, but I could not follow up on the matter. Furthermore, participation in the study took time and could lead to harm in terms of loss of income. All participants received a token of salt and soap as compensation.

In order to avoid coercion to participate in the study, I discussed confidentiality, anonymity and the right to refuse to participate with all participants as well as the research assistants and the village headmen, who assisted in the recruitment. Some participants, roughly one in ten in the focus groups and less in the surveys, refused to participate. The reasons given to refuse were competing duties and no interest.

In my opinion, the main benefit of the study for the participants was that their views have been heard and recorded, so that they could be incorporated in the development of local policies and programmes. Many of the FGD participants expressed afterwards that they experienced the discussions as empowering, which is similar to an emancipative function of FGDs presented in literature (Hennink et al., 2011). We explained the aims and benefits of the study carefully to the participants to avoid unintended disclosure of HIV status or other information in hope of assistance. After the FGD or interview was over, we answered participants' questions

on maternal health to the best of our knowledge and corrected any major misunderstandings about HIV or other health issues that had come up.

In part 1, I requested oral consent, since it was considered to be suitable for illiterate participants. Just before the second part of the study, the Malawi ethical guidelines on research changed to recommend written consent in surveys, and I followed this in part 2. Ethical approval for the studies was granted by the Malawi College of Medicine Research and Ethical Committee.

5 MAIN RESULTS

5.1 Background characteristics of the participants

The men who took part in the structured interviews, FGDs and IDIs were all married, except for two recently divorced men who took part in the survey in part 2. Around one in ten men had two wives. Over 80% of the participants were Muslim and belonged to the Yao tribe. Their median age was 31, 33 and 27 years in the two surveys and FGDs, respectively (range 15-73 years). Roughly two thirds of the participants in the two surveys assessed themselves as literate. Around half of the men were fishermen, while the rest were engaged in fish business, farming and handicrafts. The women who took part in the IDIs were all Muslim and belonged to the Yao tribe. Only two women were engaged in a paid job, while the other ten took care of the kitchen garden or had no paid or business work outside home. (table 4)

5.2 Husband's perceptions of maternal health and wellbeing

Men had both a medical and a supernatural perspective on maternal health and wellbeing. In their responses to the open-ended survey questions, they listed a number of health problems and ailments that women could suffer from during pregnancy, such as headaches, anaemia, malaria and STIs, but also traditional diseases, like stomach aches caused by traps that a magician had set in the womb. The men explained the underlying causes of health problems primarily to be poor circumstances such as overworking and poor nutrition, but also named witchcraft. The men in the FGDs expressed similar views.

> There are a lot of problems that pregnant women have here. For example, they often get attacked by malaria and then you (husband) should take her to the hospital. (…) The most severe problem is food. The husband needs to find food to feed the pregnant woman. And also, she should not be required to overwork. And the man should not have sex with other women in order to avoid contracting diseases that would affect the pregnancy. (FGD with men)

Table 4. Socio-economic background characteristics of married men participating in part 1 (survey and FGDs) and part 2 (survey). Background characteristics of couples participating in IDIs in part 2 are presented in the footnote

	Part 1				Part 2	
	Survey (n=388)		*FGD (n=81)*		*Survey (n= 389)*	
	n	*%*	*n*	*%*	*n*	*%*
Age, *median years [min-max]*	*31*	*[17-54]*	*27*	*[15-50]*	*33*	*[17-73]*
Tribe Yao	315	(81,2)	71	(87,7)	372	(95,6)
Religion Islam	313	(80,7)	71	(87,7)	369	(95,1)
Literate [a]	229	(59,0)	*n/a*	*n/a*	261	(67,1)
Education						
None	122	(31,6)	24	(29,6)	110	(28,4)
Uncompleted primary school, 1-7 years	176	(45,6)	34	(42,0)	238	(61,3)
Primary schoold or higher	88	(22,8)	23	(28,4)	40	(10,3)
Main source of income						
Fisherman	188	(48,5)	42	(51,9)	*n/a*	*n/a*
Businessman or vendor	73	(18,8)	15	(18,5)	*n/a*	*n/a*
Farmer	46	(11,9)	8	(9,9)	*n/a*	*n/a*
Tailor, handicraft	37	(9,5)	7	(8,6)	*n/a*	*n/a*
Other	41	(9,7)	9	(11,1)	*n/a*	*n/a*
No own income	3	(0,8)	0	(0)	*n/a*	*n/a*
Household income earners [b]						
Husband	*n/a*	*n/a*	*n/a*	*n/a*	382	(98,5)
Wife	*n/a*	*n/a*	*n/a*	*n/a*	15	(3,9)
Other household members	*n/a*	*n/a*	*n/a*	*n/a*	2	(0,5)
Married now	388	(100)	81	(100)	387	(99,5)
Number of wives						
One wife	342	(88,1)	73	(90,1)	345	(89,6)
2-4 wives	46	(11,9)	8	(9,9)	40	(10,5)
Number of alive children						
0	31	(8,0)	5	(6,2)	4	(1,0)
1-3	229	(59,2)	53	(65,4)	293	(75,3)
4-10	127	(32,8)	23	(28,4)	92	(23,7)
Wife currently pregnant	44	(11,4)	*n/a*	*n/a*	56	(14,4)
Village of stay						
Village of wife's family	*n/a*	*n/a*	*n/a*	*n/a*	165	(42,4)
Village of husband's family	*n/a*	*n/a*	*n/a*	*n/a*	149	(38,3)
…Elsewhere or both from same village	*n/a*	*n/a*	*n/a*	*n/a*	75	(19,3)
Wife attended ANC in latest pregnancy [c]	353	(95,1)	*n/a*	*n/a*	386	(99,2)
Wife delivered at a health facility in latest pregnancy	*n/a*	*n/a*	*n/a*	*n/a*	241	(62,1)

Note: Twelve couples participating in the IDIs: The men had a median age of 29,5 years (range 20-60) and the women 25 years (range 17-40). All were Muslim except for two of the men. The median years of schooling were 1,5 for the men (range 0-7) and 2,0 for the women (range 0-6). Ten out of 12 men were fishermen, one was a piece worker and one was a business man. Six women were farmers, three were in fishing business and three reported not having a job. They had 1-7 children, the youngest one being between 11 days and 5 years of age.

n/a Not recorded. [a] Literacy was tested by letting the participant read a piece of text in his preferred language (part 1) or recorded after participant's own report (part 2). [b] Some households have more than one income earner. [c] Not included in the analysis in part 1: 17 men whose wife had never been pregnant (n total 371). Results are percentages of valid responses.

When presented with the five main danger signs in pregnancy (bleeding, convulsions, fever, swelling of hands and feet, and persistent vomiting), the surveyed men associated them with a risk of miscarriage or death of the mother that required urgent health-care seeking. They explained in the open questions that bleeding was

especially dangerous, since it could cause sudden death and delivery problems as well as lead to anaemia. They explained that fever was dangerous, because it could be a sign of malaria. Vomiting could be a sign of cholera, and swelling of the hands and feet could mean anaemia or a poor nutritional status. The men assigned the danger of convulsions primarily to the risk of the woman falling into fire or water, which could cause death or harm the baby in the womb. The men also explained that finding a cure for convulsions was difficult, since the cause was either witchcraft or malaria in the brain. High blood pressure or eclampsia were not mentioned.

Similar to pregnancy, men considered that delivery problems could be caused by medical conditions, such as abnormal position of the baby in the womb, but also by witchcraft. If the woman is bewitched, she cannot deliver, or the delivery will at least be long and difficult. Men in the IDIs expressed similar views:

> It happens that a woman enters into the house where the delivery is taking place. If she is a witch and she sits down in a strange way [shows this by sitting to the side], the one who is giving birth fails to give birth. (Interview with a husband)

The men perceived some conditions to cause a greater risk in delivery than others. In the open-ended survey questions, the men mentioned several situations they thought would require delivery at a hospital: women who are young or first-time mothers, are sick, have experienced health problems in the pregnancy, have previously delivered by caesarean section or live far away (each was mentioned by over 20% of the participants).

The men readily acknowledged that husbands´ behaviour could endanger the health of their wives during pregnancy. In the open survey questions, violence by the husband and STIs were among the ten most commonly mentioned reasons for health problems in pregnancy. The FGD and interview findings showed that in the men's view, married women were most likely to get STIs and HIV from their husbands. The men in the FGDs also expressed that a husband beating his wife was justifiable in certain situations, like if she did not show respect for him, was unfaithful or refused to cook for him and his guests.

> Do you know anything that can give women problems in pregnancy? There are some men who, when their wives are pregnant, contract gonorrhoea. So, if the men have sex with them [wives], they can miscarry. (Interview with a husband)

The studied men were eager to learn more about maternal health, a result that came out in FGDs and interviews. They wished to learn how to predict and prevent problems during delivery and what to do if complications occurred. They wanted to

promote family welfare by responding better to pregnant women's needs and knowing more on family planning and STIs.

The women's views differed from the men's view concerning what husbands should know on pregnancy and related issues. The women specified the need for their husbands to understand the suffering they go through and to be aware of the possible need of a blood donation. The key informants, who were society elders and TBAs, saw hardly any need to improve the men's knowledge of maternal health. They justified their point of view with the structure of the society, where men had little connection with the female sphere of life.

5.3 Husband's awareness and perceptions of antenatal and delivery care services

Over 95% of the 389 husbands surveyed reported that their wives had attended an antenatal clinic in their latest pregnancy. Most men (79%) knew that a medical examination is done in ANC, while less than half could name other services provided, such as advice on pregnancy and delivery or treatment for malaria. Two in three men (61%) mistakenly believed that if women attend ANC, no problems can happen during pregnancy or delivery. Of the men, 90% knew that caesarean sections are done at the hospital, and one third mentioned the possibility of providing blood transfusions, while other delivery services were less well known.

Nearly all men (91%) knew that HIV can be transmitted from mother to child during pregnancy, delivery or breastfeeding, while only one third were aware of any method to protect the baby. About 60% could not mention any service related to HIV provided at ANC (table 5).

Table 5. The surveyed men's (n= 388) awareness and perceptions of VCT at antenatal clinics (part 1)

	n	%
Aware of prevention of mother-to-child transmission of HIV (at least one method)	136	35
Aware of any HIV-related services at ANC targeted at pregnant women [a]	161	42
Aware of any HIV-related services at ANC targeted at pregnant women and their husbands	86	22
Supportive of provision of voluntary counselling and testing of HIV at ANC	300	77
[a] HIV education, VCT, PMTCT, condom delivery, and ART to mother at ANC		

Both in the FGDs, surveys and IDIs, men expressed positive attitudes towards maternal health services, except for the unwelcoming attitudes towards men and occasionally high cost of services. In the survey, nearly all men (91% or more) wanted their wife to attend ANC and preferred their wife to deliver in a hospital. The men

considered hospitals to provide a better quality of care and friendlier, more accessible services than TBAs and traditional healers. Most men (77%) also supported provision of HIV testing and counselling to pregnant women at antenatal clinics.

Over half of the men considered hospital deliveries expensive or very expensive. The men in the IDI were concerned that in particular, referrals and care for complications could easily exceed family resources. Both men and women in the interviews expressed that a shortage of funds was sometimes a reality, and therefore an acceptable reason for a husband to deny his pregnant wife access to ANC or hospital delivery. Even attendance to an ANC that provides services free of charge implied indirect costs for the families in terms of food, transport and medicine.

5.4 Involvement of husbands in pregnancy and delivery care

At the time of the study, the husbands' involvement in ANC services was very limited. Very few of the men who took part in the survey (9%) had ever accompanied their wife to the antenatal clinic for services, and only 1% had attended any service related to HIV at the ANC. None had attended the delivery of a baby.

> I have never ever heard that there was somebody [man] here who has gone to the antenatal clinic, I have never heard about that. (FGD with men)

It was in the communities, not health facilities, where the husbands played their role in pregnancy health. Most husbands reported that they decided on ANC attendance of their wives either alone (78%) or jointly with their wives (10%) and supported her attendance by talking jointly about ANC (83%) and providing transport to the antenatal clinic (57%). The men also considered themselves to be the ones to decide where the delivery should take place, either alone (49%) or jointly with the wife (32%). The IDIs with men and FGDs revealed that a husband must understand his wife's extra needs during pregnancy, such as nutritious food and rest, yet also emotional comfort and care. The women expressed that their husband's will and ability to care for her during pregnancy indicated how he would support her and the baby in the long term.

In the latest pregnancy, almost all husbands had planned for the delivery to take place at a hospital (96%). Practically all men in the survey (96%) considered a husband to be responsible for planning for birth, and indeed two thirds (70%) reported that their family had made detailed plans for giving birth in the latest pregnancy. The husbands described in the open questions how their plans had succeeded or failed. If the husband had managed to make a plan that the family

followed and had sourced enough money, everything went according to plan, and the wife delivered at the hospital. Success also required skilled assistance to be available at the hospital and that relatives or TBAs assisted the husband with money and transport if needed. Where the plans had failed, it was because the husband was absent and had no back-up plan for his absence, hence he failed to fulfil his responsibilities. This also occurred when the husband was present but had failed to arrange transport and the wife ended up delivering at home. Even if the husband had done his share, serious complications requiring long-distance referrals could exceed family resources. The men explained that sometimes the plans failed if miscarriage occurred unexpectedly, or the delivery progressed very fast and the baby was born before transport arrived.

The responses to the open questions showed that men consider their role during delivery at the hospital to consist of paying the bills, providing necessities to the wife and taking care of the home in her absence. During delivery at home, the men saw their role as to be on standby to arrange referral transport if need be. The men expressed that during delivery at the hospital, they could feel relieved, as the health personnel were in charge, while at home the waiting time was filled with anxiety. The open questions also elaborated on their role after birth. The men considered that their role was to provide food and what was needed for baby care and to take care of the baby together with the wife. A husband should help in household chores himself or, if entering the female sphere felt inappropriate, by hiring a housekeeper. He should also maintain his role as the head of household and be a responsible sexual partner who abstains from sex for some months and starts to think about family planning. The IDIs with men and women supported the findings.

> Yes, the husband is needed [after delivery]. (…) He needs to buy napkins, medication, take care of the household and buy kerosene and matches. (…) He knows very well that after delivery she is weak, and he needs to buy Sobo [orange squash] to supplement other food in anaemia. (…) If she delivers during the rainy season when people are farming, he should take care of that and let his wife regain her strength. Also, all household chores should be done by him. (Interview with woman)

The husbands also expressed an interest in being more closely involved at the level of health care. Two thirds of the men in the survey hoped to attend ANC with their wives in the future. The men in the interviews hoped to be informed by the health professionals and ask them questions at the time of delivery, a role that is usually taken by the female relatives.

> I was told that my wife was going for an operation [Caesarean section] (…) I thought of asking why, but the relatives of my wife told me not to ask. (Husband)

5.5 Seeking health care for complications in pregnancy

The survey responses showed that men considered husbands responsible for all major tasks in seeking health care if complications should occur during a pregnancy. Over 80% of the men considered husbands responsible for deciding where to seek health care and for arranging and paying for transport to hospital. Over 60% thought that the husband was the one to call others to help and to accompany his wife to the hospital. The men primarily assigned the responsibility of nursing and comforting the wife to others, primarily older female relatives. The IDIs with husbands, wives and key informants showed how the power to decide on seeking health care is distributed and what it is based on. The male and female interviewees considered that the persons involved in making decisions on seeking health care included husbands, wives, family elders, female relatives, TBAs and health-care workers. However, only those who showed a genuine interest for the welfare of the pregnant woman were actually welcomed to participate in decision making. In practice, decisions could be made quickly without involving everyone if the urgency of the situation required it. Others could be informed afterwards.

The pregnant woman had very limited say in health-seeking decisions that were related to her. She was considered as a minor who had to obey her husband's or parents' will in the families that closely followed the matrilineal tradition. Only a few of the interviewed women expressed any discontent with having to obey the will of others. The men, most of the women and the key informants expressed that the woman's inferior and dependent position was largely taken for granted. In Bourdieu's terms, this represents a misrecognition of a power balance that is upheld in the society.

> Interviewer: In a family, when the woman has a pregnancy problem, who decides where to go to get help? Respondent: It is the husband and the relatives of the wife. (…) Because the wife is living with her husband, her parents need to do things together with him. The wife herself has nothing to say. If the relatives are not around, the husband should take the wife to the hospital and inform them after he has come back from there. (Key informant 1)

The power to decide, according to Bourdieu, is based on possession of four different types of capital (figure 2). The findings from the interviews with men and women showed that husbands were almost exclusively in possession of money, while health professionals had the most maternal health knowledge, which represented the relevant cultural capital. Female relatives formed social networks, and the husband and family elders held positions in the society and family that gave them symbolic

power. Maternal health knowledge and money seemed to give more power to make decisions about health-care seeking than did symbolic positions and social networks. The interview findings show that the husband's position as the sole income earner in the family was his main source of decision-making power.

> The husband decides [on going to hospital], because he is the one who gives you money. If you follow your mother's opinion, your husband can become angry and will not give you any assistance. You have to obey what your husband says. (Wife)

If the husband had not earned or saved enough himself, he still stayed in charge of the resources and was expected to gather the missing part from relatives and friends. In the survey, the men expressed that sourcing money was their most challenging task in dealing with pregnancy complications in the context of poverty, unreliable income sources and unforeseeable transport costs. Both men and women accepted that poverty limits spending on maternal health like on any other part of life; therefore, lack of money was seen as the only acceptable reason for the husband to deny the pregnant woman access to health care.

The husband's position as the wise and trusted head of household and father also gave him power to make decisions, but only in marriages where the husband was a loving and supporting partner who carried his responsibility for the wife and baby to be born.

> It is the man who knows more about birth than the woman, who just delivers the children. The husband is the one to tell the wife wisdom. (Husband)

The interviewed men and women considered that in families that followed matrilineal traditions, and the couple lived in the village of the wife's family, the husband had less power in decision making. Moreover, in families where the power distribution between the husband and wife was more equal, the husband's symbolic power as the head of the household was diminished.

Both men and women considered health professionals' maternal health knowledge to be the highest attainable power, which surpassed the traditional knowledge and experience of TBAs and elders. The husbands did not have sufficient maternal health knowledge to give them decision-making power. The husband's male networks similarly did not provide him power through important connections like women's networks did. Fellow men could only assist the husband in arranging transport, but not much else. The husband's most important connection was his wife. The men's stories revealed a continuous worry that if the husband failed to

fulfil his duties in sourcing money and seeking health care in time, his beloved wife could die.

> I was very worried [when my wife was vomiting during her pregnancy]. Every husband feels sorry when his wife has problems when she is pregnant. (Husband)

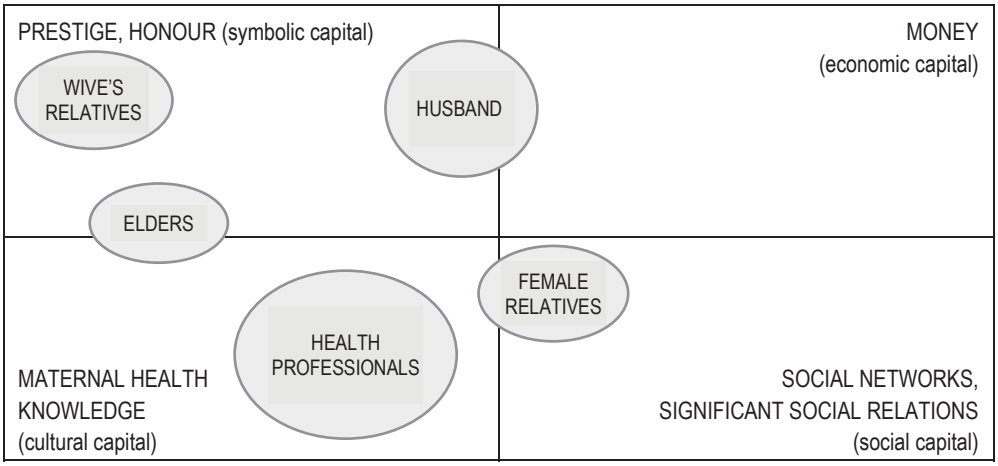

Figure 2. Distribution of the different types of power (capital) among those involved in health-care seeking during pregnancy complications (IDIs with men and women).

5.6 Concept of HIV in pregnancy

The men in the focus groups were asked to describe how they perceive HIV in relation to pregnancy to get a broader understanding of their thoughts on male involvement in HIV testing in ANC. Three themes arose from the findings (table 6). Firstly, the findings showed that men considered HIV to be a heavy physical, mental and social burden to pregnant women.

> For the pregnant woman with HIV, life is a problem, because she becomes helpless, unable to work and very weak (…) She looks always unhappy. (...) She cannot get married. People will point at her, saying she has AIDS. So, she feels degraded and disrespected. (…) She lacks food. Her means to get food are diminished, because men will fear to have sex with her because of HIV. (FGD with men)

Secondly, the men saw HIV to be a result of the promiscuity that is common among men and women in the area due to the mobile lifestyle of fishermen. Thirdly, the men considered women to be vulnerable to HIV because of their limited opportunities for income, which could force them into transactional sex without

understanding the risks. Fifty-nine percent of the men in the survey considered that pregnant women are most likely to acquire HIV from their husbands.

> When you [husband] are working and stay away for many months, your wife will lack some basics. She starts to have sex with other men to get soap. When doing that she might get excited of the money and forget the same money can give her problems [HIV]. (FGD with men)

Table 6. Table 6. Three themes of how men perceive HIV in pregnancy in FGDs

Theme	BURDEN ON PREGNANT WOMEN	LINK TO PROMISCUITY	WOMEN'S VULNERABILITY
Description	HIV deteriorates the woman's mental and physical health, and the pregnancy aggravates the effects of HIV. The worst burden to her is discrimination from the community, and the woman is no longer an attractive sex partner or wife.	HIV results from promiscuity of the husband or sometimes the wife. Men's promiscuity relates to men having uncontrollable sexual desires, money and a mobile lifestyle. Women's promiscuity relates to them being greedy, unacceptably wishing to have more than one sexual partner and wanting revenge on their husbands.	Women are vulnerable to HIV, which relates to their limited income opportunities that force them into transactional sex; other social problems are the limited knowledge on HIV and the environment of secrecy and denial around HIV.

Only 2.8% of the men who responded to the survey questions in an FTFI reported that they found HIV-positive women bearing children acceptable. Acceptance was higher (10%, $p < 0.05$) among the men who responded to the sensitive survey questions in a self-interview. The low acceptance is related to men's perception of HIV as a heavy burden and a deadly disease that can be worsened by pregnancy (as found in the FGDs), as well as to their low awareness of ways to prevent mother-to-child transmission of HIV (35.1% of the men in the survey could mention at least one method).

5.7 Involvement of husbands in HIV testing in pregnancy

The FGDs revealed that in men's minds, HIV testing in antenatal clinics is closely linked to questions of faithfulness and acquiring HIV through extramarital sex, difficulties that couples face in discussing HIV and sharing HIV-test results, and the consequences that an HIV-positive test result has for families. The men expressed how it requires significant effort from a couple to deal with issues related to HIV in a sensible way, without resorting to blame and divorce.

The men believed the husband's involvement starts with faithfulness as a way to prevent HIV. As the head of the household, the husband should also advise the wife

on faithfulness. However, having only one partner was difficult for men, since sex was an essential part of life, and men's sexual desires are hard to control.

> The disease is in the nsima [maize porridge, eaten every day; here refers to sex]. (FGD with men)

> It is hard for a husband to tell his wife that she should control herself [not have sex with others], yet you yourself have HIV already. (FGD with men)

The men considered that couples should discuss HIV testing beforehand, because the husband is the head of the household. If the wife went to HIV testing without a prior joint agreement, her action could be seen as a breach to marriage wows, which in the worst case could end in divorce. The men also expressed that in most cases, both the husband and wife were likely to be HIV-positive if either one was, but they would both hide their positive status from each other for fear of divorce. The husband could be enticed to blame the wife for having had extramarital sex if she was found HIV-positive first, when testing alone at the ANC. Therefore, the best way would be to take part in HIV counselling as a couple to avoid unnecessary blame of the one who tests HIV-positive first. Should the wife test HIV-positive, the husband's role would become very important in providing her continued love and material support.

> It will depend on the husband of the woman who is HIV-positive. If he (husband) takes care of his wife, she will live healthy and happy. (…) In most families, they (husband and wife) accept each other's problem [HIV]. They live together despite HIV, and the man continues to take responsibility of the wife. (…) The only difference is that the husband should not have sex with other women not to transmit them with HIV. (FGD with men)

The men described how the husband's reaction depended on his sensibility and his own HIV status. Divorce was likely to occur if he did not know his status or was HIV-negative, or if he was short tempered and did not acknowledge that he also could have contracted HIV through extramarital sex.

> [A man left his wife after she was found HIV-positive at the antenatal clinic], because he didn't know that he was HIV-positive, too. (…) Of course, there are some short-tempered men who run away once they discover their wives are suffering from AIDS. (FGD with men)

5.8 Barriers to and facilitators of male involvement in antenatal HIV testing

The health system, community and couple-related as well as personal factors influence men's willingness to participate in HIV testing in ANC (table 7). The issue of HIV is highly stigmatised, which poses a barrier for men to attend HIV testing with their wives. The FGDs revealed that if a wife or husband was found HIV-positive, they could risk divorce, blame and abandonment. If staying with his wife who was found HIV-positive, the husband would be stigmatised as well and would face a heavy burden of care. In the survey however, only one in ten men reported that he would divorce his wife if she was found HIV-positive.

> Moderator: So, you can't disclose your HIV status to your wife? Participant 1: I can't, because if I tell her definitely she will run away from me. Participant 2: Of course, if you tell your wife she will run away from you. If you're living at her home [wife's home village] she can divorce you. (FGD with men)

The men stressed that the couple needs help from health workers in sharing HIV-test results in a way that provides hope and an equal basis for the future. This was considered to be the one intervention that could motivate men to take part in antenatal HIV testing.

> Moderator: If a woman is found HIV-positive at the antenatal clinic, how can she tell her husband? Participant 1: By not telling him exactly, but just tell him that he is wanted at the antenatal clinic. Participant 2: Then just take him to the clinic and tell the medical personnel to reveal to him. Because if she reveals to him [by herself] the divorce can occur right there. (FGD with men)

Men considered antenatal clinics as a women's area, and some were worried about confidentiality in a small-town environment, where the personnel knew the attendants. Men's limited awareness of couple counselling services at antenatal clinics, which was found both in the survey and the FGDs, posed another barrier to male involvement. Overall, there was no culture for men to attend antenatal clinics, and significant male peer pressure kept men from accompanying their wives.

> Most husbands don't go [to the antenatal clinic], because they are afraid they can be laughed at by their fellow men for being jealous of their wives, fearing that other men could propose to her on the way. (FGD with men)

Table 7. The main personal, family, community and health system-related barriers and facilitators for male involvement in antenatal HIV testing and counselling in FGDs

BARRIERS		FACILITATORS
PERSONAL	HEALTH SYSTEM-RELATED	
Men do not dare to learn their own HIV status due to fear of stress, stigma, discrimination, even committing suicide	Antenatal clinics are a women's area; men attend health care only when ill Antenatal clinic premises are not private enough, and results may not be kept confidential HIV testing requires spousal agreement beforehand	Health professionals can assist in disclosure to avoid divorce
COUPLE-RELATED	COMMUNITY RELATED	
Discussion on HIV or disclosure of HIV status can lead to divorce if the marriage is weak	Men who attend antenatal clinics are ridiculed by other men	Male peers can share knowledge Elders can provide advice Family and friends can assist in disclosure to avoid divorce

5.9 Feasibility and acceptability of the PIASI self-interview (III)

In part 1 of the study, I piloted PIASI and found that it was feasible for field use, since it required minimal set-up costs and materials and lengthened the survey interview by only 10-15 minutes. Most (89.1%) of the respondents considered that it was easy to answer using the self-interview. However, only one in five (22%) preferred it to FTFIs.

The finding show that participants could use the study tools in a reliable way, in that there was no difference in the responses to the control questions that were asked both in the FTFI and the self-interview, and both literate and illiterate interviewees could answer equally well. There were more missing answers in the self-interview responses than in the FTFIs, 5.7% compared to 2.5%. The higher level may indicate that in a self-interview, the interviewee is not persuaded to answer questions that he does not want to answer.

6 DISCUSSION

6.1 Strengths and weaknesses of the study

Since male involvement in maternal health is a rather little-known phenomenon, I chose a mixed-methods approach that combined local surveys, FGDs and IDIs to investigate the topic. I aimed for and succeeded in drawing a rather comprehensive picture with both public and private perspectives using mixed methods, as suggested by Marshall and Rossman (1995) and Sandelowski (2000). The chosen methods are considered to be useful in national programme planning in terms of finding explanations to crucial concerns that impede programme utilisation (Helitzer-Allen, Kendall, & Wirima, 1993; Sandelowski, 2000), even though they do not provide nationally representative information. Applying other in-depth methods, such as ethnography, could have allowed for a more thorough understanding of the roles of men (Dudgeon & Inhorn, 2004), yet their use was not feasible within the time and resource constraints set for the study.

Focus-group discussions with men were well suited for the investigation of male involvement in a context of a lively oral culture. As part of the FGDs, I used special question techniques like vignettes (small stories) to elicit discussion on sensitive topics such as intimate partner violence and divorce due to HIV. These techniques are known to help create a lively interaction on personal and controversial issues (Lee, 1993). The creation of different types of interactions in FGDs is an advantage of the method that in this study helped to uncover rich data on the study topics (Hollander, 2004). In some groups, very harsh and extreme views were expressed, and in others very understanding and supportive perspectives. The free talks after the FGDs revealed that many participants experienced the FGDs as therapeutic, which is an added, previously reported advantage of the method (Hennink et al., 2011). A limitation of the FGDs in this study was that they were used for both planning the survey and producing qualitative data. The FGD guides were therefore designed to cover too many topics, which somewhat diminished the depth of the discussions.

I used individual IDIs with husbands and wives to investigate the individual experiences of women and their male partners regarding pregnancy complications. Interviewing women proved to be somewhat challenging, since many of the female

respondents were very brief in their responses. The women may have felt shy to talk to a male interviewer, a factor that I sought to address by securing a safe and private interview space and by involving myself, a female investigator, in the interviews. Another explanation may be that in the local culture, women are expected to be relatively silent and dismissive, a fact that I may not have paid sufficient attention to in the male-focused study. Dyadic interviews, where a husband and wife are interviewed together, could have elaborated on the joint reality of the couple´s decision making about pregnancy complications better than individual interviews (Taylor & de Vocht, 2011). However, in this male-dominant context, individual interviews provided the necessary space for women to express their views freely. The key-informant interviews also brought up important viewpoints on seeking health care in emergencies, but it was evident that much of the husband's role was visible only for the husband and wife. In the husbands' stories, their own role was presented as more significant than in their wives' stories. I interpret this as a social-desirability bias on the men's part, since men may have wanted to present themselves favourably in a situation where their role was under scrutiny (Hewett et al., 2004). However, the role of the husband may also remain hidden from the wife, since in the setting of this study, women and men acted largely in separate spheres of the society.

Surveys were used to determine how common men's attitudes and practices were in relation to male involvement in antenatal HIV testing that emerged from the FGDs and also to give an overall picture of men's knowledge, attitudes and practices in relation to maternal health. The surveys in this study were feasible to conduct, and the structured questions provided sufficient information on simple issues. However, to allow for more perspectives, I also included several open-ended questions. Having an interviewer ask the questions was necessary to allow for participation of the roughly one third of participants who were illiterate.

This thesis investigated several issues regarded as sensitive to the subjects. Given the risk for social-desirability bias in FTFIs (Hewett et al., 2004), there was a concern about the reliability of the data on sensitive themes. Previous research on computer-based self-interviews has shown that the more sensitive the behaviour, the more the reporting of that particular behaviour increases in a self-interview (Dolezal et al., 2012; Hewett et al., 2004; Mensch et al., 2008; Minnis et al., 2007; Potdar & Koenig, 2005). The findings of this study show that more men reported accepting attitudes towards childbearing by HIV-positive women in the PIASI self-interviews than in the FTFI, which indicates the sensitivity of the subject. There was no difference between FTFI and self-interview responses to other sensitive questions – for example, on whether the man would divorce his wife if she was found HIV-positive

– which indicates limited sensitivity of the questions and increases the reliability of the FTFI findings. However, the sample was small, and more rigorous research is needed to confirm this. A limitation of the PIASI method is that it was piloted for the first time as part of this thesis and has not been validated.

I used Bourdieu's field-theory concepts in the analysis of the IDI data to find new perspectives on health-care seeking in pregnancy complications and men's role in it. How we understand reproductive behaviour and health seeking is predominantly based on individualistic frameworks (Hounton et al., 2005; Price & Hawkins, 2007). Therefore, use of Bourdieu's field-theory concepts of 'capital' and 'field', which deal with social interactions and power, represents a novel approach in male-involvement research. A weakness of the approach is that findings may become less easily understandable for readers who are not familiar with qualitative research, and therefore less applicable in public-health planning. Secondly, since Bourdieu's concepts primarily deal with social relations, they do not cover personal attributes and gains that could influence decision making in pregnancy complications. For example, how the thought of becoming a father, trust in God or personality traits affected men's perceptions and actions were not well explained. In a study in Uganda, men were found to have many negative perceptions of fatherhood (Morgan, 2017), an aspect that this method did not capture.

Carrying out field research in low-income countries includes a number of cultural and language barriers that affect the research process in ways researchers need to be aware of (Dahlgren et al., 2004). During my six-month stay and through learning from literature and local colleagues, I could only reach some level of knowledge of the social structures, culture and norms that shaped the study context. I relied on local research assistants to carry out the interviews. The Chiyao language and tradition, being overwhelmingly oral without English language equivalents for some important concepts, limited the accuracy of the translation and interpretation, as noted in previous research in the area (Launiala, 2009). For example, 'Chitumbalala', refers to death at childbirth (Hetherwick, 1902). Respondents used it to describe a maternal death that is caused by witchcraft, but the explicit meaning of the term could not be investigated within the limits of this study.

This study used different methods to investigate male involvement thereby contributing to an improved understanding of male involvement in maternal health. Carrying out field research in rural Malawi with largely illiterate participants formed an important learning point of this thesis.

6.2 Male perspective on maternal health

Men's concern for the health of their pregnant wives came out as a strong finding in this thesis. Men saw pregnancy and the first weeks after birth as times where the woman needs extra attention and care from her husband. Previous studies from Ghana, Rwanda, Nigeria, Nepal and Bangladesh have shown a similar concern by husbands for the health of their wives (Andersson et al., 2011; Bougangue & Ling, 2017; Kaye et al., 2014; Mullany, 2006; Påfs, Rulisa, Musafili, Essén, & Binder-Finnema, 2016; Story et al., 2012). In comparison, in studies seeking women's and health workers' views, men have been deemed as uninterested and unwilling to spend on maternal health (Aborigo et al., 2018 Adeleye & Chiwuzie, 2007; Morgan, 2017). A negative view of men has coloured the early steps of male involvement, but there is a trend towards more constructive views of the role of men (Dudgeon & Inhorn, 2004). The concern that men showed for the health of their wives is an important prerequisite for the positive involvement of male partners in maternal health.

Men are aware of the need for urgent health-care seeking in case of danger signs in pregnancy according to the findings of this thesis. However, one third of the men said they would seek care at a traditional healer for convulsions. Studies on men's knowledge of danger signs have shown low levels of knowledge among uneducated men in Tanzania and good knowledge among urban, educated men in Nigeria (August, Pembe, Mpembeni, Axemo, & Darj, 2015; Obi, Abe & Okojie, 2013), but the results are not directly comparable. Only one third of the men were aware that mother-to-child transmission of HIV can be prevented, which is in line with findings from the Malawi DHS (NSO & ORC Macro, 2005). Men's limited maternal-health knowledge hampers their ability to make informed decisions on maternal health seeking and compromises women's chances to reach timely obstetric care, as suggested by the findings of this thesis and by others more recently (NSO & ORC Macro 2005; Nyondo et al., 2014b; Påfs et al., 2016). Furthermore, men's low levels of knowledge about maternal health also limit their opportunities to get involved in ANC (Mullany, 2006). There is a need to provide men with direct maternal health information that helps them to play their role constructively and support their partners during pregnancy and childbirth (Gentle et al., 2015; Mullany, 2006; Theuring et al., 2009). The information men gain from their spouses is insufficient.

This thesis investigated men's perceptions of pregnancy health, which is an area rarely covered in research (Dudgeon & Inhorn, 2004). The men considered health problems during pregnancy mainly to be caused by poor circumstances, like poor nutrition and overworking, but also by the husband's violence or STIs. They were cognisant of and open to discuss the fact that husbands can endanger the health of

the mother and baby through their behaviour. The men saw the need to reduce their pregnant wife's workload, stay nearby and avoid extramarital sex; however, as the men said, men's uncontrollable sexual desires and the need to earn an income away from home made behaviour change difficult. Men's attitudes towards hitting or beating their wife varied from unaccepting to tolerant in the focus groups. Studies from Nigeria similarly found that men were aware of their negative influence on pregnancy health and had tolerant attitudes towards wife beating (Adeleye & Chiwuzie, 2007; Andersson et al., 2011). Intimate partner violence within the last year was found to be associated with increased non-fatal maternal morbidity, although no conclusions on causality could be made (Andersson et al., 2011). Adeleye and Chiwuzie (2007) also reported other negative behaviours of the husband, such as forcing the wife to get an abortion and injurious intercourse that were not found in this thesis. Intimate partner violence during pregnancy is a common phenomenon in Sub-Saharan Africa (Shamu et al., 2011). In a study in Kenya, women who had experienced severe intimate partner violence were found to be less likely to attend ANC or deliver at a hospital, which demonstrates a need for special attention towards women with accumulating health and social problems (Burns et al., 2018).

The men expressed that a woman sharing HIV-positive results from ANC could lead to stigmatisation, divorce and blame by the husband and society. The men were aware that women feared their spouses' reactions. As a focus-group participant put it: 'But brother, haven't you ever seen your wife handle out of fear'. In many previous studies throughout Sub-Saharan Africa, women's fear of violence from the spouse and divorce following an HIV-positive diagnosis has been found to be a serious, if not the most serious, barrier for women to attend HIV testing and come back for results. This thesis adds the finding that men are likewise afraid to be abandoned and divorced if they are found HIV-positive, despite their dominant position in the society.

Adoption of opt-out HIV testing and early start of ART in ANC in Malawi (option B+) since 2011 have increased the uptake of HIV testing in ANC to 80% (NSO & ICF Macro, 2017). However, partner-related barriers are still relevant in explaining part of the loss to follow up in ART regimens, as shown by a study from Malawi, where women without partners were more likely to adhere to PMTCT regimens than women with partners. Women who had male partners but had not disclosed their HIV status to them were the least likely to adhere (Kim et al., 2012). A qualitative study on why HIV-positive women did not start or stopped ART

indicated lack of partner support and side effects as the main reasons (Kim et al. 2016).

I agree with others who recommend that intimate partner violence and other negative male behaviours should be addressed as part of maternal health and male involvement programmes, particularly in relation to HIV testing, to assist the most disadvantaged women and couples with marital problems and avoid negative outcomes (Burns et al., 2018; Jones et al., 2013). A positive example is a study from South Africa that compared regular VCT for couples with expanded VCT, which included aggression management and safe-sex behaviour modules and showed that expanded VCT was effective in reducing unprotected sex and intimate partner violence and increasing HIV knowledge (Jones et al., 2013).

Childbearing by HIV-positive women was disapproved of, according to the findings, but more acceptance was shown by those men who responded in self-interviews than those who responded in FTFIs. The unacceptance can be explained by the findings on men's poor awareness of the available PMTCT and their view that HIV and pregnancy aggravate each other's negative health effects. Similar attitudes were found in South Africa (Ladur, Colvin & Stinson, 2015), where only a few men accepted childbearing by HIV-positive women and only if the woman received continuous treatment for HIV. However, the higher acceptance for childbearing in the self-interviews may also be an expression of men's personal wish to have children even if he himself or his wife was found HIV-positive. Self-interviews offer a private environment where personal views that differ from society norms, such as a wish to bear children despite being HIV-positive, can be shared (Hewett et al., 2004). Previous studies have shown that men and women living with HIV want to bear children. Good PMTCT and ART services increase fertility desires, while female poverty and perceived risk or experience of the child becoming HIV-positive reduce them. HIV-positive women in stable relationships want to bear children because of society and familial expectation and own identity building (Cooper, Harries, Myer, Orner, & Bracken, 2007; Gombachika & Sundby, 2013). A wish to have child has been shown to be associated with decreased disclosure of positive HIV-test results to one's partner (Oladapo, Daniel, Odusoga, & Ayoola-Sotubo, 2005; Sherr, 2010). Guidance on the sensitive questions related to childbearing should be included in couple counselling on HIV to women, men and couples.

6.3 Continuum of male involvement

Male involvement in maternal health has commonly meant involvement in key health services related to pregnancy, namely visits to antenatal clinics and giving birth at a clinic or hospital. However, almost none of the husbands in this study had attended the antenatal clinic to receive services with their wives, and none had been present in the room when the wife gave birth. The situation in 2006 that is described in this thesis is still relevant today, as low levels of male involvement in maternal health services is a common finding even in recent studies from Sub-Saharan Africa. Cultural views of pregnancy and childbirth, including maternal health services as a female area, limit male participation in much of Sub-Saharan Africa, particularly in the rural, less-educated populations (Aborigo et al. 2018; Craymah et al., 2017; Ganle et al., 2016; Kalisa & Malande, 2016; Kaye et al., 2014; Machira & Palamuleni, 2018; Maluka & Peneza, 2018; Obi et al., 2013).

However, men want to be involved in maternal health services, according to the findings of this thesis. Their interest in being more closely involved has been found in some previous studies (Ladur et al., 2015) and not in others (Maluka & Peneza, 2018). Men wished to attend ANC with their wives and to interact with the health personnel during delivery. The interviewed women expressed less need for increasing male involvement at the health services than the men. Women needed their husbands mainly to arrange transport and provide money for food and transport, but also to confirm their long-term commitment through actions of love, such as visits at the hospital after delivery. In studies in Ghana and Uganda, women were found to be reluctant to involve men in maternal health services, because they wanted to keep pregnancy and childcare as female territories and secure their social spaces at the antenatal clinics (Ganle et al., 2015; Morgan, 2017). Women wished for support from their husbands in ways that they considered to be manly, such as the provision of money, transport and baby-care items (Ganle et al., 2015; Machira & Palamuleni, 2018; Maluka & Peneza, 2018). In other studies, women wanted to involve their husbands in ANC to provide support and to enhance joint learning (Ladur et al., 2015; Mullany, 2006). Both men's and women's motivation to involve men in maternal health services is affected by practical obstacles, cultural practices and a perceived pressure from health workers for male involvement, just in different ways. To make men's participation in maternal health care acceptable for both men and women, these reasons and the content and premises of male involvement need careful consideration (Maluka & Peneza, 2018).

Husbands have important roles both before, during and after HIV testing in ANC and need to be involved early in the process, according to the findings. Men

prefer to plan HIV testing together with their wives and attend couples counselling. After an eventual positive HIV test result, the husbands would be in a central role to provide support to the woman and child. I agree with Turan and Nyblade (2013), who suggest that to enable meaningful male involvement in PMTCT, partner involvement is necessary both during pregnancy, birth and after birth, not only at a single point in the process. To achieve a continuum of male involvement within maternal health services, a comprehensive agenda needs to be developed to avoid fragmentation of efforts (Kululanga et al., 2011; Ladur et al., 2015; WHO, 2012).

Despite their lack of involvement in maternal health services, the husbands in this study actively took part in caring for the health of their wives at home during pregnancy, childbirth and after birth. The findings show that men considered a husband to be responsible for a wide range of tasks, such as caring for the basic wellbeing of their pregnant wife, providing nutritious food and mental support, planning for the birth, making decisions on seeking maternal health care, and providing money and transport for health-care attendance. A similar comprehensive and continuous involvement of male partners in maternal health was found in studies seeking men's views in Ghana and Rwanda (Bougangue & Ling, 2017; Påfs et al., 2016), while a few other studies have highlighted the emotional and caring dimensions of a husband's role during pregnancy and childbirth (Adeleye & Chiwuzie, 2017; Kaye et al., 2014; Story et al., 2012).

Much of the research on male involvement does not capture men's different roles at home, in the community and in maternal health services (Comrie-Thomson et al., 2015). Studies seeking women's and health workers perceptions have suggested that the role of men is limited to the provision of money, assistance in transport and decision making on where to seek care (Aborigo et al., 2018; Kalisa & Malande, 2016; WHO, 2012). Male involvement is commonly defined through single actions, such as accompanying the wife to antenatal clinic, without investigating the reasons behind these actions or the men's own perspectives (Comrie-Thomson et al., 2015). This limited view on the role of men has sometimes led to seeing men in a negative light, which hampers meaningful involvement efforts (Dudgeon & Inhorn, 2004; Morgan, 2017). The challenge for future research is to further develop the theoretical base behind male involvement in maternal health. A refined definition should allow for understanding male involvement as something that represents a continuum in time and space and is part of the social context it takes place in. The UNFPA tool for involving men, which captures six roles of men in maternal health including overall support to pregnancy health, mental assistance during birth and responsible

fatherhood, is an example of looking broadly at male involvement (Promundo, MenEngage & UNFPA, 2010).

Community-level engagement is men's preferred way to increase male involvement in maternal health services, according to the findings. Other studies have similarly shown that men prefer community-based strategies, such as direct, tailored messages to men, community sensitisation and peer education (Larsson et al., 2010; Nyasulu & Nyasulu, 2011; O'Gorman et al., 2010; Theuring et al., 2009). There is some evidence that male peer support and community mobilisation can be an effective way to increase male involvement in ANC, delivery and PMTCT programmes (August et al., 2016; Mburu et al., 2012). I agree with the researchers who have suggested that community-level opportunities for engaging men in maternal health services should be explored, since they are likely to work better than health service-initiated efforts have so far (Nyondo et al., 2014b; Sherr & Croome, 2012).

Mobilisation of men at community level should not only serve to involve men in maternal health services, but the significant roles of husbands at the community level should also be acknowledged and embraced (Kululanga et al., 2011; Ladur et al., 2015). Mkandawire and Hendriks (2018) have suggested that interventions that only focus on men's attendance at health services without community-level support to address the change in gender norms may only strengthen male-dominant behaviours. Studies from Tanzania and South Africa have shown promising findings in terms of increased male participation in complication readiness and joint decision making on maternal health matters following community mobilisation (August et al., 2016; Kunene et al., 2004). The findings of this thesis are opposite to a study showing men's reluctance to cross gender barriers and take over female duties even if they saw the need (Bougangue & Ling, 2017). Some men, for example, expressed that they could take over female duties in the household in the weeks after birth to reduce their wife's workload. The findings of this thesis suggest, in line with Kululanga et al. (2011), that comprehensive, community-based approaches may offer a better possibility to influence underlying gender dynamics than facility-based approaches, but only if they encompass societal issues and enhance behavioural change that can promote long-term male involvement.

I argue that future male-involvement literature would benefit from a comprehensive conceptualisation of male involvement. Seeing male involvement as a continuum in time and space would allow for the meaningful participation of men in maternal health programmes and in and outside of health facilities. Community-level roles of men should be embraced and supported.

6.4 Male involvement in a context

The role of men in maternal health takes different shapes depending on the economic, social and cultural context. The results of this thesis indicate that poverty and gender inequality are two factors with major influence on how men take part in maternal health and how their involvement adds value.

Poverty affected pregnant women's health and nutritional status and seriously hampered health-care seeking in emergencies. Its significance was underlined by the finding that lack of money was considered the only acceptable reason for the husband or anyone else to deny the pregnant woman to access health services. Likewise, women's vulnerability to HIV increased when money was not available. As the men explained, even married women may need to engage in transactional sex to get food if their husbands are absent for a long time or do not provide them with the needed support. Although these findings are specific to the context, similar views concerning female vulnerability are true for other parts of Malawi as well (National AIDS Commission, 2014).

The findings further revealed that even attendance to ANC services provided free of charge meant significant food and transport costs for families. This is one example of the maternal health challenges that poor women face. Particularly in rural areas poor women lack access to affordable, quality maternal health services and maternal health knowledge. Health services and transport are relatively expensive to the poor, and traditional beliefs and other demanding side factors that limit maternal health seeking are often more pronounced among the poor and uneducated (Cham, Sundby, & Vangen, 2005; Essendi et al., 2015; Houweling Ronsmans, Campbell, & Kunst, 2007; Pembe et al., 2008; Theuring et al., 2009). On the population level, maternal mortality is highest in the poorest countries in the world and the poorest regions within countries (Houweling et al., 2007; UN, 2014). A recommendation based on this thesis along with other studies is for future research and policy to focus their efforts among the poor and disadvantaged, where solutions to improve maternal health, including male involvement, are needed most (Ronsmans & Graham, 2006).

This thesis brings new insights into how poverty affects the role of men. Arranging transport was the husband's main challenge in seeking health care in emergencies and preparing for birth. Unpredictable availability and costs of transport made preparing in advance difficult. Taking loans to pay for expensive referrals had long-term consequences for the family economy. The findings of this thesis are in line with previous studies that have shown how a lack of reliable emergency transport impedes maternal health-care seeking (Morgan, 2017; Story et al., 2012). A good

example is a study reporting on verbal autopsies of maternal deaths in Gambia (Cham et al., 2005). It showed that in 27 out of 32 cases, lack of transport or prolonged transport contributed to a delay in reaching appropriate care, which lead to the mother's death. In studies in Tanzania and Indonesia, the cost of transport was found to be a major reason for women and their families not to follow health worker's referral advice (Pembe et al., 2008; USAID, 2015). This thesis adds that transport is not only a problem in remote areas; even in relative proximity (< 10 km) to comprehensive emergency obstetric services, transport poses a problem to families if they lack control over transport costs and arrangements. These findings support the view that in poor settings, community-based transport options or funds for transport may be the most-needed single interventions to improve the outcomes of obstetric emergencies (Ahluwalia, Schmid, Kouletio & Kanenda, 2003; Cham et al., 2005; Essendi et al., 2015; Pembe et al., 2008; Somé et al., 2013).

The findings of this thesis suggest that transport interventions should engage men as valuable partners. There is a need to more closely investigate what is called men's unwillingness to provide money and transport, as reported in studies seeking women's views (Adeleye & Chiwuzie, 2017; Morgan, 2017) How much of the unwillingness is inability to provide what is needed? Engaging men in transport interventions, which are a traditional 'male' area, can also have broader positive consequences, as was shown in one study in Malawi. When men were provided with means to arrange referrals with a bicycle ambulance, their satisfaction and overall involvement in maternal health increased (Sibande & Hutter, 2011).

Male dominance in decisions related to maternal health is an obvious finding of this thesis. Both male and female interviewees expressed that it is the husband who has the power to decide on health-care seeking during pregnancy complications. The husband also decides on ANC attendance and the place of delivery, either alone or jointly with his wife. His power is based on earning the money and being the head of the household. The husband's decisions should be followed, since he is the one who carries the responsibility for the wife and baby to be born in the long run. A study from Indonesia similarly showed that decision-making power on reproductive health-care seeking is distributed within the couple depending on their economic resources, education and social status (Beegle, Frankenberg & Thomas, 2001). A complex set of factors in and outside the couple unit influence the power the woman and husband have in decision making (Dudgeon & Inhorn, 2004).

Pregnant women themselves have little say in decisions concerning their own health-care seeking, according to the findings of this thesis. Studies in Ghana, Burkina Faso, Kenya and Tanzania that have investigated women's views show

similar findings on the limited decision-making power of the pregnant women in seeking maternal health care, particularly in emergency situations (Ganle et al., 2015; Nyandieka, 2016; Pembe et al., 2008; Somé et al., 2013). It was found in this study and by others that women could only plead for the husband to hear her views; the husbands and the relatives were the ones who made the decisions, based on their views of the seriousness of her condition as well as the estimated costs, accessibility and quality of the health services (Pembe et al., 2008). The role of elder female relatives in decision making was less pronounced in the study setting of this thesis and in two studies from East Africa (Pembe et al., 2008; Nyandieka et al., 2016) than in studies from West Africa (Ganle et al., 2015; Somé et al., 2013), which highlights the need to adapt any male-involvement intervention to the particular context. In India, the role of the family is even more important, as was shown earlier by the project on male involvement in reproductive health in India and Malawi (Char, 2011).

The findings of the most recent Malawi DHS indicate that even today, women in Malawi cannot decide on their own health-care seeking. Although two thirds of the women in the DHS reported taking part in decisions about their own health-care seeking, almost half reported that getting money for treatment posed a challenge for seeking health care during pregnancy, and 16% said that the need for permission to attend likewise formed a challenge (NSO & ICF, 2017). Poor, uneducated women in rural areas, who do not have an own income, have been reported to have the least decision-making power (Beegle et al., 2001; NSO & ICF, 2017). Being in a polygamous union may further reduce women's power to decide (Ganle et al., 2015).

The men in this study expected the wife to agree with her husband before accepting HIV testing at ANC, since joint agreement on important matters was a part of the code of conduct in a good marriage. The wife taking an HIV-test without agreement was for some men a reason to consider divorce. If there was no agreement on HIV testing, the wife would at least not share the results with her husband. This suggests that male-involvement interventions need to support the couple in a culturally acceptable way and promote non-confrontational family dynamics instead of forcing actions that contradict prevailing gender norms (Mkandawire & Hendriks, 2018). I would also like to raise a concern that the same-day HIV testing, counselling and ART initiation protocols used in PMTCT services in Malawi may leave the woman with too little time to discuss with her partner, which has been suggested to explain part of the high loss to follow up in Malawi and the reduced adherence to treatment associated with this regimen (Chan et al., 2016; WHO Regional Office of Africa, 2014).

There is a positive association between women's empowerment and wider use of maternal health services (Fotso, Ezeh, & Essendi, 2009; NSO & ORC Macro, 2005; White, Dynes, Rubardt, Sissoko, & Stephenson, 2013). These findings from Sub-Saharan Africa indicate that female empowerment is an important means of improving maternal health. Freedom to decide on one's health is also a right with its own inherent value. In the discussion on male involvement, this does not mean that men should be set aside to make room for women's increased autonomy, but rather that there is a need for more balanced interactional gender dynamics (Chinkonde et al., 2009; Connell, 2012). Male involvement itself has the potential to transform gender norms in a more equal direction (Comrie-Thomson et al., 2015).

While we know that gender dynamics and male involvement influence maternal health, we also need to be cognisant of how male-involvement interventions influence gender dynamics (Andersson et al., 2011; Chattopadhyay, 2011; Jones et al., 2013). A qualitative review of male-involvement interventions in maternal health found that male interventions commonly aim to change men's single actions. While it is often not feasible to aim to transform gender norms within the time constraints of the intervention, a gender-accommodating approach, where the prevailing gender norms and roles are investigated and understood, could at least help to address gender in a constructive way that benefits the whole family (Comrie-Thomson et al, 2015; Hammarström et al, 2013). At its worst, male involvement has been feared to reinforce male dominance (Sternberg & Hubley, 2004). At its best, constructive male involvement in maternal health helps men fulfil their manly roles and to uptake healthy reproductive behaviours without losing their masculinity, eventually forming a new form of emergent masculinity (Chikovore et al., 2014). Interventions that too strongly promote women's autonomy, like sole decision making by the women, miss out on the benefits of male involvement (Mullany et al., 2005). Most researchers agree that constructive engagement enables men to make informed decisions on their sexual behaviour and their role in pregnancy and delivery, which can only benefit the health of women and may even support constructive reconsideration of gender roles at large (Ganle et al., 2015; Greene et al., 2006; WHO, 2012).

Very few interventions have investigated how male involvement affects gender indicators (Kraft et al., 2014). For example, a randomised trial in Burkina Faso demonstrated increased joint decision making and perceived quality of a marital relationship following three counselling sessions with couples during pregnancy and after birth (Daniele et al., 2018). On the other hand, some recent efforts to increase male involvement have unfortunately led to unanticipated negative outcomes. For example, the preferential treatment of women who attended ANC with their

partners caused women without a steady partner and women who attended alone - perhaps due to fear of their partner's reactions - not to attend at all or to receive inadequate care (Machira & Palamuleni, 2018; Maluka & Peneza, 2018). To mitigate eventual negative effects, WHO has recommended that all male involvement should take place through gender-sensitive programmes that support and promote female autonomy and ensure women's safety (WHO, 2015b). Keeping male involvement optional has been highlighted as an important aspect in this regard (Davis et al., 2016).

To get the most out of male involvement in maternal health, a recommendation of this thesis is that efforts should focus on the most disadvantaged populations, where solutions to reduce maternal deaths are needed most. To avoid negative outcomes, male involvement should remain voluntary and be designed in a gender-sensitive and culturally acceptable way. To build sustainable solutions, efforts to involve men, empower women and mitigate female poverty go best hand in hand.

6.5 Reconsidering challenges in male involvement

Male-involvement interventions in low-income countries have faced difficulties in involving men in maternal health services. The barriers to attendance found in this study were the same as in other studies: practical obstacles to attendance such as time costs, men's perceptions of health services as female-oriented, men's fear of HIV testing and cultural barriers to uptake behaviours that are traditionally not considered suitable for men (Aborigo et al., 2018; Craymah et al., 2017; Ganle et al., 2016; Kalisa & Malande, 2016; Kaye et al., 2014; Ladur et al., 2015; Machira & Palamuleni, 2018; Morfaw et al., 2013; Morgan, 2017; Obi et al., 2013; Sherr & Croome, 2012; WHO, 2012;). While the problems are not new, functional solutions are needed. This thesis provides insights into what motivates men to be involved. It also points out the need to deal with pertinent barriers, particularly the exclusion of men from maternal health care and HIV-related stigma.

Maternal health services are strictly targeted at women, according to the findings of this study. Men could only attend to be tested for STIs when called. Overall, the men portrayed themselves as second-level customers in health care. They felt that men had no right to interact with the health personnel, for example to be informed on the progress of delivery. In some studies, men have reported being chased away by the health personnel, being blamed for any health problems the woman may have, scorned or asked to pay bribes (Morgan, 2017; McMahon et al., 2014). Less extreme, but likewise negative, are men's experiences of not being informed of what is

happening to their wives during delivery and being unsure of what is expected of them (Kaye et al., 2014).

The need to reorient maternal health services to include men has been acknowledged for long, but little progress has taken place so far (Påfs et al., 2016). Studies in Uganda and Rwanda have shown that even men who challenge traditional masculine behaviours and want to be involved struggle to be allowed to participate. Despite national policies that support male involvement, men's efforts to get involved are not supported; rather, health personnel's attitudes fuel gendered expectations of male non-involvement (Kaye et al., 2014; Påfs et al., 2016). Practical barriers, like a lack of suitable rooms and the need to secure privacy for women in open wards, explain only part of the reluctance to involve men (Påfs et al., 2016; WHO, 2012). As long as maternal health services do not welcome men, it is meaningless to motivate them to attend. However, when talking about health personnel's attitudes towards men, it is important to remember that women receive even more disrespectful treatment from them in many low-income countries, which points towards the need to change the overall working practice in many health facilities (McMahon et al., 2014). Going even a step further, staff shortages, poor education and limited resources explain much of the poor work performance and misconduct of health workers in low-income countries. These factors are also likely to contribute to the unwillingness of health personnel to take up additional tasks related to male involvement (WHO, 2012).

Attending maternal health services has personal benefits for the husband, according to our findings. The findings showed that men thought they could receive support to change their sexual behaviours, information on family planning and help in sharing HIV-positive test results among the couple if they attended ANC with their wives. Husbands in a study in Bangladesh similarly saw ANC attendance to offer an opportunity for them to learn about maternal health (Story et al., 2012). The value of facilitated disclosure of HIV status for both men and women has been emphasised in many other studies as well (Ladur et al., 2015; Larsson et al., 2010; Nyondo et al., 2014b). In two studies seeking educated, urban men's views in Uganda, men hoped to learn in ANC what they should expect when attending childbirth and what is expected of them as husbands (Lwanga et al., 2017; Kaye et al., 2014). If maternal health services are to involve men, they have to respond to men's needs for information and provide services in a culturally acceptable way. Tailoring PMTCT to answer men's needs has also been noted as a key intervention to increasing male involvement (Theuring et al., 2009). So far, the few interventions to involve men in PMTCT have focused on couples' VCT with little else to offer for

the expectant fathers, indicating that the PMTCT slogan on saving the children and keeping their mothers alive does not yet read '...and keeping their fathers alive' (Sherr & Croome, 2012). The same applies for male involvement in ANC overall; there is not yet an agenda for men (Kululanga et al., 2011).

Fear of getting to know one's own HIV status was a major barrier for men to attend HIV testing in ANC with their wives. The men explained how HIV-positive people were subject to scorn and sometimes abandonment by their communities. Stigmatisation of people living with HIV is an example of a long-known problem that hampers the effectiveness of PMTCT programmes, and indirectly also male involvement in ANC, since men fear being tested for HIV, even if they attend ANC for other services (Maluka & Peneza, 2018; Morgan, 2017; WHO, 2012). Anticipated and enacted stigma by the partner and community are major reasons for drop-out in all steps of the PMTCT cascade (Turan & Nyblade, 2013). The root causes and consequences of stigma are related to societal factors like gender and economic inequality, harmful cultural practices and marginalisation of vulnerable groups (WHO, 2012). PMTCT programmes need to include stigma-reduction strategies as part of the core content to be effective and relate to the reality of people living with HIV (Turan & Nyblade, 2013; WHO, 2012), and the same applies to male involvement interventions.

6.6 Conclusions

The following conclusions, based on the findings of this thesis, could, with caution and local amendments, be applicable in rural areas of low-income countries:

1. Men need sufficient knowledge to make sound decisions on seeking health care for pregnancy complications. Men themselves consider their knowledge on maternal health insufficient. They have both a medical and a supernatural perspective on maternal health. They are aware of the roles of poor life circumstances and their own behaviour as husbands in causing health problems in pregnancy. They appreciate maternal health services yet know little about their content.

2. Although only a few husbands attend maternal health services with their wives, their role in relation to maternal health within families and communities is significant. They have tasks and responsibilities, such as caring for the overall welfare of their pregnant wife, planning for birth,

deciding on attendance to maternal health services and providing financial support and transport.

3. Husbands are important decision makers on seeking health care for pregnancy complications. The husband's power to decide is based on his economic resources and position as the head of the household. The wife has little say in health care-seeking decisions concerning her. She must obey her husband, whom she depends on for long-term support.

4. Couples may need more time and support to deal with HIV-positive test results in ANC. Men stress the need for a couple to agree on HIV testing in ANC beforehand and to be assisted in disclosure of HIV-positive test results to avoid blame and divorce. Men perceive having HIV in pregnancy as a heavy mental, physical and social burden to a pregnant woman, which is caused by women's vulnerability to HIV and the commonness of promiscuity.

5. Picture- and audio-assisted self-interview may be a feasible method for the study of sensitive questions in field settings without electricity and access to computers. It is also well accepted and easy to use for illiterate participants.

7 RECOMMENDATIONS FOR FUTURE RESEARCH AND INTERVENTIONS

A recommendation based on the findings of this thesis is that future male-involvement research and interventions should adopt a comprehensive conceptualisation of male involvement as a continuum that increasingly encompasses and supports men's roles in the family and community. A wider perspective that also involves men outside maternal health services could lead to health benefits for the pregnant women and their families. Male-involvement interventions should be designed carefully to be gender-sensitive and culturally acceptable. Based on the male perspective, this thesis suggests important prerequisites that could increase meaningful male involvement. Men need direct access to maternal health information and ways to secure accessible and affordable emergency transport in case of pregnancy complications. Couples need counselling and support in sharing HIV-test results with their partner. For male-involvement interventions to be sustainable, they should consider and seek to address large societal problems, such as female poverty, HIV-related stigma and unequal gender power relations.

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9 ATTACHMENTS

Questionnaire - Male involvement in HIV-prevention in pregnancy study- Chiyao

questions to be left out when recording: B11, B12, C15, C16, C21, E3, E4, E5 and E6 **CODE:**						

Interviewer	**Date**
Place	**Time**
Comments	

A	**Background**			
1	Akwete yaka ilingwa? *How old are you?*	Age: _____years		
2	Wapali chakachi? *What is your year of birth?* ***Compare with age!***	Year of birth: 19_____ Don't know	1 98	
3	Ana walombele apano pano? *Are you currently married?*	Yes No	1 2	
4	Akwete achakongwe walingwa apano pano? *How many wives do you have NOW ?*	Number of wives: ----------		
5	Ana wankwawo wana yaka ilingwa? ***All wives*** *How old is your wife ! are your wives?*	Age: _____ _____years Don't know	1 98	
6	Pakwete palombele wakongwe wane nkanalombele wali nawowa? *Have you been married before this marriage?*	Yes No	1 2	
7	Ali dini chi? *What is your religion?*	Moslem Catholic Pentecostal Anglican Other, specify: ----------	1 2 3 4 9	
8	Ana wantunduchi? *What is your tribe or ethnic group?*	Tribe: ----------		
9	Ana sukulu walechele muchi? *What is the highest level of schooling you have completed?*	No schooling Mpela Sitandadi, grade__(1-8) Primary Folomu, grade __ (1-3) Secondary Univesity: >12 years Higher education	0 1 2 3	
10	Ana wakombolaga kuwalanga? *Can you read?* ***Check with text!***	Yes No	1 2	
11	Nambi wamkwawo walechele sukulu muchi? ***First wife*** *What is the highest level of schooling your wife has completed?*	No schooling Mpela Sitandadi, grade__(1-8) Primary Folomu, grade _____(1-3)Secondary Univesity: >12 years Higher education Don't know	0 1 2 3 98	
12	Ana mbiya akusasipataga chinauli? ***Choose one main source!*** *What do you do to earn money?* *(the main source)*	Nothing Fishing Farming Business/vendor Tailor, handicraft Civil servant Laborer Piecework (ganyu) Other, specify: ----------	1 2 3 4 5 6 7 8 9	
13	Pakwete pakamwile masengo musi wine kwa myesi jitatu yaka iwiri ipiteyi?	Yes No	1 2	

	Have you worked outside this village for over 3 months in the last 2 years?			
14	Ana akusatama m'musi wawo kapena m'musi wa wamkwawo? ***First wife*** *Do you live in the village of your kin or that of your wife?*	Husbands Wife's Both from same village Elsewhere	1 2 3 4	
15	Panyumba pano akusatama wandu walingwa? ***Include respondent*** *How many people altogether live in your household?*	Number: _____		
16	Akwete wanache walingwa? *How many children do you have NOW?*	Number of children: ----------		
17	Ana mwanache jwawo jwamwa jwana yaka ilingwa? *How old is your youngest child?*	Age: _____		
18	Ana wamkwawo wana msigo? *Is your wife pregnant now?*	Yes No Don't know	1 2 98	

B Knowledge, attitudes, perceptions and sources of information on HIV in pregnancy

1	Ana ilwelechi achim'masyeto wana msigo akusalwalaga akuno? ***Can be many answers*** *Which diseases can pregnant women here suffer from?*	Syphilis Gonorrhea Chanchroid Malaria Anemia HIV/aids Epilepsy, convulsions Vomiting, diarrhea Other, specify: ---------- ---------- Don't know any	1 2 3 4 5 6 7 8 9 98	
2	Ana ulwele wa AIDS uli wakogoya kwa azimayi wa misigo akono kuno? *Is AIDS a serious problem for pregnant women here?*	Yes No Don't know	1 2 98	
3	Naga mzimayi jwamlombere jwana msigo ni akwete kachilombo, akusaganisya kuti wakapatile kwapi? ***Only one answer: the most likely*** *If a married pregnant woman has HIV, where has she most likely got it from?*	From husband From extramarital sexual contacts Sexual contact, not specified From razors From injections Other, specify: ---------- Don't know	1 2 3 4 5 9 98	
4	Ana mzimayi jwana msigo nambo soni jwana kachilombo. Ndawichi jakuti wakapatile keleka? *If a pregnant woman has HIV, when has she most probably conducted the virus?*	During pregnancy Before pregnancy Either before or during pregnancy Other, specify : ---------- Don't know	1 2 3 9 98	 ► **6** ► **6** ► **6**
5	Ligongo chichi? *Why?*			
6	Ana mzimayi jwamsigo mpaka ampele mwanache kachilombo? *Can HIV be transmitted from the mother to the child?*	Yes No Don't know	1 2 98	 ►**10**
7	Nambi mpaka ampele uli kachilomboko? **FROM MOTHER TO CHILD** ***Can be many answers*** *How can HIV be transmitted from mother to child?*	During pregnancy / in the womb During delivery During breastfeeding Other, specify:_____ Don't know	1 2 3 9 98	
8	Nambi mpaka ikomboleche kuti mzimayi jwana msigo nambo soni jwana kachilombo ngampela mwanache kachilomboko? *Is it possible that the child does not get the virus?*	Yes No Don't know	1 2 98	 ►**10**

9	Mpaka asalire matala gampaka kumteteya mwananche kuti akakapata kachilomboka kutochela kwa mamagwe? ***Can be many answers*** *Can you mention ways to prevent the transmission of HIV from the mother to the child?*	Can not be prevented Medicine to mother during pregnancy Medicine to child Exclusive breastfeeding Avoiding breastfeeding Safe delivery / section Keeping in good health, eating well Using condoms/abstaining to avoid re-infection Other, specify: ---------- Don't know	1 2 3 4 5 6 7 8 9 98	
10	Ana yeleyi walijiganyisye kwapi? ***Only one answer: the main source*** *Where have you learned these things about transmission of HIV from mother to child?*	Wife Friends, relatives Radio School Health center personnel Health worker in village Other, specify: ---------- Don't know	1 2 3 4 5 6 9 98	
11 R	Munganisyo syawo,ana mzimayi jwakuti jwana kachilombo akundisidwe kuti awelechejepe wanache?In your opinion, should HIV-positive women be allowed to have children?	Yes No Don't know	1 2 98	
12 R	Nambi wani wampakana alamule kuti mzimayi jwana kachilomboju akasawelekaga? *Who should decide if the woman with HIV should have children?*	Husband Woman Woman and her husband Doctor Other, specify: ---------- Don't know	1 2 3 4 9 98	

C	**Awareness, perceptions, sources of information and involvement in HIV-prevention in ANC**			
1	Pa msigo wakumalisya wawamkwawowu wapite kusikelo ja misigo? *During her latest pregnancy, did your wife go to ANC?*	Yes No Don't know	1 2 98	 ►**5** ►**5**
2	Ana akusakangalaga kuwechetana ni wamkwawo yakwayana ni yayikusatendechekwaga ku sikelo? *Do you discuss what happened in ANC with your wife?*	Yes No	1 2	
3	Pakwete papite ni wankwawo ku sikelo ja misigoji? *Have you ever accompanied your wife to ANC?*	Yes No	1 2	 ►**5**
4	Wapite kutenda chichi? ***Only one answer: the main purpose of last visit*** *What was the purpose of your visit?*	Health information, counseling Family planning, getting condoms Testing/ advice on HIV Testing/Treatment for STI Transport in emergency Transport to regular visit Other, specify: ---------- --- Don't know, no reason	1 2 3 4 5 6 9 98	
5	Chikamuchisyochi chachikusapechedwaga kwa azimayi wa msigo kusikeloko? ***Can be many answers*** *What services do you know that are offered in antenatal care?*	Health or delivery advice Weighing Checking position of baby Malaria (test /medicine) Anemia (test / medicine) STI (test / medicine) HIV (test / medicine / advice) Diseases not specified (test/medicine) Other, specify: ---------- ---- Don't know	1 2 3 4 5 6 7 8 9 98	

6	Ana pana ikamuchisyo yine yayikusapelechedwaga ku sikeloko yakwayana ni kachilombo?*Are there any services related to HIV offered in the ANC?*	Yes No Don't know	1 2 98	►**9** ►**9**
7	Nambi chikamuchisyochi chachikusapelechedwaga chakwayana ni kachilombo kusikeloku? ***Can be many answers*** *Which services related to HIV do you know that antenatal clinics offer?*	HIV advice (pre-test) HIV counseling (post-test) HIV counseling/advice, not specified HIV testing Medicine to prevent child (PMTCT) Medicine to improve mother's health Medicine, not specified Other, specify: ---------- --- Don't know	1 2 3 4 5 6 7 9 98	
8	Chikusapelechedwaga kwa wani? *Who are these HIV services in antenatal care services for?*	Pregnant mothers only Pregnant women and their spouses Other, specify: ---------- --- Don't know	1 2 9 98	
9	Walijiganyisye kwapi yeleyi yakwayana ni sikelo ja misigoyi? ***Only one answer: the main source*** *Where have you learned these things about ANC?*	Wife Friends, relatives Radio School Health facility personnel Health worker in village Other, specify: ---------- --- Don't know	1 2 3 4 5 6 9 98	
10	Ana akuganisya kuti upungu ni kulinjisya kwa kachilombo ka HIV ipelechedweje kwa achimmasyeto wa misigo ku sikelo? *Should HIV counseling and testing be offered to pregnant women in ANC?*	Yes No Don't know	1 2 98	►**12**
11	Ligongo chichi? *Why (not)?*			
12	Naga jwankongwe ankamwile ni kachilombo ku sikelo jamisigo, wankwawpo wasalile uli kapena ajigale nawo mbali uli? *If the woman is tested HIV-positive in ANC, how should the husband be involved?*			
13	Munganisyo saywo, ana kwakusosekwa kuti wakongwe wasalileje wankwawo naga ali nkusaka kuja kulinjisya myasi? *In your opinion, should a woman tell her husband if she wants to go to HIV-test?*	Yes No Don't know	1 2 98	►**15**
14	Ligongo chichi? *Why (not)?*			
15 R	Naga wankwawo ali watesile kuti ajale kulinjisiya myasi yalumo, mpaka ajale? *If your wife asked you to go to HIV-testing with her, would you go?*	Yes No Don't know	1 2 98	►**17**
16 R	Ligongo chichi? *Why?*			
17	Nambi naga wawojo ali nkusaka kuja kulinjisya mpaka wasalire wankwawo? *If you wanted to go for HIV-testing, would you tell your wife?*	Yes No Don't know	1 2 98	►**19**
18	Ligongo chichi? *Why (not)?*			

19	Ana mpaka asache kuti malangiso gakwayana ni kachilombo ali nkupochela ali jika, ni wankwawo kapena ni achalume achimjawo? *Would you prefer receiving HIV advice alone, with your wife or with other men?*	Alone With wife With other men Don't know	1 2 3 9	
20	Ligongo chichi? *Why?*			
21 R	Ana pakwete palinjisye myasi? *Have you ever been tested for HIV?*	Yes No Don't know/remember Don't want to answer	1 2 98 99	

D	**Patterns of communication on HIV in pregnancy**			
1	Pakwete pawechetene yakwayana ni kachilombo ni achalume achimjawo? *Have you ever discussed HIV with other men?*	Yes No Don't know / don't remember	1 2 98	
2	Nambi ni wankwawo? *Have you ever discussed HIV with your wife?*	Yes No Don't know / don't remember	1 2 98	►**4** ►**11**
3	Ligongo chichi? *Why not?*			►**11**
4	Yakuwechetanayi wayitandisye wani? *Who has started the discussions?*	Husband Wife Both Don't know / don't remember	1 2 3 98	
5	Chachatendesye kuti awechetane ni chichi? *What was the reason to start the discussion?*			
6	Wawechetanaga indu mpalaga yapi? **With wife** *What kind of things have you talked about HIV?*			
7	Pakwete pawechetene ni wankwawo ngani ja kachilombo pakwayana ni msigo? *Have you ever discussed HIV in relation to pregnancy with your wife?*	Yes No Don't know / don't remember	1 2 98	►**9** ►**9**
8	Induchi yawawechetene? **On pregnancy and HIV** *What kind of things have you talked about?*			
9	Nambi pakwete pawechetene ni wankwawo ya kulinjisya myasi? *Have you ever discussed HIV-testing with your wife?*	Yes No Don't know / don't remember	1 2 98	►**11** ►**11**
10	Induchi yawawechetene? **Related to HIV-testing** *What kind of things have you talked about?*			
11	Nambi naga ali aimanyi kuti wana kachilombo mpaka wasalire wani? ***Can be many answers*** *If you found out you have HIV, who would you tell about it?*	No one Wife Brother Mother Other, specify: ---------- Don't know	1 2 3 4 9 98	
12 a **or** b	Ligongo chichi kwasalila wankwawo? *Why to wife?* ----------			

	Ligongo chichi ngasalira wankwawo? *Why not to wife?*			
13	Nambi naga mzimayi m'mudzi muno ipezeche kuti jwana kachilombo mpaka wasalire wani? ***Can be many answers*** *If a woman in this society had HIV, who would she tell about it?*	No one Husband Sister Mother Other, specify: ---------- Don't know	1 2 3 4 9 98	
14 a **or** b	Ligongo chichi kwasalira wankwawo? *Why to husband?* ---------- Ligongo chichi ngasalira wankwawo? *Why not to husband?*			

E	**Behavior norms related to HIV of spouse**			
1	Naga jwankongwe akwete kachilombo, wandu akusajembecheya yamtuli kutochela kwa walume? *If the woman has got HIV, what does the community expect the husband to do?*	Continue living together Divorce Other, specify ---------- Don't know	1 2 9 98	►**3** ►**3** ►**3**
2	Ligongo chichi? *Why?*			
3 R	Naga wamkwawo ali wasalile kuti akwete kachilombo, ndamilo jawo ja pewasa mpakana jipitile uli? *If your wife told you she had HIV, how would your family life continue?*	Continue living together Divorce Other, specify ---------- Don't know	1 2 9 98	
4 R	Nambi naga wam'masyeto ali wana msigo, mpakana pawe pana kulekangana soni? Ligongo chichi? *If the woman was pregnant, would it make a difference, why (not)?*			
5 R	Ana pana jwa mlume jwammanyi juwalesile wamkwawo ligongo lya kachilombo? *Do you know any man who has left his wife due to HIV?*	Yes No Don't know / don't remember	1 2 98	
6 R	Ana pana wakongwe wiwamanyi wiwalesile wamkwawo ligongo lya kachilombo? *Do you know any woman who has left her husband due to HIV?*	Yes No Don't know / don't remember	1 2 98	

End of questionnaire. Thank you.

FGD Topic guide – Male involvement in HIV prevention in pregnancy study (Modified. P: optional probing questions)

*** Starting question**

- 'Like I told you before, we are in this study interested in health in this community. Can you tell me what kind of health problems pregnant women have in this community?
- What about HIV, is that a common problem for pregnant women here? Why/ which one more dangerous?

1 Knowledge and perceptions of HIV and its prevention in pregnancy

- Can you tell me, what is AIDS? *Mpaka asalire kuti EDZI ni ulwelechi?*
- Can you also tell me what is HIV? *Mpaka asalire kuti HIV nichichi?*
  P: kachilombo
- Where does HIV come from to this community? *Ana Edzi jikusaikaga akuno kutochela kwapi?*
  P: (promiscuous) men/women?
- How can HIV be transmitted? *Ana mundu mpaka akapate uli kachilomboka?*

Summarize the terminology and use it in the following questions very precisely!

- How can you tell that a pregnant woman suffers from AIDS? *Mpaka ammanye uli mmzimayi jwa msigo kuti akulwala EDZI?*
  P: HIV? Can a healthy looking pregnant woman have HIV?
  P: With the symptoms you have told, can you be sure or can she suffer from other diseases?
- Which other diseases are similar to AIDS in pregnancy? *Maulwele gane gapi gakulandana ni EDZI kwa mzimayi jwamsigo?*
  P: How?
  P: HIV (if mentioned before, that you can see symptoms of HIV)
- If a woman is pregnant and has HIV, who do you think she has got it from? *Naga mzimayi ali akwete msigo soni akwete kachilombo akuganisya kuti wakapatire uli?*
  P: Married/unmarried. Different? Which one is more common in this community?
  P: In marriage, is it usually the man or the woman who brings the disease into the family?
  P: Has she got HIV during pregnancy or before? Why? Is one of these easier? More common?
  P: Are these things of transmission similar or different to STI?

- What are the consequences of having HIV for the pregnant woman in her life?/ What kind of suffering can she have with HIV? *Ana yakusausyachi yakusasimanaga nayo mzimayi naga akwete kachilombo?*
  - P: Can she stay healthy / get sick /die
  - P: Time period (if you get HIV, when do you get…)
- What are the consequences for her in the community? *Ana wandu mmusi muno akusawaonaga uli azimayi wamisigo wakwete kachilombo?*
  - P: What kind of things do you hear people talk about them?
  - P: What kind of support is lacking?
  - P: What does it depend on, how the woman is treated? Are all women who are suspected having HIV treated the same? Why/why not?
  - P: How is this (backbiting) different from having an STI? Why?
- How are their husbands (the husband of the woman with HIV) treated? Why? *Nambi achiwamkwawo akusiwawechetaga uli?*
- If the pregnant woman has HIV, what does that mean for the unborn baby? *Naga mzimayi jwa msigo jwana kachilombo, pelepa mpaka iwe yamtuli kwa mwanache jwanganapagwejo?*
- Can HIV be transmitted from mother to child? *Ana mzimayi jwana msigo nambo soni jwana EDZI mpaka ampele mwanache jwanganapagwejo?*
  - P: How? (breastfeeding, delivery, pregnancy)
  - P: Can the child of a HIV-positive mother stay healthy / get sick / die before or after being born (if it has HIV or if it has no HIV)
  - P: What will the life of the child be like if both parents die of aids?
- Can you prevent the child from getting HIV? *Ana mpaka amteteye mwanache kuti akakapata kachilombo?*
  - P: How? (medicine, traditional, the mother)
  - P: Is there any treatment (medicine) available (here) to prevent Transmission to child (or to treat HIV-positive people)?
- How do you know all these things? Where do you get information on these things?
- Should HIV-positive women be allowed to have children? What do people here think about HIV+ mothers having children? *Akuno wandu akusaganisyaga yamtuli kwa azimayi wana HIV/EDZI nambo soni akuweleka wanache?*
  - P: Reasons
  - P: Who should decide? (man/ woman /family /community or gov…)

2 Perceptions of HIV prevention services in antenatal care

- Here, do men usually accompany their wives to ANC? *Akuno achalume akusiwapechesyaga achiwamkwawo kusikelo jamsigo ndawi syosope?*
  - P: Why not? The place? Shameful?
  - (P: What is the role of the father when the wife is pregnant?)

- What services do you know are offered in ANC? *Ana achimanyi chikamuchisyo chachikusapelechedwaga kusikelo jamisigoko?*
  P: Are husbands welcome? What services are there for the husbands?
- How do you know this? *Akusaimanyilila uli?*
- What services related to HIV are there in antenatal care? *Ana chikamuchisyochi chachikusapelechedwaga kweleko chakwayana ni HIV?*
  P: (counselling, testing, medicine)
  P: Can the husband go to these services as well?

Many antenatal care centres offer HIV-testing and other services for both mothers and fathers. *Malo gejinji gakutendela sikelo ja misigo akusalingaga myasi ni kupeleka ikamuchisyi ine ni ine kwa achalume niachimmasyeto wakwe kuti alole naga wana HIV*. Still mostly it's only women using these services.

- Why do think it is so?
- How could fathers be involved better? Please give us some good ideas? *Ana achalume mpaka ajigale nawo chenene mbali china uli?*
  P: Could fathers here go to HIV couns+test with their wives in ANC?
  P: What good could it bring to get counselled together?
  P: What about getting counselled in groups with other fathers?
  P: Is ANC a good place for these services? Why / why not?
  P: How is it (taking part as a husband) different from STI-services?

3 Communication and decision making around HIV-testing

- Do men here usually talk to each other about HIV? *Akuno kuno achalume akusawechetanaga yakwayana ni ulwele wa HIV?*
- What kind of things do they talk? *Yapi yakusawechetanagayo?*
  P: Do you talk about issues concerning their own family?
  P: Who do you accept advice from?
  P: Who do you get information from?
- What if someone has HIV, who would he tell about it? *Naga mundu jwana HIV nduni jwakusamsalira kuti une jwana HIV?*
  P: Who would women /men tell?
- If one is HIV-positive, would he/she usually tell it to the other one (spouse)? *Naga jumo mwiwasa jwana EDZI akusiwalilaga wankwawo?*
  P: If not, why not? / If, why? (and still, why do some not tell)
  P: If not, how would the other one find out?
  Naga iai, jwinejo mpaka ayimanye uli?
- Do men usually discuss HIV/AIDS together with their wives? *Ana achalume walombere akusawechetana ngani ja EDZI pampepe ni achiwamkwawo?*
- What kind of thinsg do they discuss about HIV/AIDS? *Ana yindu yachi yakusakambilanaga yakwayana ni HIV/AIDS?*

- What are the reasons to discuss?
  - P: What reasons are there for NOT to discuss?
  - P: Is pregnancy a reason for or against?
- Who starts the discussions? *Akusatandisyaga wani yakambilanayo?*
  - P: Why / why not woman/ man. Explain and compare.
- Are these things you have told about the discussion the same or different than with STI? Why?
- If a woman wants to go to test, should she ask her husband? *Naga wakongwe akusaka kwala kulinjisya miyasi jawo kwakusosekwa alongole kwasalira wamkwawo?*
  - P: Can the man tell her not to go?
  - P: Is it (HIV testing) a private or a family matter?

4 Behavior

If in a family the woman has got HIV…

- What does the community expect from the husband? *Nambi wandu akusajembeya yantuli kutyochela kwa walumewo?*
  - P: Do they think the man will leave the wife? Why, why not?
  - P: How is it different if the woman is pregnant?
  - P: How is it different than if the woman has an STI?
  - P: Faithfulness?
- What can the man do to help and support his wife? *Nambi naga mwiwasa wakongwe wana EDZI, walume mpaka atende chichi pakwakamuchisya ni kwasamalira wankwawo?*
- Who else could support the wife? How? *Nambi wani wane mpaka wakamuchisye wakongwewo?*
- Who takes care of the children? *Nambi wanache akusiwasamalira wani?*

Story: I heard a story when I was in another town in Malawi, that a woman had gone to ANC, she was offered HIV-testing and decided to take it. She was HIV-positive. When she went home and told her husband, he told her to leave from the home.
Ndili m`musi wine wakwe napikene ngani kuti wakongwe wapiti ku sikelo ja msigo ni wasalire kuti akulingaga myasi kuti alole naga wana HIV ni wakundile kulinjisyako.Niwasimanikwe kuti wana HIV. Ali ayiche kunyumba nikwasalila wankwawo watesile kuti ajaje kumangwawo.

Can you explain me what made the man act like that (if it was here)? *Mpaka alongosolele chichatendekasisye kuti walume atende yeleyo? Nambi kukawe akuno?*

- In which situations is it acceptable for a man to leave his wife (here)? *Akunokuno mulitalachi walume ali wakundisidwa/wakwitichika kwaleka wamkwawo?*

- Could the man also have hit his wife? In which situations is it acceptable for a man to hit his wife (here)? *Walume mpaka wapute wamkwawo?Ndawichi jakuti walume mpaka watimbe wamkwawo?*
- What would the man do if he heard it from the neighbours? *Nambi naga walumewo ali ayipikene kwa wandu wakuwandikana nawo mpaka atende chichi?*
- What if the wife was not pregnant, how would it change things? *Nambi naga wakongwe ali wangali msigo, indu mpaka ichenje?*
- What if the man himself knew he had HIV, would it change the way he reacts? *Nambi naga walume waimanyi kuti wana EDZI, indu mpaka ichenje?*

Data entry initials	Data entry date	Data check intitals	Data check date

Questionnaire - Male involvement in safe motherhood study – Chichewa

Village name:		Interview code: _ _ _ _ _ _ _ _
Date:	Time:	Interviewer:

Consent: Ine dzina langa .Ndikugwira ntchito ndi agulu la kafukufuku la College of Medicine ya University of Malawi ndi University of Tampere,Finland. Pazaka zitatu zapitazi takhala tikuchita maphunziro okhuzana ndi udindo wa amuna pankhani ya uchembere. Cholinga chamaphunzirowa ndi kufuna kudziwa kuti kodi amuna amatengapo mbali yotani pofuna kupeza chithandizo cha mankhwala amayi akakhala oyembekezera, chifukwa zovuta akakhala ali ndi mimba ndi zoopsya. Tiyankhulana ndi amuna okwanira 400 am'dera la Malindi lino.Kuchezaku kuzitenga mphindi zokwanira makumi asanu ndi limodzi, ndiye pali mafunso okhudzana ndi Pakati komanso ndi Banja.

Ngati mukufuna kutenga nawo mbali simuli okakamizidwa kuti muyankhe mafunso amene mukuwaona kuti simungathe kuwatchula komanso mukhoza kuchoka mutafuna.Palibe chilango china chili chonse komanso palibe kupatsidwa malipiro pamapeto pake.Sitilemba mayina ndipo zonse zomwe munene zikhala zachinsinsi ndiponso zikagwira pantchito ya kafukufuku basi. K utenganawo mbali kuli kodzipereka.

Ndiye mukufuna kutenga nawo mbali pa maphunzirowa? [ ]inde [ ]iyayi

Kusaina kwa oyankha mafunso_____

Takambirana ndiofunsidwa mafunsoyu pamafunsowa ndiponso wavomeleza.

Ndiponso ndikuvomeleza kuti zonse ndizisunga mwachinsinsi. Kusaina kwa ofunsa mafunso _____

Eligibility: Married men with wives in reproductive age (15-49) with children below 5 years of age living permanently in the area

A. Background characteristics - Overall		
A01	Muli ndi zaka zingati? What is your age?	_____years
A02	Munabadwa chaka chiti? What is your year of birth?	☐ Year:____ ☐ -1 Don't know
A03	Ndinu okwatira pakali pano? Are you currently married?	☐ 1 Yes ☐ 0 No
A04	Muli ndi akazi angati pakali pano? How many (married) wives do you have (now)?	☐ 1 One ☐ 2 Two ☐ 9 Other, specify:
A05	Mtundu wanu ndi uti? What is your ethnic group?	☐ 1 Yao ☐ 4 Lomwe ☐ 2 Chewa ☐ 5 Tumbuka ☐ 3 Nyanja ☐ 9 Other, specify:
A06	Ndinu achipembedzo chanji? What is your religion?	☐ 1 Muslim ☐ 2 Christian ☐ 9 Other, specify

A07	Kodi mumatha kuwerenga Chichewa kapena chiyao? **Check with text** Do you know how to read in Chichewa or Chiyao?	☐ 1 Yes ☐ 0 No
A08	Kodi sukulu munnalekezera pati? **Tick AND mark grade with number** What is the highest level of schooling you have completed?	☐ 0 Did not go to school ☐ 1 Primary, grade _____ ☐ 2 Secondary, grade____ ☐ 3 Higher, specify
A09	Kodi akazi anu [oyamba]analekezera sukulu pati? **Tick AND mark grade with number** What is the highest level of schooling your (first) current wife has completed?	☐ 0 Did not go to school ☐ 1 Primary, grade _____ ☐ 2 Secondary, grade____ ☐ 3 Higher ☐ -1 Don't know
A10	Kodi mumakha la ku chikazi kapena kuchimuna? Do you live in the village of your kin or that of your wife?	☐ 1 Respondent's ☐ 2 Wife's ☐ 3 Both from same village ☐ 4 Elsewhere
SES and transport options – Tsopano ndikufunsani mafunso pango'no okhuzana ntchito komanso ndalama		
A11	Kodi ndalama mumazipeza bwanji kwenikweni? **Do not read out list, only ONE answer.** (Now I would like to ask a few questions related to work and money). What is your main source of income?	☐ 0 No own income ☐ 1 Fishing ☐ 2 Farming ☐ 3 Business (also selling fish) ☐ 4 Laborer ☐ 5 Tailor, handicraft ☐ 6 Piece work, ganyu ☐ 9 Other, specify:
A12	Kodi ndindani amene amapeza ndalama panyumba panu pano? **Do not read out list, mark ALL answers.** Who in your household earns money?	☐ 1 Respondent ☐ 2 Wife ☐ 9 Other, specify:
A13	Kodi amalamula kagwitsidwe kantchito ka ndalama panyumba panu pano ndindani? Who makes decisions on the use of household money in your household?	☐ 1 Respondent ☐ 2 Wife ☐ 3 Wife and respondent ☐ 9 Other, specify:
A14	Nthawi zambiri ndimayendedwe anji omwe mumagwiritsa nichito popita ku Malindi kapena ku Mangochi kuti mukapeze chithandizo cha mankhwala? **Do not read out list** **Mark ALL answers.** Which transport do you normally use, when traveling to health care in Malindi /Mangochi?	☐ 1 Own bicycle ☐ 2 Own car ☐ 3 Borrowed / rented bicycle ☐ 4 Borrowed / rented car ☐ 5 Walking ☐ 6 Public transport ☐ 9 Other, specify
Children and reproduction - Now I would like to ask questions about your children and your wives' pregnancies		
A15	Kodi muli ndi ana angati? **All live biological children** How many children do you have?	Number or children:_____
A16	Muli ndi ana angati[amoyo] ndi akazi muli nawowa? How many (live) children do you have with your current wife?	Number or children:_____
A17	Kodi mwana wanu wamng'onoyu ali ndi zaka zingati? How old is your youngest child?	Age of child: __years__months
A18	**Kodi pali mwana wanu yemwe...** **Has any of your children…**	
A	Anabadwa atamwalira? Been born dead?	☐ 1 Yes ☐ 0 No ☐ -1 not sure

B	Anamwalira mawiki six oyambirira atangobadwa? **died within the first six weeks after birth?**	☐ 1 Yes ☐ 0 No ☐ -1 not sure
A19	Akazi anu omwe muli nawowa ndi akale… Has your (current+ previous) wife / any of your wives ever…	
A	Anafunapochithandizo china chili chonse kuchipatala chokhudzana ndi mavuto apakati? Sought help for any health problems in pregnancy at the hospital?	☐ 1 Yes ☐ 0 No ☐ -1 not sure
B	Anafunapo chithandizo chokhudzana ndi mavuto apakati kwa Asing'anga ? Sought help for health problems in pregnancy at the herbalist / traditional healer?	☐ 1 Yes ☐ 0 No ☐ -1 not sure
C	Anayambapo abelekera kunyumba? Delivered at home?	☐ 1 Yes ☐ 0 No ☐ -1 not sure
D	Anayamba athandizidwa ndi Azamba pobereka Been assisted in delivery by the TBA?	☐ 1 Yes ☐ 0 No ☐ -1 not sure
E	Anayamba anyamulidwa kuchokera kumunzi nkupita kuchipatala panthawi yobereka ngati panali mavuto? been moved from home to hospital during delivery because of problems?	☐ 1 Yes ☐ 0 No ☐ -1 not sure
F	Anayamba abeleka kupyolera Opaleshoni? delivered through caesarean section?	☐ 1 Yes ☐ 0 No ☐ -1 not sure
A20	Kodi akazi anu ndi woyembekezera pakali pano? Is your wife currently pregnant?	☐ 1 Yes ☐ 0 No ☐ -1 Not sure

	B – Antenatal care	**Now I would like to ask you questions about antenatal care**
B01	Pamane akazi anu oyembe kezera anapitapo ku sikero ya azimayi oyombekezera? When your wife was last pregnant, did she attend ANC?	☐ 1 Yes ☐ 0 No
B02	**IF YES**: Ndindani anamula? ►**B04** **IF NO**: Kodi ndani anamula kuti asapite? **Do not read out list, only ONE answer.** Who decided about (NOT) going to antenatal clinic?	☐ 1 Wife herself ☐ 2 Respondent ☐ 3 Respondent and wife together ☐ 9 Others (specify):
B03	**IF NO:** Chifukwa chiyani sanapite kusikelo ya azimayi woyembekezera What was the reason for not attending ANC?	►**B09**
B04	Pamimba yapitayi… In your wife's last pregnancy…	
A	Kodi muna kambirana ndi akazi anu zonse zomwe zinachitika kusikelo? did you discuss what happened at ANC with your wife?	☐ 1 Yes ☐ 0 No ☐ -1 Not sure
B	Kodi manawapelekezapo akzi anu kusikelo? …did you ever accompany your wife to ANC?	☐ 1 Yes ☐ 0 No ►**B06**
B05	Kodkwenikweni munapita kukatani? **Do not read out list, only ONE answer.** What was the main reason for your visit?	☐ 1 Transport only ☐ 2 Family planning(condoms,advice) ☐ 3 STI Testing / treatment ☐ 9 Other, specify: ►**B07**
B06	Chifukwa chiyani simunawaperekeze akazinuwo? **Do not read out list, only ONE answer.** What is the reason, that you have not accompanied her?	☐ 1 No need to assist in transport ☐ 2 Not customary for men / ashamed ☐ 3 Not interested ☐ 4 Men not welcome at ANC ☐ 5 No services for men at ANC ☐ 6 No time, other duties ☐ 9 Other, specify:
B07	Kodi akazi anu anagwiritsa ntchito ndalama zingati pomwe anapita kusikero koyamba? What was the total cost of (your wife) visiting ANC (one visit)?	_____KWACHA **If 0 ►B09**
B08	Kodi ndalamazo anagwitsira ntchito yanji? **Do not read out list, mark ALL answers.** What was the money used for?	☐ 1 Transport to ANC ☐ 2 Food (outside home) ☐ 3 Fees at ANC ☐ 4 Costs if referred further from ANC ☐ 5 Medicine ☐ 9 Other, specify:
B09	Kodi mukuganiza kuti ndi nthawi yabwino yiti yomwe mzimayi woyembekera angayambe sikero koyamba? **Do not read out list, only ONE answer.** When do you think is the best time for a pregnant woman to visit the ANC clinic for the first time?	☐ 1 As soon as they notice the pregnancy ☐ 2 Time (of pregn.) _____ ☐ 3 When there are problems ☐ 4 Anytime during pregnancy ☐ -1 Don't know ☐ 9 Other, specify:
B10	Tiuzeni ubwino wopita kusikero ya azimayi woyembekezera? **Do not read out list, mark ALL answers.** What advantages of attending ANC can you mention?	☐ 0 There are none ☐ 1 Avoid complications in delivery ☐ 2 Examination / problems found ☐ 3 Get treated for STIs ☐ 4 Get treated for malaria ☐ 5 Get nutritious food ☐ 6 Get advise on delivery ☐ 7 Get advise on pregnancy / food ☐ 8 Guarantees better delivery help ☐ -1 Don't know ☐ 9 Other, specify:
B11	Ngati akazi wanu atamapita kusikero ya azimayi woyembekezera, kodi angakumane ndi mavuto	☐ 1 Yes, can still face problems ☐ 0 No, can not face problems

	panthawi yobereka kapena ayi?If your wife visits antenatal care, can she still face problems in delivery or she can not?	☐ -1 Don't know, not sure
B12	Kodi ndi ubwino wotani womwe ungapazeke kwa inu bamboo wakuti mkazi wake amapita ku kusikero? Nanga ndi zoipa zanji zomwe zingaoneke? **Do not read out list, mark ALL answers.** What advantages can there be for you as the husband of your wife attending ANC? What disadvantages can there be?	☐ 0 No advantage ☐ 1 Less worries / peace of mind ☐ 2 Save money ☐ 9 Other, specify
B13	**Do not read out list, mark ALL answers.** How do you think you as a husband best take part in antenatal care?	☐ 1 Don't need to take part ☐ 2 Encourage her to attend ☐ 3 Discuss with her about ANC ☐ 4 Assist in transport or escort ☐ 5 Accompany to the ANC rooms ☐ 9 Other, specify
B14	Ana akuganisya kuti azimayi wamisigo ni achiwamkwawo apocheleje chikamuchisyo ni malangiso ali apite kusikelo impepe? Do you think pregnant women and their husbands should receive services and advice at the ANC together?	☐ 1 Yes ☐ 0 No ☐ -1 Not sure ►**C01**
B15	**IF YES:** Chikamuchisyo chachi champaka wawo mpela walume mpaka apindule nacho? **IF NO:** Ligongo chichi? IF YES: What kind of services would you as a husband benefit from? IF NO: Why would you not wish to receive services together?	

C Health problems in pregnancy

Now I would like to talk about health problems in pregnancy.

Pano pali zithuzi zamavuto ena omwe azimayi woymbekezera angakumane nawo.
Show pictures one by one and say out the names

Here are pictures of some problems pregnant women may face.

Kuuma kwathupi/mutu waukulu. Fits, cramps
kutuluka magazi Heavy bleeding
Kumva mphepo Fever / Chills
Kusadza Persistent vomiting
Kutupa mikono ndi myendo.Swelling of hands and feet

		Chinyulunyulu /kambanga Fits, cramps	Damu Heavy bleeding	Kupikana mbepo mchilu Fever / Chills	Kutapika mwakupitilisya Persistent vomiting	Kuimba makono ni sajo Swelling of hands and feet
C01	Kodi akazi anu atapezeka ndi mavuto ngati awa ,kodi ndi kuti komwe mungawauze kuti apite akapeze chithandizo?**Show pictures one by one. Do not read out options.** **Tick ONE for EACH CARD** If your wife had these problems where would you advise her to seek care FIRST?					
A	Chipatala hospital					
B	Asing'anga traditional healer / herbalist					
C	Azamba TBA					
D	Other, specify					

C02	Pamavuto amenewa,ndi ati omwe mungafune chithandizo mwasanga ndiponso ndi ati omwe mungadikilepo pang'ono? **Show those pictures where marked 'hospital'** Which of these would need care as quick as possible and which could wait a bit longer (for example overnight)?					
A	Mwachangu. Quick as possible					
B	Kudikira pang'ono Could wait overnight					
C03	Ndi vuto liti lomwe lingakundandaulitseni kwambiri? **ONE!** Which of these problems would worry you most?					
C04	Nanga ndi chifukwa chiyani? Why (would this worry you most)?					
C05	Kupatula zovuta zimenezi… apart from these ones **(=other than those in the cards)**					
A	Mungathe kundiwuza mavuto ena amene azimayi woyembekezera angakhale nawo koma mukhoza kuwathetsera kumudzi komweko? Can you mention some health problems, which pregnant women can suffer but that you can manage at home?					
B	Mungathe kundiwuza zovuta zina zomwe zimapezeka kwa azimayi woyembekezera koma mukhoza kupeza chithandizo chabwino kwa a sing'anga? Can you mention some health problems in pregnancy where you get the best help at the traditional healer / herbalist ?					
C	Mungathe kundiwuza zovuta zina zimene azimay woyembekezera angakumane nazop koma mucosa kupeza chithandizo chabwino kuchipatala? Can you mention some health problems in pregnancy where you get the best help at the health centre or hospital?					
C06	Mungathe kundiwuza zifukwa zina zomwe zingapangitse kuti azimayi woyembekezera apeze mavuto wokhudza umoyo wawo? Can you mention some reasons why women can get health problems/complications in pregnancy?					

C07	Kutakhala kuti akazi anu akumana ndi mavuto ali woyembekezera, ndani kwenikweni amene **(e.g one the participant has mentioned earlier**) If your wife experienced a pregnancy complication (e.g **one from the cards the participant was familiar with)**, who would be the main person to…	Wife herself	Husband	Mother of husband	Mother of wife	Grandmother of wife	TBA	Anyone present	Other, specify	No-one	Don't know
A	Mungafune kuti apeze anthu ena kudzathandiza? find others to come to help?										
B	Kuti athandize?/kudwazika Assist / nurse her?										

C	Amulimbitse mtima? comfort her?										
D	kulamula kwakuti apite? decide where to go?										
E	kufuna transipoti? find transport?										
F	kufuna ndalama za transipoti/ kuchipatala? find money for transport / hospital?										
G	owaperekeza ku chipatala? accompany her to the hospital?										

C08	**IF MENTIONED ANY TASK FOR HUSBAND (C09), ASK**: Ndi ntchito yanji yomwe ingakhale yovuta panthawi imeneyi kwa inu? Chifukwa chiyani? What would be the most difficult task for you? Why? (What would make it easier?) ▶ D01

D – Delivery – preparations, role of husband, problems and costs Now I would like to talk about delivery preparations…		
D01	Kodi ndikofunika kwa inu monga mamuna wamn'yumba muno kukonzekera zanthawi yakubadwa kwa mwana akazi ali woyembekezera? Is there a need for you as a husband to make preparations for delivery when your wife is pregnant?	☐ 1 Yes ☐ 0 No ►**D03** ☐ -1 Don't know ►**D03**
D02	Kodi munakhonzekera bwanji ngati mamuna wakunyumba kuno mwana wanu womalizayu asanabadwe? **Do not read out list, mark ALL answers.** What preparations did you as a husband make before your last child was born?	☐ 0 Arranging wife to stay close to the hospital / at the hospital ☐ 1 Staying nearby home myself ☐ 2 Calling relatives to stay nearby / in the house ☐ 3 Saving money for transport ☐ 4 Saving money for hospital ☐ 5 Making arrangements for transport (not money) ☐ 6 Buying things for mother and baby ☐ -1 Don't know ☐ 9 Other, specify
D03	asanabadwe mwana wanu womalizayu , kodi….Before the delivery of your last born child did you…	
A	Munakambirana za malo wokaberekera ndi akazi anu? …discuss the place of delivery with your wife? XXX	☐ 1 Yes ☐ 0 No ► **D03 C** ☐ -1 Can't remember ► **D03 C**
B	Munakambirana kuti akaberekere kuti? Where did you plan she should deliver?	☐ 0 At home ☐ 1 Malindi hospital ☐ 2 Mangochi district hospital ☐ 9 Other, specify:
C	Munakambirana zodzachita ngati inuyo mutakhala kulibe panthawi yoberekayo? …discuss what to do if the husband was not present by the time of delivery ?	☐ 1 Yes ☐ 0 No ☐ -1 Can't remember
D	Munakambirana zodzachita ngati patakhala zovuta panthawi yoberekayo?…discuss what to do if there should come some problems during the delivery?	☐ 1 Yes ☐ 0 No ☐ -1 Can't remember

E	**IF ANY PLANS:** Nanga zimene munakambiranazo zinagwira ntchito panthawi yoberekayo? **IF NO PLANS:** Chifukwa chiyani simunakonzekere? IF ANY PLANS: Could you describe how your plans worked out by the time of delivery? (Or how they did not work out?) XXX IF NO PLANS: Why did you not make plans?	
D04	Pabanja panu ndi ndani amene amalamulira za malo wokaberekera? **Do not read out list, only ONE answer.** Who in your family decided the place of delivery?	☐ 1 Wife herself ☐ 2 Respondent ☐ 3 Both partners together ☐ 9 Other, specify
Then I would like to ask about delivery…		
D05	Kodi akazi anu mwana womalizayo anaberekera kuti? **If other, specify name AND type of facility** Where did your wife deliver her last born child?	☐ 0 At home ☐ 1 Malindi hospital ☐ 2 Mangochi district hospital ☐ 9 Other, specify
D06	Kodi pa nthawi imene akazi anu amabereka mwana womalizayo inuyo munali kuti? **Do not read out list, only ONE answer.** When your wife gave birth to your last born child, where were you at that time?	☐ 1 Waiting outside ☐ 2 At home ☐ 3 At work nearby (also farming) ☐ 4 With friends (talking, playing) ☐ 5 Fishing on the lake / working further away ☐ 6 Inside delivery room ☐ -1 Don't remember ☐ 9 Other, specify
D07	Kodi ndi udindo wanji umene mamuna ali nawo panthawi imene mkazi wake akubereka(kunyumba/kuchipatala) ndipo chirichonse chikuyenda bwino? (**ask according to where participant's wife delivered last!)** What is the role of you as the husband when the wife is delivering (at home / at hospital) and everything is going well?	
Perception of a good delivery place		
D08	Ndimalo ati amene mumawona kuti ndi abwino kuit akazi anu akachirireko? **Do not read out list, only ONE answer.** What do you consider as the most suitable place for your wife to give birth?	☐ 1 Home ☐ 2 Malindi hospital ☐ 3 Mangochi district hospital ☐ 4 TBA's place ☐ -1 Don't know ☐ 9 Other, specify:
D09	Chifukwa chiyani ? **Do not read out list, mark ALL answers.** Why?	☐ 1 Short distance ☐ 2 Cost not too high ☐ 3 Good quality of care (know what to do) ☐ 4 Friendly care ☐ 5 Can handle complications ☐ 6 Can send further in case of complications ☐ 7 Problem in previous delivery in another place ☐ 8 Good previous delivery in this place ☐ -1 Don't know ☐ 9 Other, specify

D10	**IF CHOSEN HOME DELIVERY:** Munasankha kuberekera kunyumba. Mungandiwuze kuyipa kwina kulikonse koberekera kunyumba kufananiza ndi kuchipatala**?** **IF CHOSEN DELIVERY AT HEALTH FACILITY:** Munasankha kuberekera kuchipatala. Mungandiwuze kuyipa kwina kulikonse koberekera kuchipatala kufananiza ndi kunyumba**?** IF CHOSEN HOME DELIVERY:You prefer delivery at home. Are there still some negative aspects of delivering at home when compared to hospital? IF CHOSEN HOSPITAL DELIVERY:You prefer delivery at hospital. Are there still some negative aspects of delivering at hospital when compared to home?	
D11	Mungandiwuzeko nthawi zimene munganene kuti ndikofunika kwambiri kuti mzimayi akaberekere kuchipatala? **Do not read out list, mark ALL answers.** Can you name some conditions or special situations where you think it is very important that the woman delivers at the health facility / hospital?	☐ 0 There are none ☐ 1 Long distance to nearest health centre / hospital ☐ 2 Previous Caesarean section ☐ 3 Other problems in previous delivery ☐ 4 Young mother ☐ 5 First pregnancy ☐ 6 Bad health status / disease of mother, specify ☐ 7 Problems in current pregnancy ☐ 8 Advised to do so by health personnel ☐ -1 Don't know ☐ 9 Other, specify:
Now I would like to talk about problems that may occur in delivery.		
D12	Ndi zinthu ziti zimene mukuzidziwa kuti zingabweretse mavuto panthawi yobereka?? **Do not read out list, mark ALL answers.** What factors do you know that can lead to problems in delivery?	☐ 1 Woman is young ☐ 2 Insufficient skills of attendant ☐ 3 Insufficient instruments / hygiene ☐ 4 Narrow birth channel ☐ 5 Baby lies abnormally ☐ 7 Witchcraft ☐ 8 Woman has bad health status ☐ 9 Other, specify:
D13	Kodi mungadziwe mwansanga kuti kuberekaku kulibe mavuto kapena kudzakhala ndi mavuto? Can you know beforehand if a delivery is going to go without problems or if there are going to be problems?	☐ 1 Yes ☐ 0 No ►**D15** ☐ -1 Don't know►**D15**
D14	Mungadziwe bwanji? How can you know?	
D15	(Ngati akuberekera kunyumba) Nidizizindikiro ziti zimene zingasonnyeze kuti kuberekako sikukuyenda bwino? **Do not read out list, mark ALL answers.** (If delivering at home) What signs can tell you, that the delivery is not proceeding well?	☐ 1 Long duration ☐ 2 Heavy bleeding ☐ 3 Woman is exhausted ☐ 4 Fever ☐ 5 Fits, cramps ☐ 6 No movements of child / no cry ☐ 7 Fainting ☐ 9 Other, specify

D16	Ngati akazi anu akuberekera kunyumba ndiye pali mavuto, Kodi ndi ndani weniweni…… **(for example one respondent has mentioned)** **Do not read out list, only ONE answer.** If your wife is delivering at home and there are problems, who would be the main person to	Wife herself	Husband	Mother of husband	Mother of wife	Grandmother of wife	TBA	Anyone present	Other, specify	No-one	Don't know
A	Angathandize / kapena kudwazika assist / nurse her?										
B	Anawalimbitse mtima? comfort her?										

C	Angalamule kopita? decide where to go?										
D	Angafune transipotii? find transport?										
E	Angawaperekeze ku chipatala? accompany her to hospital?										

D17	**IF RESPONDENT DECIDED (c)** Ndimaganizo andani amene mumagwiritsa ntchito polamula? **Do not read out list, mark ALL answers** Whose advice do you listen to when making the decision?	☐ 0 No one ☐ 1 Wife herself ☐ 2 TBA ☐ 3 Wife's mother ☐ 4 Respondent's mother ☐ 9 Others (specify):
D18	Ndiudindo wanji womwe mamuna ali nawo pamavuto amene achitika ngati mkazi wake waberekera kunyumba? Chifukwa chiyani? What is the most important role of the husband if there occur problems during the delivery at home? Why? XXX	
D19	Chingachitike ndi chiyani pofuna kuthandiza azimayi woyembekezera amene akubereka movutikira kumudzi? What can be done in the village to help women with difficult delivery?	
D20	Kodi ndi ziti zomwe munamva kuti zingathe kuchitika kuchipatala kuti athandize azimayi omwe amabereka movutikira? What have you heard can be done at the hospital to help women with a difficult delivery?	☐ 1 Caesarean section / operation ☐ 2 Instrumental delivery ☐ 3 Blood transfusion ☐ 9 Other, specify

Costs of delivery

D21	Mongoganizira, ndindalama zingati zomwe mungawononge …How much money would you approx. spend on…	
A	Poberekera kunyumba? On delivery at home (including all items)	A _____kwacha ☐ -1 Don't know
B	Poberekera ku chipatala? On delivery at hospital (including transport, hospital fees, items for baby and mother, NO OP)	B _____kwacha ☐ -1 Don't know
C	Pamatenda adzidzidzi? On obstetric emergency at maximum (transport to hospital and operation)	C _____kwacha ☐ -1 Don't know
D22	Pamiyezi statu yapitayi, ndindalama zingati zomwe mwawononga, mongoganizira? …. In the last three months, how much did you approximately spend on…	
A	Pazoval ndi nsapato zanu? Clothes, fabrics, shoes for you in the last three months?	A _____kwacha ☐ -1 Don't know
B	Pachithandizo chapamaliro? Funeral costs (all funerals) in the last three months	B _____kwacha ☐ -1 Don't know
D23	Kodi mumawona bwanji zoberekera kunyumba? Ndizodula, zodula kwambiri, Zotchipa, Kapena ndizotchipa kwambiri? How do you consider the costs of home delivery for you? Very expensive, expensive, cheap or very cheap?	☐ 1 Very expensive ☐ 2 Expensive ☐ 3 Cheap ☐ 4 Very cheap ☐ -1 Don't know
D24	Kodi mumawona bwanji zoberekera kuchipatala? Ndizodula, zodula kwambiri, Zotchipa, Kapena ndizotchipa kwambiri?? How do you consider the costs of hospital delivery for you? Very expensive, expensive, cheap or very cheap?	☐ 1 Very expensive ☐ 2 Expensive ☐ 3 Cheap ☐ 4 Very cheap ☐ -1 Don't know
D25	Kodi mumawona bwanji za kubereka mwadzidzidzi? Ndizodula, zodula kwambiri, Zotchipa, Kapena	☐ 1 Very expensive ☐ 2 Expensive

	ndizotchipa kwambiri?? How do you consider the costs of obstetric emergency for you? Very expensive, expensive, cheap or very cheap?	☐ 3 Cheap ☐ 4 Very cheap ☐ -1 Don't know
5 Post-partum period – health problems and care seeking		
D26	Ngati mzimayi wabereka, ndi udindo wanji umene mamuna ali nawo? After delivery, what is the role of you as a husband?	
D27	Kodi mungatchuleko zizindikiro zina mumasabata asanu ndi imodzi woyambirira mzimayi atangobereka zimene zingasonyeze kuti akufunikira chithandizo cha umoyo mwamsanga? **Do not read out list, mark ALL answers** Can you mention some signs in the first six weeks after birth indicating the woman needs to seek health care quickly?	☐ 1 Fever ☐ 2 Excessive vaginal bleeding ☐ 3 Smelly vaginal discharge ☐ 4 Dizziness, fainting, pallor ☐ 5 Backpain ☐ 6 Weakness ☐ 7 Stomach pain ☐ -1 Don't know ☐ 9 Others, specify
Information Now we have talked a lot about pregnancy problems…		
D28	Kodi mungafune kuti mudziwe zambiri zokhudzana ndi mavuto amene amchitika wokhudzana ndi pakati ndiponso nthawi yobereka ? Would you like to know more about pregnancy and delivery complications?	☐ 1 Yes ☐ 0 No ►**E01** ☐ -1 Don't know►**E01**
D29	Kodi mungakonde kuti uphungu muziwupeza kuti? **Do not read out list, only ONE answer!** Where would you prefer to get the information from?	☐ 1 Antenatal care ☐ 2 Hospital / health centre (not ANC) ☐ 3 HSA in village ☐ 4 TBA in village ☐ 5 Friends, relatives ☐ -1 Don't know ☐ 9 Other, specify
D30	Mungafune kudziwa chiyani, Chifukwa chiyani? What would you like to know about, why?	

E – Evaluation of service providers Now I would like to ask you one last question						
E01	Mukaganiza za malo onse amene azimayi woyembekezera angapeze chithandizo chokhudzana ndi umoyo wawo amene amapezeka mdera lino…..**Mention the places!** If you think about all the places where pregnant women can get help for health problems that you know here in the area …	TBA	Traditional healer herbalist	Mangochi hospital	Malindi	Other, specify
A	Ndikuti komwe munganene kuti azimayiwa amathandizidwa mwaulemu? Which place do you think the services is friendliest for pregnant women?					
B	Ndikuti kumene amuna azimayi woyembekezerawa amalandilidwa mwa ulemu? Which place is the service friendliest for husbands of pregnant women?					
C	Ndimalo ati amene mungapite mosavuta masana? Which place is easiest to get to in day time?					
D	Ndimalo ati amene ali wosavuta kupitako usiku? Which place is easiest to get to in night time?					
E	Ndimalo ati amene mungawononge ndalama zambiri? Which place would you spend most money on (total cost)?					

Thank you. Do you have any questions?

Theme guide - Women's interview (Male involvement in safe motherhood study)

Like we talked yesterday, in this interview we would like to hear your views and experiences related to complications and health problems in pregnancy, and especially how you see the role of your husband.
So, you are married? You have children? How old is your last born child? Were there some problems in her last pregnancy? (opening talk)

Can you tell us what happened as you see it from your point of view? From the very beginning when your wife got pregnant with her last born child, how did it go?

Health care seeking
- Discussion on where to seek care
- Decision on where to seek care
- Reasons/triggers to seek care (danger signs, time, start of delivery)
- Role of husband
- Knowledge base of husband/others – adequate?

Practical handling of pregnancy complications – preferred caretaker
- Care taking and nursing
- Comforting
- Accompanying
- Preferred role of husband – why?
- How would it have gone in the absence of the husband
- Transport, money – who is in charge – barriers???

Involvement of husband – satisfaction, needs and possibilities
- Main role of the husband
- Wishes for the role of the husband (in what way involved more?)
- Source of information – true / preferred
- What would men need to know
- Customs

+ Can you tell how you were prepared for problems in pregnancy?
- How worked out?
- Necessary? Satisfaction?
- Role of husband?

+ Can you tell us about how you choose the place of delivery in your family?
- How decided?
- Reasons for decision
- Disagreements
- Satisfaction

+ Can you tell us what happens after the baby is born?
- health problems
- decision to go to control
- role of husband
- satisfaction
- + Can you tell us how your husband is involved in antenatal care?
- decision
- accompany – why not
- satisfaction and wishes – what services would be good to take part?
- any advantages in taking part?

Theme guide - Men's interview (Male involvement in safe motherhood study)

Like we talked yesterday, in this interview we would like to hear your views and experiences related to complications and health problems in pregnancy. We want to hear how you see these issues as a husband. So, you are married? You have children? How old is your last born child? Were there some problems in her last pregnancy? (opening talk)

Can you tell us what happened as you see it from your point of view? From the very beginning when your wife got pregnant with her last born child, how did it go?

Health care seeking
- Discussion on where to seek care
- Decision on where to seek care
- Reasons/triggers to seek care (danger signs, time, start of delivery)
- Advise from others
- Own knowledge base – adequate?

Practical role of husband in pregnancy complications
- Care taking and nursing
- Comforting
- Transport, money
- Accompanying
- Treatment at the hospital
- How would it have gone in the absence of the husband

Involvement of husband – satisfaction, needs and possibilities
- Main role of the husband
- Most difficult role for the husband – what could help
- Satisfied with the role?
- Source of information – true / preferred
- What would you need to know
- Customs
- Feelings, worry

+ Can you tell how you were prepared for problems in pregnancy?
  - (how worked out, advantage, next time)

+ Can you tell us about how you choose the place of delivery in your family?
  - (where, who decides, reasons, adv/dis of home delivery, disagreements)

+ Can you tell what you have been told about what happens at the hospital?
  - (EMOC, operation, risks, advantages, reasons, next pregnancy, need to know more?)

+ Can you tell us what the TBAs and herbalists can help with?
  - (health problems in pregnancy, home treatment)

+ Can you tell us what happens after the baby is born?
  - (role of husband, health problems, post-partum check-up)

+ Can you tell us how you are involved in antenatal care?
  - (decision, accompany, advantages for husband, avoiding problems, wish to take part, how)

PUBLICATIONS

PUBLICATION I

Male involvement in antenatal HIV counselling and testing: exploring men's perceptions in rural Malawi

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Male involvement in antenatal HIV counseling and testing: Exploring men's perceptions in rural Malawi

Abstract

Antenatal care can act as an excellent tool to improve access to HIV counseling and testing services. This paper investigates an issue that may weaken its potential, namely lack of male involvement. We explored married men's perceptions of HIV in pregnancy and male involvement in antenatal HIV-testing and counseling in Southern Malawi through 11 focus group discussions and a cross-sectional survey (n = 388). The main findings were that men were largely unaware of available antenatal HIV-testing and counseling services, and perceived it overall problematic to attend female-oriented health care. Most men supported provision of antenatal HIV-testing. They perceived husbands to participate in the process indirectly through spousal communication, being faithful during pregnancy, and supporting the wife if found HIV-positive. Involvement of husbands was compromised by men's reluctance to learn their HIV-status and the threat that HIV poses on marriage. Men stressed the importance of prior spousal agreement of antenatal HIV-testing and considered HIV-testing without their consent a valid reason for divorce. We suggest that male involvement in antenatal HIV-testing requires refocusing of information and health services to include men. To avoid negative social outcomes for women, comprehensive and early involvement of men is essential.

Key words

Prenatal care; pregnancy; HIV; voluntary counseling; men; Malawi

Introduction

Antenatal care (ANC) services are widely recognized as one potential entry point for reaching out HIV prevention to the large (reproductive age) population groups in low-resource settings where HIV prevalence is high but most women attend ANC (Askew & Berer, 2003; UNAIDS, 2001; WHO & UNICEF, 2003).

The potential benefits of antenatal voluntary HIV counseling and testing (VCT) in Africa are undermined by the suboptimal acceptance of antenatal HIV-testing (Africa: 69% in 2005, 53% 2003, Malawi 45% in 2003) (Policy Project, 2004, Stover & Fahnestock, 2006). Furthermore, of those pregnant women who accept testing, a substantial number never return for results, interventions to prevent mother-to-child transmission of HIV (PMTCT), or antiretroviral treatment (ART) (dePaoli, Manongi & Klepp, 2004; Manzi et al., 2005; UNAIDS, 2001). Many who test HIV-positive don't disclose to their partners, thus hindering adoption of preventive behaviors and obtaining support. Pregnant women refrain from testing and disclosure out of fear of their partners' reactions, like accusations of infidelity, divorce, and violence (Antelman et al., 2001; Baiden et al., 2005; Bond, Chase & Aggleton, 2002; dePaoli et al, 2004; Farquhar et al., 2004; Gaillard et al., 2002; Heyward et al., 2003; Issiaka et al., 2001; Kilewo et al., 2001; Nebie et al., 2001; Semrau et al., 2005; Temmerman, Ndinya-Achola, Ambani & Piot, 1995).

In Malawi, the HIV-prevalence is 12% (National Statistics Office [NSO] & ORC Macro, 2005) with highest rates among young women. ANC attendance is high (93%), half of pregnant women receive antenatal HIV counseling and only 4% are tested for HIV. (NSO & ORC Macro, 2005). The Malawi government is actively expanding services. The

recommended antenatal routine includes VCT and encouragement to disclose results to partner or attend couple counseling (National AIDS Council [NAC], 2003).

Despite increased political focus on male involvement in reproductive health, implementation of gender-sensitive strategies is lagging behind (Greene & Biddlecom, 2000; Mbizvo & Bassett, 1996; Obermeyer, 1999; WHO, 2002). For antenatal VCT, male involvement can improve acceptance of VCT among women, reduce negative outcomes of disclosure to partner, and make ANC a cost-effective entry point for HIV-preventions into family and community (Kowalczyk et al., 2002; Stringer et al., 2004). Partner support and couple counseling have been associated with sexual behavior change favoring condom use, and improved ART compliance and infant feeding strategies (Farquhar et al., 2004; Kiarie, Kreiss, Richardson & John-Stewart, 2003; Msuya et al., 2008; Nebie et al., 2001).

Attempts to involve men in antenatal VCT have managed to attract only few husbands (Farquhar et al., 2004; Homsy et al., 2006; Semrau et al., 2005). Our community based mixed-method study gives new insights into the opportunities and obstacles for male involvement through focus on the male perspective and use of conceptual framework. While most male involvement research concentrates on urban environments and intervention settings, we have studied the often neglected rural populations. Our specific aims were to explore men's perceptions on HIV in pregnancy and on involvement of husbands in antenatal VCT.

Methods

Setting

The study was conducted in Mangochi District, Malawi, in eleven rural lake shore villages with 16,162 inhabitants. The dominant tribe is the traditionally matrilineal, and matrilocal, Yao, although nowadays, married couples may live in either the husband's or wife's village. The majority practices moderate Islam. Livelihoods come from fishing and subsistence farming and most women depend economically on their husbands (NSO & ORC Macro, 2005). The predominantly Islamic Mangochi district is similar to other districts in women's empowerment or male participation in health care, but education levels are lower (NSO & ORC Macro, 2005).

Antenatal VCT is available locally at Malindi missionary hospital and Lungwena government health center that provides VCT as part of a research project, and 20 kilometers away at Mangochi district hospital. ART is available at both hospitals and most women attend ANC. Antenatal VCT acceptability is high in the trial, but only 3% and 30% at Malindi and Mangochi hospitals respectively. Partner involvement is almost non-existing. The low VCT acceptability can be explained by insufficient ART and PMTCT infrastructure, human resources, and lack of community mobilisation. (Personal communication, regional PMTCT coordinator M. Kayamba, June 2006, and P. Ashorn, December 2006).

Design

We utilized a multi-method approach with eleven focus group discussions (FGD) and a cross-sectional survey (n=388) carrying equal weight. Our choice of methodology was based on the view that a study on a novel phenomenon, in this case male involvement, would benefit from different methods and contexts (Marshall & Rossman, 1995; Sandelowski, 2000). The FGDs and survey represented public and private contexts, and the survey enabled generalization of findings emerging in the FGDs (Sandelowski, 2000). Malawi College of Medicine Research & Ethical Committee granted ethical approval.

Data collection and analysis

Data collection between April and July 2006 comprised three phases: pilot test of tools, FGDs, and survey. Married men with spouses in reproductive age were eligible, and verbal informed consent was obtained individually from all prior to the study.

The 81 FGD participants were sampled purposively by one local research assistant aided by chiefs' counselors, anticipating demographic variability (Kitzinger & Barbour, 1999), though with modification based on convenience. Two local research assistants moderated the FGDs in Chiyao or Chichewa language in the participants' home villages. Six FGDs were held separately for young (15-19 years), adult (20-35 years), and old men (36-50 years), and five were mixed. The question guide covered perceptions of HIV in pregnancy, antenatal VCT, and male involvement. The principal investigator observed half of the discussions for evaluation of an influence of her presence. FGDs were tape-recorded, transcribed, and translated into English. All tapes were checked for incongruence with

translated text, and 15% were double transcribed and translated. No major discrepancies were identified. Data were analyzed by qualitative content analysis (Graneheim & Lundman, 2004) using Open Code software (Umeå University), considering young and old men's responses separately. Analyses and themes were discussed with co-researchers for credibility (Graneheim & Lundman, 2004).

The questionnaire was designed based on FGD findings, double translated into Chiyao and Chichewa, pre-tested, and administered by face-to-face interviews. Closed and open questions recorded socio-economic variables, knowledge, and perceptions of antenatal VCT and male involvement. To find eligible participants, systematic sampling of households with random start was applied. The required maximum sample size was 384 for the proportions to lie within 5% interval with 95% confidence (Lemeshow, Hosmer, Klar & Lwanga, 1990). Survey data was analysed using SPSS software (SPSS-Inc., Chicago). Missing responses (<1%) were excluded.

Results

Socio-economic characteristics and knowledge of HIV-prevention in pregnancy

Most FGD and survey participants were Yao fishermen without formal education. Their knowledge on PMTCT and antenatal HIV-related services was limited. Only 8,6% had ever accompanied their wives to ANC. The details are presented in Table 1.

Table 1. Socio-economic background characteristics and knowledge related to antenatal HIV-testing among married men in Southern Malawi participating in survey (n=388) and focus group discussions (n=81).

Characteristics of men and their knowledge related to antenatal HIV-testing	Survey (n=388)		FGD (n= 81)	
	n	(%)	n	(%)
Age, *median years [min-max]*	*31*	*[17-54]*	*27*	*[15-50]*
Tribe Yao [a]	315	(81.2)	71	(87.7)
Religion Islam [b]	313	(80.7)	71	(87.7)
Literate [c]	229	(59.0)	*n/a*	*n/a*
Education [d]				
None	122	(31.6)	24	(29.6)
Uncompleted primary school, 1-7 years	176	(45.6)	34	(42.0)
Primary school or higher, 8 or more years	88	(22.8)	23	(28.4)
Main source of income				
Fisherman	188	(48.5)	42	(51.9)
Businessman, vendor	73	(18.8)	15	(18.5)
Farmer	46	(11.9)	8	(9.9)
Tailor, handicraft	37	(9.5)	7	(8.6)
Other	41	(9.7)	9	(11.1)
No own income	3	(0.8)	0	(0)
Number of wives				
One wife	342	(88.1)	73	(90.1)
Two wives	46	(11.9)	8	(9.9)
Number of children [e]				
0	31	(8.0)	5	(6.2)
1-3	229	(59.2)	53	(65.4)
4-10	127	(32.8)	23	(28.4)
Wife currently pregnant [f]	44	(11.4)	*n/a*	*n/a*
Wife attended ANC in latest pregnancy [g]	353	(95.1)	*n/a*	*n/a*
Aware of MTCT	353	(91.0)	*n/a*	*n/a*
Aware of MTCT and PMTCT, at least one method	136	(35.1)	*n/a*	*n/a*
Awareness and utilization of HIV-related services in ANC [h]				
Aware of any HIV-related services at ANC	161	(41.5)	*n/a*	*n/a*
Aware of any HIV-related services at ANC targeted to pregnant women and their husbands	86	(22.2)	*n/a*	*n/a*
Ever accompanied wife to antenatal care services [i]	30	(8.6)	*n/a*	*n/a*
Ever attended any HIV-related services in antenatal care [i]	4	(1.1)	*n/a*	*n/a*

Note: Results are percentages of the total number of men in the survey and FGD unless indicated otherwise. n/a questions were not asked from FGD participants. ANC antenatal care. MTCT mother-to-child-transmission of HIV, PMTCT prevention of mother-to-child transmission of HIV.

[a] Other tribes: Nyanja, Chewa, Ngoni, Tumbuka, Lomwe.
[b] Other religions: Roman Catholic, Anglican, Pentecostal, small Christian denominations, Rastafarian
[c] Literacy was tested by letting the participant read a piece of text in his mother tongue
[d] Not included in the analysis: 2 unclear answers (n total 386)
[e] Not included in the analysis: 1 missing answer (n total 387)
[f] Not included in the analysis: 3 unclear or missing answers (n total 385)
[g] Not included in the analysis: 17 men, whose wife had never been pregnant (n total 371)
[h] HIV-related services include HIV-education, VCT, PMTCT, condom delivery and ART to mother at ANC
[i] Not included in the analysis: 35 men, whose wife had not attended ANC in latest pregnancy and 2 unclear answers (n total 351)

Perceptions of HIV in pregnancy

Most survey participants (79%) considered HIV a serious problem for pregnant women. In FGDs, men's perceptions of HIV in pregnancy concentrated around three themes: threefold burden on pregnant women, links to promiscuity, and women's vulnerability.

Three death sentences

FGD participants considered HIV as a threefold burden for pregnant women. Firstly, they viewed HIV as a disease without cure that destroys her health and peace of mind, and makes her dependent on others until she dies. Secondly, the community lays even harder sentence by gossip, and, sometimes, by segregating her. She would lose her status, having become an undesirable sex partner or wife. The shame and disrespect could even lead to suicide.

P5: If she comes from a poor background she has poor support. They treat her like an animal (...) P1: She lacks clothes since she has no means of getting them. P4: A man can't propose to her [for marriage or girlfriend] to support her, because he knows she has HIV. (FGD 6, adult/old)

Thirdly, men considered pregnancy, delivery, and HIV to aggravate each other's negative effects on the woman's health. They believed that pregnancy activates HIV, and HIV and the bleeding during delivery make a deadly combination. This was a prominent argument for why HIV-positive women should not bear children. For some, the baby's poor chances to survive made the whole concept of pregnancy meaningless.

For the woman to live longer she doesn't deserve to bear children. She loses blood during pregnancy and delivery. If she continues to give birth she can die, because children need blood in the womb and HIV also needs blood. (FGD8, adult)

Disease of promiscuity

In FGDs, men considered HIV in pregnant women to be an obvious result of promiscuity. They openly acknowledged husbands' promiscuity leading to transmitting HIV to their wives. Married women's promiscuity was discussed only after silence, indicating a taboo status. Promiscuity was explained by gender-specific reasons – for men by their uncontrollable sexual desires and their wealthy and mobile fishing life, for women by their greediness, unacceptable desire for multiple partners, and revenge on promiscuous husbands. Most survey participants (59%) considered HIV in married pregnant women to be transmitted from her husband.

Vulnerable women fighting a strange enemy

FGD participants considered women particularly vulnerable to HIV due to their limited income opportunities, forcing unmarried and married women alike to transactional sex. Women's poor knowledge of HIV increased their risk. Nevertheless, many, particularly older men were concerned on pregnant women's social problems more than HIV, setting HIV in the context of poverty, diseases, early pregnancies, and partner dependency. Many considered pregnant women's chances to prevent HIV as limited. Good diet, family support

and health care improved her life with HIV, while the alien nature of HIV, 'disease brought by foreigners', and the environment of secrecy and denial made things worse.

Some married women are not satisfied with their husbands. They have sex in the bush when coming from maize mills and hospitals if you haven't given her money. They are enticed by men who have money. (FGD 6, adult/old)

Perceptions of husbands' involvement in antenatal VCT

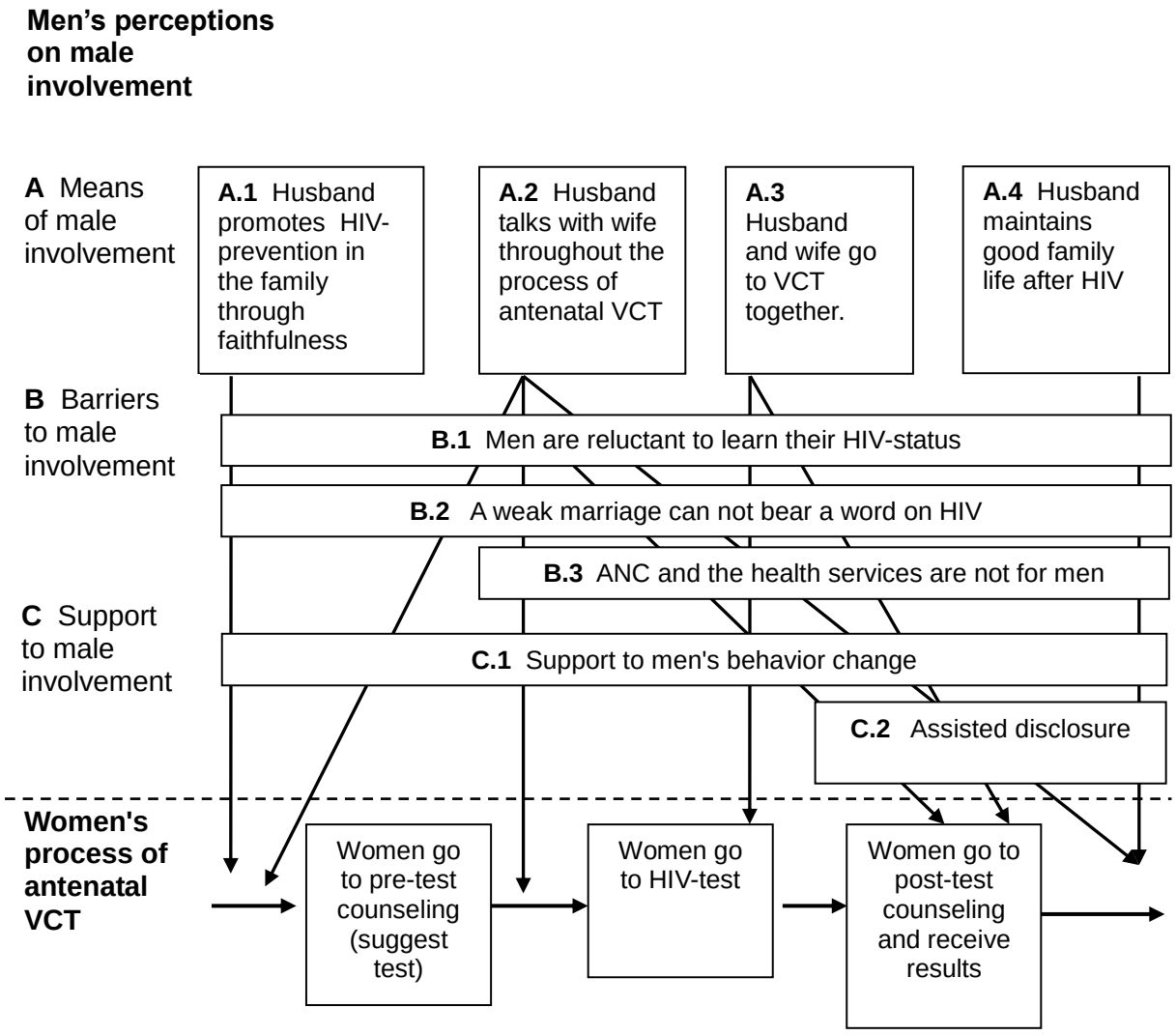
Most survey participants supported provision of antenatal VCT, but only few perceived husbands to benefit directly (Table 2). How men perceived their involvement in the antenatal VCT process is shown in the conceptual framework (Figure 1) as FGD themes and categories.

Table 2. Perceptions of provision of voluntary HIV counseling and testing services in antenatal care by married men in Southern Malawi (n=388).

	Men's response	
Questions	n	(%)
Support to provision of VCT in antenatal care		
Supports	300	77.3
Does not support	36	9.3
Unsure	52	13.4
Perceived benefits of VCT in ANC [a]		
Woman gets to know her HIV status	159	57.4
Baby can be protected from HIV	62	22.4
Health personnel can better assist the woman	55	19.9
Women will not transmit HIV further to men	42	15.2
Husband and wife can be protected from HIV	34	12.3
Knowing baby's status helps planning in the family	21	7.6
Other	10	1.8

[a] not included in the analysis: 88 men, who were against provision of VCT or unsure (n total 300). This was an open question with multiple responses and hence the percentages add up to more than 100%.

Figure 1. Conceptual framework of men's perceptions of husbands' involvement in the process of antenatal HIV-testing, based on themes and categories from focus group discussions with men in Southern Malawi (n=81).



Means of male involvement

FGD participants considered husbands to be mainly indirectly involved in antenatal VCT. Four categories were identified (Figure 1).

Men underlined husbands' responsibility to prevent HIV during pregnancy by means of faithfulness and advising the wife on the same (A1, Figure 1), while condoms were barely

mentioned. Husbands' responsibility and right to advise were ascribed to his status as the clever family head but also to his promiscuity. Both spouses could also give advice out of love.

Secondly, husbands were closely involved through spousal communication (A2). In the survey, 90% agreed that the wife should consult her husband before HIV-testing, and equally many reported they would consult their wives. FGD participants emphasized the importance of prior agreement of antenatal HIV-testing. Testing without husband's consent was equivalent to abandoning the code of sharing and respect in marriage, and could lead to divorce and inability to disclose results. Controversially, hiding the results could also mean divorce. Men considered HIV issues to be secrets for wife and husband only. Pregnancy could not trigger discussion on HIV.

[Commenting on story of husband leaving his pregnant wife who discloses HIV-positive results] P3: He left her, because she didn't have his consent before testing. P8: Yes, she belittled him when she didn't tell that she is going. (…) P5: Because in the house you do things in an agreeable manner. She went on her own without consulting him. She showed no respect. (FGD 12, young)

FGD participants said that husbands were best involved in antenatal VCT through couple counseling (A3), which gave the couple hope, encouragement to stay faithful, better understanding of the information and a fair basis for planning the future. Receiving positive results alone could result in unfair blame and divorce. Similarly, most survey participants (72%) preferred to receive advice on HIV with their wives, 14% with male peers, and 13% alone.

Lastly, the husband was involved if the pregnant wife was found HIV-positive (A4). For most survey participants, involvement meant being openly informed and taking the HIV-test (Table 3). FGD participants focused on how the husband gives material support, love, and comfort to his wife. Despite family pressure he should continue the marriage, stop having children to protect her health, and accept condom use or abstinence. Having another sex partner could help the marriage last.

Table 3. Views of married men in Southern Malawi (n=388) on how the husband should be involved if his wife is found HIV-positive in antenatal care.

	Men's response	
Questions	n	(%)
Informing the husband on HIV-positive results		
Wife should openly inform the husband	207	56
Health personnel should assist in informing the husband	44	12
Wife should inform the husband if their relationship is good	23	6
Husband can not be informed	4	1
Roles of husband at hospital		
Goes to HIV-test	156	42
Follows advice from the health personnel	52	14
Gets counselled and/or tested together with wife	27	7
Roles of husband at home		
Gives material support and makes future plans	45	12
Comforts and encourages wife	33	9
Is faithful	18	5
Uses condoms when having sex with wife	15	4
Abstains from sex with wife	6	2
It is up to the husband to be involved or not	9	2
Other ways	2	1

* This was an open question with multiple responses and hence the percentages add up to more than 100 %.

Barriers to male involvement

Firstly, men's non-involvement was explained by a reluctance to learn one's HIV-status, grounded in the fear of HIV, shame, divorce and losing hope, feeling of no risk, and men's stubborn nature (B1). Particularly older men distrusted the confidentiality, and some mentioned avoidance of the burden of care.

Secondly, men explained that a weak marriage undermines the whole concept of male involvement (B2). Without love and faithfulness, talk about HIV could only lead to husband denying his wife the test, unhappy marriage, or divorce. Of the survey participants, 39% reported never having discussed HIV with their wives. They justified it by not being at risk of HIV (39%) or no time or interest (37%).

Thirdly, men perceived health services, including ANC, as women's area, and shameful for husbands to attend (B3). Men were portrayed as second level customers who could only attend when ill, while pregnancy justified women's attendance. Furthermore, men who accompanied their wives to ANC were ridiculed by their peers for being jealous.

But brother, it's difficult. We men don't get pregnant. We just make women pregnant. Women are the ones who carry the burden. So for us men to go there [hospital] for an HIV-test, that's the hardest thing (FGD 13, adult)

Support to male involvement

FGD participants raised two aspects that facilitate husbands' involvement (Figure 1). First, men would benefit from support and knowledge-sharing among male peers and guidance from elders not to rush into violence or divorce because of HIV (C1). Second, if disclosure of HIV-positive results to partner was assisted by health personnel, family or friends, less divorces would occur, and more husbands would test (C2).

She fears the husband will divorce her straight away when told about HIV. However, as the wife's protective method she may disclose to the husband's close friend (…) who finds ways of telling him, so it doesn't result in divorce although he [husband] is very difficult. (FGD 11, adult/old)

Discussion

Positive impacts of partner support on adherence to PMTCT and ART, and the use of ANC as an entry point for HIV-prevention into the community remain largely underutilized opportunities (Farquhar et al., 2004; Kiarie et al., 2003; Kowalczyk et al., 2002; Nebie et al., 2001; Stringer et al., 2004). Lack of male involvement thus undermines the potential benefits of antenatal HIV-prevention efforts. Our rural community-based data shows that extremely few men accompany their wives to antenatal VCT. Similarly, in previous studies in Malawi, women reported lack of male attendance, and hoped for more involvement (Tadesse & Muula, 2004; Tadesse, Muula & Misiri, 2004). In our study, men were indirectly involved through communication, material and mental support, reflecting the gender dividend context, where husbands attending antenatal VCT would cross too many barriers in marriage, society and health care.

The difficulty of involving men in antenatal VCT has been obvious in interventions attempting it (Farquhar et al., 2004; Homsy et al, 2006; Semrau et al., 2005). In our study, most men cared for their wives' health and supported provision of antenatal VCT - both important prerequisites for successful male involvement. Yet, three clear obstacles for male participation are found: Men's limited knowledge on PMTCT, reported previously by others (deGraft-Johnson, Paz-Soldan, Kasote & Tsui, 2005; NSO & ORC Macro, 2005); Men's relative unawareness of antenatal VCT, such that most men have poor understanding of the connection between HIV prevention and ANC; and men's perception of health services as female oriented.

Our study provides insights on how to involve men in antenatal VCT. First, we suggest that the current approach, where pregnant women are responsible for involving their

husbands, is inadequate. Evidence shows that, without extensive community mobilization, even proper antenatal HIV counseling emphasizing partner notification does not suffice to attract men (Homsy et al, 2006; Semrau et al., 2005). The mediocre effectiveness of partner notification of other sexually transmitted diseases (Moyo et al., 2002; Nuwaha, Kambugu, Nsubuga, Hojer & Faxelid, 2001) suggests similar limitations of the approach. We argue that men need targeted information and support to enable informed choice on VCT participation and skills to support their wives. Our study participants suggested FGDs as a feasible tool to empower men and community leaders to play their supportive roles more effectively.

However, truly acceptable services for couples require a comprehensive reorientation of services towards both sexes. Currently, midwives in Malawi are not prepared to involve men (Misiri, Tadesse & Muula, 2004), and reproductive health services beyond VCT are claimed to exclude men (Greene & Biddlecom, 2000; Mbizvo & Bassett, 1996; Obermeyer, 1999; WHO, 2002).

In our study site, that is characterized by male dominance in spousal decision making (Ashorn, 2003; Miller, Zulu & Watkins, 2001), HIV-testing without agreement is considered a valid reason for divorce. This indicates that adverse social outcomes may relate to neglecting involvement of husbands prior to testing. Low education levels, weak ART and PMTCT infrastructure, and perhaps culture including Islamic customs may partly explain these strong attitudes in our setting. However, previous studies among women indicate a similar necessity of spousal approval in Christian and urban contexts (Baiden et al., 2005, Bond et al., 2002, Mlay et al., 2008). Also, poor PMTCT coverage and human resource constraints compromise antenatal HIV prevention efforts in many rural areas in Africa (Stover & Fahnestock, 2006).

Our data supports studies (deGraft-Johnson et al., 2005; Schatz, 2005; Tadesse et al., 2004, Kowalczyk, 2002, Baiden et al., 2005) that recommend early male involvement and promotion of spousal communication on HIV-testing, particularly in settings with limited autonomy of women (Mbizvo & Bassett, 1996; Morin et al., 2006). Therefore our second consideration concerns the innovative quick approaches in antenatal VCT that focus on removing accessibility barriers by rapid tests (Pronyk et al., 2002), mobile clinics (Morin et al., 2006, Pronyk et al., 2002) and including VCT in delivery services (Homsy et al., 2006). The success in increasing utilization with seemingly few negative social impacts suggests that pre-test counseling and ample time for decision making are outdated components of antenatal VCT (Obermeyer & Osborn, 2007), but in contexts with limited female autonomy the reverse may be true.

A third consideration concerns the recent policy developments towards mandatory antenatal HIV-testing in Malawi (Plusnews article on December 24, 2007). While the need to increase VCT in Africa is obvious, our findings, in line with others (Csete, Schleifer & Cohen, 2004), raise the concern that pregnant women, when learning their HIV-status in presence of stigma and absence of treatment or husband's approval, may face stress or violence. While some suggest that women should be empowered to decide on antenatal VCT alone (Semrau et al., 2005), others argue that approaches that bypass the women's social context, can lead to not truly voluntary consent (Fylkesnes, Haworth, Orne-Glieman and Desgrées-Du-Loû, 2008; Rosensvärd & Kwapa, 1999). Our findings suggest that mandatory testing might lead to negative social outcomes, like divorces, unless male involvement and community sensitization is given priority. For achieving truly voluntary consent, adherence to therapies and sexual behavior change, we recommend comprehensive approaches, like

routine antenatal consultations for couples. This approach would also help men to attend health care without being stigmatized. Another way forward could be strengthening couple counseling services outside ANC (Msuya et al., 2008).

Conclusion

Successful implementation of universal HIV counseling and testing programs in antenatal care necessitates male involvement. To avoid negative social outcomes of antenatal VCT for women in settings where men dominate decision making, early involvement of men is essential. Involving men requires information targeted at men and reorientation of health services toward both sexes.

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PUBLICATION II

Men's Perceptions of Delivery Care in Rural Malawi: Exploring Community Level Barriers to Improving Maternal Health

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MEN'S PERCEPTIONS ON DELIVERY CARE IN RURAL MALAWI: EXPLORING COMMUNITY LEVEL BARRIERS TO IMPROVING MATERNAL HEALTH

ABSTRACT

In this cross-sectional survey with qualitative components (n 389) we explored how husbands perceive delivery care in rural Malawi.

Most husbands decide on maternal health care seeking, confide in antenatal care and prefer institutional delivery. Men acknowledge that their unfaithfulness and violence can harm the pregnancy. Most husbands feel responsible for birth preparedness, but poor availability and unforeseeable transport costs hinder care seeking in pregnancy complications.

Our findings suggest that innovative birth preparedness and transport interventions that involve men, as well as extension of antenatal care services to men can help overcome obstacles in improving maternal health at community level.

While maternity and reproductive health is traditionally considered to be a female domain, male involvement is increasingly highlighted as an important but neglected means for improving reproductive health of both men and women. Male involvement has been shown to be associated with increased use of skilled attendance at birth, contraceptive use, sexual behaviour change favouring condom use, better infant feeding strategies and antiretroviral treatment compliance in the context of maternal HIV (Mushi, Mpembeni & Albrecht, 2010; Farquhar et al., 2004; Msuya et al., 2008; Islam, Padmanas & Smith, 2006). Researchers in male involvement have, with few exceptions (Cham, Sundby & Vangen, 2005; Amooti-Kaguna & Nuwaha, 2000) usually taken the viewpoint of women (Carter, 2002). In our study we wish to utilise men's

perceptions to understand how husbands are and could be part of improving maternal health and reducing maternal mortality. Our focus is on those public health relevant dimensions of pregnancy and childbirth where involvement of men could potentially improve maternal health outcomes.

BACKGROUND

Men and the challenge of making motherhood safe

For the first time, there is now a declining trend in maternal mortality in Africa, which has been attributed to declining family size, higher age at marriage, declining fertility and improvements in nutrition and education of women (UNDP, 2011). However, women in Africa still face the world's highest, 1 in 22 lifetime risk of maternal death, mostly due to hemorrhage and other causes that could be prevented by access to appropriate health care, in particular to emergency obstetric care (UNICEF, 2007). Researchers in various cultural contexts have suggested that male involvement influences reproductive health outcomes for women mainly through women's dependence on financial and other support of their husbands to attend reproductive health services (Singh, Bloom, & Tsui, 1998; Amooti-Kaguna & Nuwaha, 2000).

Men's role and practices in pregnancy and childbirth have been studied little, when compared to other areas of reproductive health (Dudgeon & Inhorn, 2004). A few important exceptions in Africa are a study in Nigeria, where limited birth preparedness and participation by men in a patriarchal society was reported, and a study in Uganda in which spousal influence was identified to be among the main factors affecting the choice of delivery place (Iliyasu, Abubakar, Galadanci & Aliyu, 2010; Amooti-Kaguna & Nuwaha, 2000). Gabrysh and Campbell (2009) found that women's use of maternal health services was associated with higher education of the husband, probably due to educated men's positive attitudes towards modern health care, wider knowledge on benefits of skilled attendance at birth and perhaps less restriction to wife's movement. Furthermore, the high level of intimate partner violence during pregnancy in Africa (Shamu, Abrahams, Temmerman, Musekiwa, & Zarowsky, 2011) is a health and social risk that has implications for any male involvement program.

Men's potential influence on maternal mortality can be conceptualised through the three delays model leading to maternal mortality by Thaddeus and Maine (1994). The two first delays at community level, namely the delay in decision making on health care seeking and the delay in reaching the appropriate level of care are among other factors influenced by husbands' attitudes and practises. The complete picture of factors influencing maternal health includes the social, economical and educational balance within the couple and larger family (Beegle, Frankenberg, & Thomas, 2001). Thus, although our study concentrates deliberately on the husbands, our findings must be interpreted in their socio-economic and cultural context that determines maternal health seeking behaviour (Stephenson, Bashieri, Clements, Hennink, & Madise, 2006).

The Malawi context of safe motherhood

Malawi's maternal mortality ratio at 807 / 100,000 life births is among the world's highest, although it now shows a promising, slightly declining trend. On the positive side are Malawi's antenatal care (ANC) attendance of 97% and contraceptive prevalence of 42% (modern methods), but challenges remain in reducing teenage pregnancies and HIV, and increasing skilled attendance at birth from the current levels at 73%. (Government of Malawi, 2010; UNDP, 2011, National Statistical Office [NSO] & ORC Macro, 2011). Also, the met need for treatment of emergency obstetric complications is currently very low, around 20%, and the geographical distribution of emergency obstetric services is uneven. (Kongnyuy, Hofman, Mlava, Mhlango, & van den Broek, 2009; Leigh, Mwale, Lazaro, & Lunguzi, 2008). At community level maternal health suffers from poor access to essential health services, weak community involvement and cultural practises, which encourage early marriages and discourage use of modern contraceptives and delivery with skilled assistance. The country is unlikely to meet its MDG targets in improving maternal health and gender equity (Government of Malawi, 2009).

Cultural values that favour men over women prevail in Malawi and gender inequalities in accessing productive resources, decision making and illiteracy are considered significant (Government of Malawi, 2010). The Malawi Demographic and Health Survey (DHS) (NSO & ORC Macro, 2005) showed that only one third of women think they have a final say on their own health care. Women who were more empowered, were generally somewhat more likely to receive health care during pregnancy, delivery, and the postpartum period. Men in Malawi were not very knowledgeable on obstetric complications - two in three men could not mention any danger signs. Men identified their own lack of knowledge on the importance of delivery care as the main reason why their wives did not receive pregnancy or delivery care, together with long distance and transport challenges (NSO & ORC Macro). This indicates that men are key persons in improving maternal health in the country.

Malawi has responded to the challenges in maternal health by developing a Safe Motherhood Roadmap, which suggests as one of the solutions empowerment of communities to ensure a continuum of care between the household and health care facility and strengthening the role of men in ensuring timely referrals (Ministry of Health, 2007). Also, health care in the country may not yet be geared to male involvement, as shown by a study in Blantyre that reports that midwives are not ready to accept men in antenatal care (Misiri, Tadesse, & Muula, 2004). Our study aims to assist the country in its efforts by improving the knowledge base on men's perceptions.

METHODS

This descriptive study investigates different public health relevant aspects of men's perceptions and involvement in delivery care by means of a cross-sectional survey on 389 men. The survey includes

qualitative elements in appropriate sections to give a more complete picture of the study question (Sandelowski, 2000). Ethical approval for the study was granted by Malawi College of Medicine Research & Ethical Committee.

Study area and population

The data collection was carried out in November-December 2006 in the semi rural area between the Mangochi District hospital and St. Martins hospital on the Eastern shore of Lake Malawi. The study area comprised of 26 villages, with a total population of 22,542 people, that lie within a 10 km distance from either of the hospitals. The main tribe is the traditionally matrilineal, and matrilocal, Yao, but nowadays, married couples may live in either the husband's or wife's village. Islam is the predominant religion. Fishing and subsistence farming make the most important livelihoods and it is common that women are economically dependent on their husbands. When compared to the rest of the country, Mangochi district does not differ from other districts in women's empowerment scores or in men's involvement in health care, but education levels of both men and women are the lowest in the country (NSO & ORC Macro, 2005).

Study sample

Participants were ever married men whose wives were in reproductive age (15-49 years) and had been pregnant within the last 5 years. While the 5-year interval is commonly considered sufficiently short for memory bias on this type of data. Further analysis revealed that 59% of the respondents had children below 2 years of age and thus have very recent experience of pregnancy and childbirth. However, when interpreting the figures, one must note that fathers often report differently than mothers in this type of questions (NSO & ORC Macro, 2005).

The study was carried out during the rainy season. Six villages near and six villages far from the tarmac road were randomly selected in order to have a representative sample for the area in terms of access to health services. Based on an estimate that 15% of the households would not have eligible respondents present, every 4^{th} household in the selected villages was visited. Systematic sampling with random start was applied and the first eligible member in the household was interviewed. If no eligible member was identified, the next household was visited. The total sample size was 389. The required maximum sample size was 384 for the proportions to lie within 5% interval with 95% confidence (Lemeshow, Hosmer, Klar, & Lwanga, 1990).

Data collection and analysis

Local male research assistants verbally administered the questionnaire in the local languages Chiyao and Chichewa. Written informed consent or fingerprint was obtained from all participants prior to the survey. The structured questionnaire was pre-tested, translated into local language and backtranslated to ensure data

quality. It contained closed and open-ended questions on men's perceptions on and involvement in antenatal care, birth-preparedness, choice of delivery place, obstetric complications, delivery care and post-partum care. The narrative responses to open-ended questions were recorded and translated into English by the research assistants as part of the oral administration of the questionnaire, and discussed with the researcher on the day of the interview.

All data was entered into Excel software (Microsoft), and all entries were double checked and cleaned. SPSS software (SPSS-Inc., Chicago) was used to count simple frequency distributions for the variables in interest. Missing responses accounted for less than 2% of all answers and were included in the analysis of each question. Open-ended questions with narrative responses were analysed with qualitative content analysis. The manifest content of the narrative answers was divided into meaning units and coded, then codes were grouped into categories with a continuous process of going back and forth between the categories, codes and the original translations to verify the groupings and linkages, which constitutes the analytical work. (Graneheim & Lundman, 2004). 22 questionnaires (5,7%) got lost before entering the open-ended data and these questionnaires are excluded when presenting the open-ended data and these questionnaires are excluded when presenting the open-ended data. The lost questionnaires did not differ from the rest in terms of background characteristics of the respondents, and are therefore not considered to distort the results.

RESULTS

We have looked into men's perceptions of and participation in those dimensions of maternal health where male involvement can potentially bring benefits for public health, namely in antenatal care, birth-preparedness, choice of delivery place, obstetric complications, delivery and post-partum period. Supplementary qualitative findings, if available, are presented after the quantitative results in each sub-chapter.

Respondents' background characteristics

Most respondents were illiterate fishermen or small scale businessmen. Their detailed socio-economic characteristics are summarised in table 1. Education of the wife, her use of maternal health services, family decision making on household money and transport to health care are presented here to deepen the description of the context. The respondents wives had very low levels of education. Only 3,9 % had completed primary school, while the rest had not attended school at all or had not completed. Use of modern health care during pregnancy was common. Almost all (99,2%) reported that their wife attended ANC in her last pregnancy. Two thirds (62,1%) of the last deliveries had taken place at the hospital, 33,8% at home and 4,1% elsewhere - at the traditional birth attendant's (TBA) place, on the way to the hospital or at the wife's maternal home. One in seven (14,7%) reported that their wife had sought herbalist care for

pregnancy problems. The majority of the respondents saw themselves as the main decision makers on household money use: 60,9% made decisions alone and 27,8% with their wife. In 11,1% of the cases, the decisions were made by the wife and in only one case (0,3%) by others.

Geographical accessibility of health services in our study area was very good. All the villages were located within 10 km from a hospital with antenatal and emergency obstetric services and many villages had good access via the lake or a tarmac road. However, only one in ten (9,5%) respondents reported having access to emergency transport 24 hours a day by a car or a boat. The various transport options to health care are presented in table 1.

Antenatal care – Men appreciate the services, but do not attend

Men were very positively minded towards provision of ANC services for pregnant women. Most men were aware of the medical benefits of the ANC services (table 2). However, it is concerning how many respondents (60,7%) falsely believed that attending ANC safeguards the woman from pregnancy and delivery complications.

Attending ANC did imply costs for the family and husband, although ANC is free in Malawi, and all the clinics in the study area run free services. Most men reported that there are expenses related to food, transport, ANC passport and ANC fees. Very few mentioned further costs related to buying medicine or paying for referrals, and only 8,6 % considered that there are no costs involved. The estimated cost of one ANC visit was USD 1,4 (USD 0-24, median and range). Despite the costs, almost all husbands insisted their wives to attend ANC.

The husbands themselves were involved in ANC by deciding on their wife's attendance, encouraging her attendance and providing transport, but very few had themselves actually accompanied their wife to the ANC clinic in order to receive services (table 2). To understand men's non-attendance, we analysed responses of men who did not accompany their wife to ANC neither for transport nor to receive services (n 142). The main reason for men to stay away was that they prioritised other duties higher (57%). Some mentioned that there was no need to assist in transport (19%, n 27) or gave cultural or personal reasons (9,9%), such as being ashamed to go or that it is not customary for men to attend ANC. Few had no interest to attend (5,6%) or felt that ANC has nothing to offer men or does not welcome men (4,2%).

Although very few men personally attended ANC, almost all felt that they got benefits of their wives' ANC visits as secondary beneficiaries. The main advantage for the husband was decreased worry about the health of the wife and baby, reported by 93,6%. Few mentioned saving money, treatment for sexually transmitted infections (STI), malaria prevention, knowing the delivery date, knowing what happens at ANC, being praised for loving the wife, getting help in transport, getting advice on nutrition and other aspects of pregnancy and baby care. Two thirds of all husbands (66,8%, n 258) reported that in the future they would be interested to personally attend ANC with their wives.

Qualitative data elaborated on what men expect to gain if they were to personally attend ANC: Men hoped firstly to learn about family planning, secondly about the care of the mother and baby - such as treating small ailments, recognising complications, counting the delivery date, preparing for delivery - and thirdly about issues related to sexual life, such as how to stay faithful and when to abstain.

Birth preparedness – Men understand the severity and causes of danger signs

Knowledge of danger signs is a prerequisite for making sound decisions on maternal health seeking. We studied men's perceptions with local ANC picture cards that presented five danger signs: heavy bleeding, convulsions, fever, persistent vomiting and swelling of hands and feet. Almost all respondents (94,9% or more) reported that they would seek help at hospital or health centre if a danger sign presented itself, except for in case of convulsions, where almost one third (29%) would primarily seek help at the traditional healer. Many respondents considered convulsion to be caused by witchcraft. Almost all respondents (93,3% or more) would seek help at the hospital the same day for bleeding or vomiting and four in five (81,2% or more) for fever and swelling.

Besides danger signs, most men in our study (84,3%) could currently mention one or more causes of health problems in pregnancy (table 3). Their responses reflected a mixed medical and supernatural understanding of illness, and were grounded in a social reality of poverty, poor nutrition and frequent pregnancies. Men also commonly mentioned causes of maternal ill health that were linked to their own behaviour, such as STI, overworking at home, and violence by the husband. This shows that men acknowledge their potentially harmful influence on the well being of their pregnant wife. Furthermore, learning more on maternal health problems was attractive for more than half of the respondents (56.6%).

Qualitative data elaborated how men link danger signs to obstetric complications, diseases and outcomes for the mother and baby. First and foremost men feared that heavy bleeding would lead to sudden maternal death. They assigned swelling of hands and feet to anaemia, fever to malaria and vomiting to cholera or dehydration, all of which were also considered to potentially cause maternal death. Convulsions were considered to be caused by witchcraft and to be dangerous, because the mother could fall into water or fire when cramping. Furthermore, bleeding, convulsions and swelling could lead to miscarriage. These findings support the quantitative data in that men understand broadly the meaning and urgency of danger signs and trust modern health care in treating them. However, in case of convulsions the severity and link to eclampsia seems to be largely unknown.

Qualitative data further revealed what makes men seek knowledge on maternal health. Firstly, men wanted to be able to act effectively in problem situations. While some men hoped they could handle small complications themselves, the majority were interested in pregnancy risks to plan well for the delivery. Secondly, husbands felt they could promote family well being and prevent problems during pregnancy if they knew enough about family planning, prevention of STI, when to stop having sex with their wives and

what pregnant women need. Thirdly, husbands wanted to share their knowledge on conception, childbirth and other issues with other men for their benefit.

Birth preparedness – Husbands are responsible for delivery preparations

Reaching care at the time of delivery or a complication requires planning by the whole family. In our study most men (96,4%) considered that the husband is responsible for planning and preparing for delivery, and many had indeed done so before the last delivery. Two in three men had discussed delivery place and eventual emergency plans with their wife (63,8% and 65% respectively). Almost all (96,5%) had bought necessities for the mother and child. More than half (56,4%) had saved money for transport and over one third (39,1%) for the hospital. Few had made preparations for themselves or relatives to stay nearby, made transport arrangements beforehand, or arranged for the wife to wait at the hospital.

Qualitative data enriched the understanding on men's perceptions on delivery planning. In an open-ended questions, men explained their detailed plans for their wife's last delivery, and evaluated whether their plans succeeded or failed (table 4). Men felt that the plans had failed if there was a poor delivery outcome, if the delivery took place at home unlike planned or if the husband personally failed to fulfil his duties in providing money and being present to take care of eventual problems. In the men's stories, it was the severe complications, unexpectedly high costs and the failure of husbands to provide support that explained why deliveries do not always go well as planned.

Choice of delivery place - Men opt for hospital delivery

Most husbands reported that they decide on the delivery place, either alone (49%) or jointly with the wife (32,4%). Only few men left the decision to the wife (5,1%), or other family members and the TBA (13,1%).

Almost all men could mention signs of poor progress of delivery and were aware of reasons behind delivery problems (table 5). Furthermore, almost all (92,8%) could identify one or more risky condition that would especially require hospital delivery. The most commonly mentioned were: Young mother (38,9%), first time mother (37,7%), problems in this pregnancy (33,3%) women who are advised by the health personnel to deliver at the hospital (32,6%), women who have previously delivered with section (27,4%) or have had other problems in previous pregnancies (13,1%), women who have a poor health status (28,1%), or who have a long distance to hospital (20,4%). Only 0,8% did not think any specific reasons would justify hospital delivery. Thus, the men presented some understanding of delivery risk to back up decisions on delivery place. Although awareness about each factor was limited, no misconceptions appeared.

Delivery assistance provided at the hospital, in particular Cesarean section was known to most men (89,9%). Other types of delivery assistance were less well known. Blood transfusion was mentioned by one third (28,4%), instrumental delivery by 7,7% and other procedures, such as treatment for dehydration,

medication to start delivery, advice on sterilisation and treatment of a pre-term baby by 4,6%.

Almost all husbands (91%) preferred their wife to deliver at the hospital, and almost all who had made plans beforehand, had planned for hospital delivery (95,6%). Only 6,7% preferred delivery at home and 2,3 % at TBA's place or elsewhere. What then makes hospital delivery attractive for husbands? Men mentioned good quality of care (66,2%), not too high costs (52,3%), short distance (48,2%), ability to handle complications (41,8%) and friendly care (33,2%). In comparison to delivery care by TBAs and herbalists, hospitals did well: Almost all considered hospitals to provide the friendliest care for pregnant women (91,8%) and their husbands (88,4%). Most (84,5%) considered the hospitals to be the best accessible service providers during day time and many (72,6%) even during night time. On the negative side, more than half (56,4%) considered hospital delivery to be expensive or very expensive, when indirect expenses are included. Only one in five respondents (23,1%) thought the same about home delivery. The perceived high cost does not prevent men from opting for hospital delivery.

Obstetric complications - Husbands struggle with seeking care

Timely access to health care in obstetric complications is necessary, but community level delays are often known to put the mother and child in danger. In our study, husbands identified themselves as the responsible ones among the family members for organising timely care (table 6).

The qualitative data confirmed the quantitative results on the husbands' responsibilities, and elaborated on men's perceptions on the challenges in seeking care. First and foremost, the men stressed the challenge of money - if the husband did not manage to source enough money, the wife could die. Paying for transport to the hospital was difficult, since cash income was often unreliable and small businesses would fall, if money from the business was spent on handling the emergency. Saving was not easy, since the transport costs were unpredictable. Secondly, finding affordable transport, people to help, or someone to lend money was hard in the village, where people moved around and cars were few. Some also mentioned that decision making in the family could delay getting help. Thirdly, few respondents mentioned that other duties could keep them from accompanying the wife to the hospital, since there was often no one else to take care of the house and business. Men might also not know what to do, for example how to nurse the wife. Some husbands however felt that they could manage it all, since they had given their wows in marriage.

Delivery and post-partum period - Husbands provide support and care

In many settings in Africa, only female relatives and health workers attend the delivery, which is also the case in our study. Most men waited at home (54,4%), some waited outside the delivery room (18,8%), some were at work far away (11.9%) and the rest remained nearby, working, talking with friends or looking for transport. Men did more often work and take care of duties during delivery, when the delivery took place at home than at hospital (42,0% and 19,3%).

Open-ended questions elaborated on the husband's tasks during and after delivery. The tasks differed dependent on where the delivery took place. At the hospital, the husband had to provide and pay for food and bills, to assist in following nurses' advice and to take care of the house and children while the wife was away. During home delivery these tasks were less pronounced and the husbands mostly waited for the news and were on standby in case of problems. Informing the relatives and mentally supporting the wife was important both places. Furthermore, some husbands felt that they had no role at all while the delivery was taking place. At home, being empty handed was combined with a feeling of worry, while at the hospital the idle husbands could still feel relieved. This indicates that health services can be important in relieving worry, as we also found in relation to ANC. After the delivery, the husband's tasks covered four different areas. Firstly, most men perceived their main task to be provision of nutritious food and clothes, malaria nets and shelter for the mother and baby. Secondly, the new fathers took care of the baby together with the mother and sometimes also took over household chores, or employed someone to do so. Thirdly, husbands had to stay in control as household heads and overlook that the wife takes care of the baby properly with breastfeeding, clean bed and medicine. They made sure that the wife attends the child health clinic and follows the advice. Lastly few respondents mentioned having roles in the sexual and emotional sphere, such as separating for some months, being nice to the wife and planning for child spacing.

DISCUSSION

Few men attend antenatal care services in developing countries, but many husbands would be men's interest to attend together with their wives has been reported previously (Tweheyo, Konde-Lule, Tumwesigye, & Sekandi, 2010). Our findings follow the same line, and our study adds the factors that motivate men to attend, namely information on family planning and maternal health available at ANC, as well as prevention of STIs.

Barriers to male involvement in ANC have been shown to be mainly physical, such as long distance and waiting times, in an urban, educated population in Uganda (Tweheyo et al., 2010). Mullany (2006) found poor knowledge, stigma, work responsibilities and perceived shame to be the main obstacles in urban Nepal. We found prioritisation of other duties to be the main barrier, followed by shamefulness and customs. This, we believe, illustrates the traditional gender divide that dictates men to provide their support to maternal health matter from a distance, and men's absence from ANC is thus accepted or even expected. However, men's interest to attend is a promising finding, and interventions that may increase participation include promotion of male participation, health education to the larger community, and restructuring of antenatal care to include men. In a country like Malawi, where ANC attendance is almost universal, ANC could be utilised to reach out public health education to men and the whole family, and men's absence from antenatal care is a missed opportunity. Involvement of men could support the recent meaningful development to shift antenatal care focus towards health seeking and birth preparedness in order to increase its contribution to reduction of

maternal mortality. It is also a step towards an increasingly multipurpose role of antenatal care, that we among others promote (Campbell & Graham, 2006).

Pregnancy and delivery complications can not be predicted, which makes community awareness of danger signs and understanding of pregnancy risk key components of safe motherhood interventions. In our study, most danger signs prompted urgent health care seeking, and men could demonstrate an understanding of the underlying illnesses. This was perhaps better than expected based on previous studies on men's knowledge by Iliyasu et al. (2010) and the Malawi DHS, where only one third (35%) of the men were aware of any one danger sign (NSO & ORC Macro, 2005). However, no direct comparisons can be made, since we investigated passive knowledge and intended action. The thinness of knowledge became however also apparent in our study, particularly in the common misconception on eclampsia being caused by witchcraft. We suggest that maternal health education should pay special attention to the modern and traditional perceptions of illness and how they influence health care seeking. This may be particularly relevant in those areas of Malawi with frequent use of TBAs and more limited access to maternal care (NSO & ORC Macro, 2005; Malawi Economic Justice Network, 2006). Furthermore, the concept of every pregnancy being a risk pregnancy may not be well enough communicated to pregnant women and their families (Magoma, Requejo, Campbell, Cousens, & Filippi, 2010). Similarly, men in our study commonly believed that antenatal care can prevent obstetric complications. The value of providing husbands correct and sufficient knowledge on maternal health can not be overestimated knowing their active role in decision making on maternal health care seeking and use of household money (Iliyasu; Magoma).

It has been argued that men are ignorant and unwilling to spend on maternal health, and may therefore act as barriers to women's health care seeking during pregnancy or hinder use of skilled attendants during delivery (Dudgeon & Inhorn, 2004). However, men are increasingly seen as partners and key players in maternal health care in developing countries (Mushi et al., 2010). In line with findings by Kakaire, Kaye and Osinde (2011), we find that husbands show concern for the health of their pregnant wives and are widely involved in decision making on health care seeking, birth preparedness planning, and provision of emergency backup and support. This suggests, that if empowered, men hold a great potential to improve care seeking in pregnancy complications and delivery.

Cost is seldom an absolute barrier to use of maternal health care and families can often overcome user fees if they see it necessary. (Kowalewski, Mujinja, & Jahn, 2002). We found that even when ANC and delivery care is free, attending services does imply significant indirect costs for the families. Apart from the often acknowledged time costs (Seljeskog, Sundby, & Chimango, 2006; Magoma et al., 2010), our findings also illustrate the long term financial consequences that this stretching of resources has for the families, in terms of struggling business and owing money. We call for attention to this aspect when programming maternal health interventions for the very poor. Carter (2002) has previously reported men's preference of modern delivery care despite the costs involved. In our study this preference was justified by the better

quality, accessibility and friendliness of care at hospitals compared to traditional healers and herbalists. Our study further adds that the husbands' preference was on a personal level grounded in their feeling of relief when the care responsibility was handed over to professionals.

Birth preparedness leads to improved care seeking in emergencies and increased use of skilled attendant at delivery (Fullerton, Killian, & Gass, 2005). The contribution of husbands to birth-preparedness has recently been found to be significant. Having a birth plan was found to be associated with the husband accompanying the wife to antenatal care and delivery, and with husbands providing more support during pregnancy (Kakaire et al., 2011). Tweheyo et al. (2010) reported more use of skilled attendance at delivery if the husband had accompanied the wife to antenatal care, and recommended information provided to husbands through ANC as an important tool for increasing male involvement in birth-preparedness and delivery. We concur with this suggestion, and argue that husbands should be empowered and provided means to play their supporter roles more effectively.

Men's absence at the time of pregnancy and delivery is an important obstacles to male involvement in birth-preparedness (Carter, 2002). We also found that working far away is for many men part of a social reality that is unlikely to change in the near future. On the positive side, even the absent men felt responsible for and took part in birth preparedness, and we therefore suggest that birth preparedness interventions should be designed to give room for families' different life situations.

Contextual factors, such as paternal age, ethnicity, education and family decision making patterns have been shown to influence male involvement in maternal health (Amooti-Kaguna & Nuwaha, 2000; Iliyasu et al., 2010; Mpembeni et al., 2007; Mullany, 2006). Mpembeni et al. found that male involvement, in the form of spousal discussion on the place of delivery, was an independent predictor of use of skilled attendance at birth.On the other hand, Amooti-Kaguna and Nuwaha have shown that women who depend on their husbands are less likely to deliver at a facility than are those who decide independently on the place of delivery. Mullany (2006) has shown that increased male involvement in maternal health is associated with joint spousal decision making, while independent male and female decision making patterns reduce male involvement. In our study joint discussion on delivery place was much more common than joint decision making (63,8% and 32,4%), which may indicate a superficial level of discussion or male respondents' need to underline their role as final decision makers. Men's role as breadwinners and the ones in charge of household money, is in our context likely to increase their involvement – or at least the need for it. The matrilineal tradition and polygamy in the area could theoretically reduce the role of husbands when compared to members of the wife's family, but this was not shown in our study. Seljeskog et al. (2006) found in their study in Mangochi district, that pregnant women identified both older female family members and husbands as decision makers on maternal health care seeking,

Malawi has opted for the involvement of men and the larger community as one of the main strategies for improving maternal health (Ministry of Health, 2007). Community level safe motherhood programs have

been shown to yield male involvement as a wider positive impact, and involving men in the interventions can improve their acceptability in the community (Mushi et al., 2010). We argue that involving men can also uncover gendered behaviour patterns, and thereby improve our understanding of maternal health at community level, as has been shown in this study. Seljeskog et al. (2006) have identified in their study in Mangochi district, that women's barriers to access skilled attendance at delivery are unsatisfactory quality and availability of care and cultural views on pregnancy. The male respondents in our study emphasised another dimension: the unavailability of emergency transport with predictable costs. Despite the fact that most men made plans for hospital delivery and saved money, it was beyond their means to secure timely transport in case of a complication, which undermined all the other efforts to secure safe pregnancy and delivery.

At policy level, we recommend full utilisation of antenatal care involving men. At programmatic level, we suggest prioritisation of birth preparedness and especially innovative transport interventions to improve maternal health in communities.

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TABLE 1
Socio-economic background characteristics of married men in rural Malawi (n 389)

	n	(%)
Age, *median years [range]*	*33*	*17-73*
Tribe Yao [a]	372	95,6
Religion Islam [b]	369	95,1
Literate	261	67,1
Education		
None	110	28,4
Uncompleted primary school, 1-7 years	238	61,3
Primary school or higher, 8 or more years	40	10,3
Married [c]	387	99,5
Number of wives		
One wife	345	89,6
Polygamous, 2-4 wives	40	10,5
Village of stay		
Village of wife's family	165	42,4
Village of husband's family	149	38,3
Elsewhere or both from same village	75	19,3
Number of children [d]		
0	4	1
1-3	293	75,3
4-10	92	23,7
Wife currently pregnant	56	14,4
Household income earner [e]		
Husband	382	98,5
Wife	15	3,9
Other household members	2	1
Mode of transport to health facilities[f]		
Walking	167	42,7
Own bicycle	156	40,1
Borrowed bicycle	136	35
Public transport	121	31,1
Boat	17	4,4
Borrowed car	14	3,6
Own car	6	1,5

Note: Numbers may thus not add up to the total of 389, because missing answers (<2%) are not included..Percentages are provided as valid percentages, excluding missing answers.

[a] Other tribes: Nyanja, Chewa, Ngoni, Tumbuka, Lomwe.
[b] Other religions: Christian denominations
[c] Two men had divorced in the last five years, after the birth of the child
[d] The men without children have wives who have been pregnant within the last five years, but have lost their child either during or after pregnancy
[e] Some households have more than one income earner, so the percentages add up to more than 100%
[f] Some use more than one way of transport, so the percentages add up to more than 100%

TABLE 2
Husbands' perceptions of and participation in antenatal care in rural Malawi (n=389)

		n	(%)
Perceived benefits of ANC for the wife [a]	Medical examination	308	79,2
	Avoid complications in pregnancy and delivery	236	60,7
	Better delivery assistance	189	48,6
	Advice on food and other behaviour during pregnancy	171	44
	Advice on delivery	150	38,6
	Treatment for malaria	77	19,8
	Treatment for STIs	23	5,9
	Food support	6	1,5
	There are no advantages	4	1
Decision making on ANC attendance	Husband alone	305	78,4
	Husband and wife jointly	39	10
	Wife alone	35	9
	Other relative [b]	10	2,6
Perceived roles of the husband in relation to ANC [a]	Encourage wife to attend	321	82,7
	Assist in transport	291	75
	Discuss with wife on ANC issues	149	38,4
	Accompany wife to ANC rooms	7	1,8
	Other roles [c]	27	7
	Husband does not need to participate in any way	8	2,1
Husbands' participation in ANC in last pregnancy [a]	Talked with wife about ANC	320	83,1
	Provided transport for wife to ANC	223	57,3
	Accompanied wife to ANC rooms to get services (STI treatment, family planning)	13	3,4
	Accompanied wife to ANC for personal reasons (to show love, confirm attendance)	6	1,6

[a] Question with multiple responses
[b] Wife's or husband's mother or grandmother
[c] Preparing food, buying food

TABLE 3
Men's perceptions of reasons behind health problems in pregnancy (n 389)

	n	%
Participants who mention at least one reason	328	84,3
Reasons behind health problems in pregnancy (n 367)[a]		
Poor nutrition	194	52,9
Overworking and poor care at home	121	33
Not attending health care or following advice	104	28,3
Sexually transmitted infections due to unfaithfulness	52	14,2
Violence by the husband	34	9,3
Malaria and anaemia	28	7,6
Witchcraft	16	4,4
Poor hygiene in the house	13	3,5
Young age of mother	9	2,5
Frequent births	8	2,2
Other [b]	16	4,4

[a] Question with multiple responses. Missing answers (n 22) are excluded from the total. Percentages are provided as valid percentages.
[b] *Each problem mentioned by 4 participants or less (≤1 %): Bleeding, rupture of uterus, not being well advised by elders, long distance to ANC or poor care at ANC, using traditional medicine that can cause miscarriage, lack of knowledge on pregnancy complications, husband does not stop sex timely, mother has a childish mind or is depressed, mother has previous health problems, mother does not exercise, mother is dependent on unskilled delivery assistance, mother wears tight clothes or stays in hot places, mother is stressed or worried.*

TABLE 4
Men's perceptions of success and failure in planning for their wife's latest delivery, and the reasons for success and failure (n 272[a], qualitative data)

Plans for delivery were successful (n 199)	Success components		Factors leading to success
	Mother and relatives were at the planned place at the time of delivery	←	The family made plans for delivery and followed them
	Money was sufficient to cover costs	←	Husband earned and saved enough money
	Mother and baby survived and were healthy	←	Skilled assistance at birth was available
	Unexpected problems were solved	←	Relatives and TBA assisted with money and referral
Plans for delivery failed (n 73)	**Failure components**		**Factors leading to failure**
	Costs exceeded family resources	←	Serious complications, long distance referrals
	Delivery took place at home unlike planned	←	Miscounting of days, wife refused to go to hospital, husband failed to arrange transport
	Husband did not fill his own or family's expectations in providing support	←	Husband was absent for longer or shorter time, did not know about the delivery or had not planned for backup
	Poor outcomes for mother and baby, or delivery through caesarean section (this was considered a failure regardless of outcome)	←	Miscarriage, medical complications

[a] *Respondents who reported not having made plans for the last delivery (n 90) and missing responses (n 27) are not included in the analysis.*

TABLE 5
Men's perceptions of reasons for delivery complications and signs of poor progress in delivery in rural Malawi (n 389)

		n	%[a]
	Knows one or more reasons for delivery complications	359	92,5
Reasons for delivery complications[b]	Young mother	206	53,2
	Abnormal lie of baby	203	52,5
	Bewitched mother	184	47,4
	Narrow birth channel	169	43,7
	Poor health of mother	80	20,6
	Poor skills of birth attendant	75	19,3
	Other [c]	54	13,9
	Knows one or more signs of poor progress in delivery	380	98,2
Signs of poor progress in delivery[b]	Long duration	305	78,4
	Heavy bleeding	128	33,0
	Exhaustion	61	15,7
	Caretakers' reactions or information	56	14,5
	Fainting	51	13,5
	Baby does not move	36	9,3
	Fever	18	4,6
	Convulsions	2	0,6

[a] Missing answers (< 1%) are excluded from the total. Percentages are provided as valid percentages
[b] Question with multiple answers
[c] *Other: Poor hygiene, old age of mother, attempted abortion, the mother has not attended ANC, birth before date, large baby, mother can not push.*

TABLE 6
Men's perception of their own and other relatives' responsibilities in case of obstetric complications (n 389)

	Main person responsible for a given task (%)[a]					
	Husband	Mother of wife	Mother of husband	Grand-mother of wife	TBA	Other [b]
Find money for transport	99,2	0	0,5	0	0	0,3
Arrange transport	98,7	0	0,5	0	0,3	0,6
Decide where to go for help	82,9	2,3	4,1	2,3	1,8	6,5
Accompany wife	67,3	10,8	6,7	4,1	0	1,1
Find people to assist	63,5	8,7	5,4	3,3	7,2	11,8
Comfort wife	28,4	20,9	10,6	18,6	3,1	18,3
Nurse wife	5,7	25	14,9	14,4	16	23,9

[a] Missing answers (< 1%) are excluded from the analysis. Percentages are provided as valid percentages.
[b] Wife herself, wife's sister, wife's friend, husband's grandmother, other female relatives, anyone present

PUBLICATION III

A Pilot Study of a Picture- and Audio-assisted Self-interviewing Method (PIASI) for the Study of Sensitive Questions on HIV in the Field

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A Pilot Study of a Picture- and Audio-assisted Self-interviewing Method (PIASI) for the Study of Sensitive Questions on HIV in the Field

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Abstract

Self-interview methods such as audio computer-assisted self-interviewing (ACASI) are used to improve the accuracy of interview data on sensitive topics in large trials. Small field studies on sensitive topics would benefit from methodological alternatives. In a study on male involvement in antenatal HIV testing in a largely illiterate population in Malawi, we piloted picture- and audio-assisted self-interviewing (PIASI). Out of 388 participants, 96 were randomized to answer six sensitive questions using PIASI after the face-to-face interview (FTF). Participants who responded by PIASI were more likely to express accepting attitudes toward childbearing by

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HIV-positive women than were FTF respondents. Most considered PIASI easy to use, and one in five preferred it to FTF. PIASI may offer a feasible, low-cost alternative to ACASI for small and simple studies on sensitive topics and in illiterate populations.

Keywords
male involvement, self-interview, interview, HIV, sensitive topics

Background

It has been asserted that face-to-face interviews (FTF) on sensitive and stigmatized topics, such as sexual behavior, substance abuse, or HIV, have yielded answers that are socially desirable and reflect perceived social expectations rather than real behavior or opinions (Hewett et al. 2004). Methods that are considered to reduce social desirability bias include both self-interviewing, where the interview takes place in a private and confidential environment, without the direct participation of the interviewer, and in-depth interviews, participant observation, or daily diaries, which engage the person for longer times to build rapport (Lara et al. 2004; Morrison-Beedy et al. 2006; Plummer et al. 2004).

Audio computer-assisted self-interviewing (ACASI) has become the self-interviewing method of choice in much of health research globally (Rathod et al. 2011). In HIV research in low-income countries, ACASI has so far mainly been used to capture sexual behaviors in HIV prevention trials (National Institute of Mental Health [NIMH] 2007; van der Elst et al. 2009) and to determine HIV risk (Gorbach et al. 2012; Mensch et al. 2008). ACASI is well accepted among respondents (Dolezal et al. 2012; van de Wijgert et al. 2000), and the quality of ACASI data is higher than that of self-administered questionnaire data because of built-in reminder functions and direct data entry (Minnis et al. 2007; Morrison-Beedy et al. 2006).

Studies in developing countries have found increased reporting of risky sexual behaviors via ACASI (Gorbach et al. 2012; Hewett et al. 2004; Potdar and Koenig 2005; van der Elst et al. 2009) and a closer association between sexually transmitted infection biomarkers and reports on sexual risk behavior obtained via ACASI than those obtained via FTF (Hewett et al. 2008). Other studies, however, have shown no difference in or less reporting of sensitive behaviors by ACASI compared to FTF or biomarker findings (Mensch et al. 2008; NIMH 2007), and some studies show poorer internal consistency between responses in ACASI than in FTF, probably

because in ACASI no interviewer is present to clarify unclear questions (Gorbach et al. 2012; Hewett et al. 2004; Mensch et al. 2008).

How, if at all, ACASI responses differ from FTF responses can have various plausible explanations. Generally, sensitive behaviors are considered to be reported reluctantly to an interviewer, and therefore reporting sensitive behavior more frequently in ACASI may be an indication that the reporting in ACASI is more truthful (Dolezal et al. 2012). Many researchers agree that the more sensitive the behavior, the more the reporting is increased by ACASI (Hewett et al. 2004; Mensch et al. 2008; Minnis et al. 2007; Potdar and Koenig 2005). However, social desirability bias can also work the other way, making the respondents report certain types of behavior, such as adherence to a trial product, more in FTF than in ACASI, to impress the interviewer (Gorbach et al. 2012; Potdar and Koenig 2005). These effects can differ by gender, subgroup, and study setting; therefore, the social context of the study needs to be well understood for the interpretation of ACASI findings (Dolezal et al. 2012; NIMH 2007; Potdar and Koenig 2005).

Self-interviewing methods for low-income countries have to function in field settings, in populations with low literacy and limited experience with computers, and with limited resources. ACASI has been found to be a feasible methodology in low-income country settings (NIMH 2007). With the help of modified applications, ACASI has been used in illiterate populations (Gorbach et al. 2012; Hewett et al. 2004; NIMH 2007; Potdar and Koenig 2005). However, ACASI results are less reliable in less-educated groups, and this diminishes the advantages of ACASI in this group (Lara et al. 2004; Mensch et al. 2008; Potdar and Koenig 2005; van de Wijgert et al. 2000). In addition, the inability to clarify questions may lead to misunderstanding of terms and questions when ACASI is used among illiterate participants (NIMH 2007; Potdar and Koenig 2005). Furthermore, ACASI is a relatively expensive method, mainly due to its high setup costs and the need to develop applications for different subpopulations. While large studies benefit from the savings in data handling offered by ACASI, costs may become a barrier in small studies (van de Wijgert et al. 2000). Apart from costs, technological complexity, unfamiliarity with the method, and the mixed results achieved have been cited to explain the relatively limited use of ACASI in Africa (van der Elst et al. 2009).

In this study, we piloted a modified version of ACASI, picture- and audio-assisted self-interviewing (PIASI), as an attempt to develop methodology suitable for small studies in field settings and illiterate populations. We aimed to investigate the differences in the reporting of sensitive behaviors

as well as to roughly determine the acceptability, feasibility, and data quality of the methodology. This article describes a sub-study of a study, which investigated men's perceptions of HIV in pregnancy and their involvement in antenatal HIV testing and counseling in rural Malawi (Aarnio et al. 2009). The sub-study was carried out to examine the accuracy of the responses to sensitive questions on HIV in FTF by comparing these responses to those given on self-interviewing.

Methods

Study Setting and Population

The study setting in Mangochi district consisted of 11 rural, mainly Muslim fishing villages. The details of the study setting and population are described in Aarnio et al. (2009). A total of 388 men were interviewed by local research assistants using FTF. Eligible participants for the study were married men with spouses of reproductive age (15–49 years). Systematic random sampling was used to select participants. A subsample of 96 out of the 388 participants was randomly assigned to respond to six sensitive questions on HIV by PIASI at the end of the FTF. The rest of the participants ($n = 292$) responded to all questions, including the sensitive ones, in FTF. The PIASI subsample size of 96 was chosen to detect a difference in reporting between the two interview modes within 10–15% of the true difference depending on the prevalence of the response (Lwanga and Lemeshow 1991).

Tools and Procedure

Six sensitive study questions in the study questionnaire were chosen for PIASI based on their sensitivity in men's focus group discussions (FGD) in another arm of this study. In the FGD, few knew or were open about their HIV status. Men were expected to be the initiators of new ideas in the family, and for women to suggest HIV testing as recommended at antenatal care was outside the norm. Divorce due to HIV was a sensitive topic that was linked to sensitive behaviors like promiscuity and blame for bringing HIV in the family (Aarnio et al. 2009). The six sensitive questions, two control questions, and two questions on the acceptability of the method, together with the response options to each, were tape recorded in the local language, Chiyao, using the male voice of one of the interviewers. Questions were worded identically in the FTF and on the tape (Figure 1). A tape recorder with C-cassettes (Sony) and earphones was used. Picture booklets

"Now open page 3 in the booklet marked with a basket. You will now hear the first question. In your opinion, should HIV-positive women be allowed to give birth to children? You will now hear the same question again. In your opinion, should HIV-positive women be allowed to give birth to children?

Now choose your answer in the booklet. If you think the woman should be allowed to have children, make a mark on the picture with the woman and a child. If you think she should not be allowed to have children, make a mark on the picture where the woman is alone. If you are not sure, make a mark on the picture with the thinking man."

Figure 1. Format of questions in picture booklet and audio tape: sample question on acceptance of childbearing by HIV-positive women.

containing the response options for each question were created with help of local research assistants, using symbols familiar from antenatal care education materials (Appendix A). Culturally appropriate hand-drawn representations were used since these have shown to be well recognized (Mierzwa et al. 2013). The booklets were coded to allow matching with the FTF questionnaires. Prior to the study, the self-interviewing tools were pretested with voluntary local male participants and were modified accordingly.

Before the interview, oral consent for the study was sought from all participants, and the 96 respondents randomly selected for PIASI were also asked to consent to being interviewed using this method. The tape-recorded questions were administered in the village setting at the end of the FTF—a solution that has been recommended to save time and improve the concentration of illiterate participants (Potdar and Koenig 2005). The interviewer first guided the respondent in the use of the tape recorder, earphones, and booklet. The respondent was then left in privacy to listen to the questions from the tape using the earphones and to answer by ticking on the image with their preferred answer in the booklet. After completing the responses, the respondent sealed the booklet in an envelope.

Analysis

PIASI responses were compared with FTF responses using cross-tabulations. The χ^2 test was used to determine the statistical significance of the identified differences. Missing answers accounted for less than 3% of the responses for each question ($n \leq 11$ out of 388) in the total sample and for less than 9.4% ($n \leq 9$ out of 96) in the PIASI subsample.

Results

Background of the Participants

The respondents were married men with spouses of reproductive age. Their mean age was 31 years (range 17–54), and 11.9% ($n = 46$) were polygamous. Most belonged to the Yao tribe (81.2%, $n = 315$) and were of the Muslim faith (80.7%, $n = 313$). Only 22.8% ($n = 88$) had completed primary school, and 41.0% ($n = 159$) were illiterate by their own definition. Their main income source was fishing (48.5%, $n = 188$). More detailed background characteristics are presented in Aarnio et al. (2009). Respondents who responded by PIASI did not differ from the rest in terms of background characteristics.

PIASI Feasibility, Acceptability, and Data Quality

Inclusion of the PIASI component in the study required development and pretesting of the picture booklet and recorded questions, interviewer training, separate handling of picture booklet data, and investment in four tape recorders. Against the total setup costs and time of the study, this was a minimal addition. The FTF of 35–45 minutes was lengthened by 10–15 minutes, which we considered feasible for a field study.

PIASI was well accepted by the respondents, that is, 89.1% ($n = 82$) of the respondents considered it an easy form of interview. Only one participant refused to respond using PIASI after initially consenting to do so. However, only 22% ($n = 20$) preferred PIASI to FTF, and the rest preferred FTF. There was a statistically insignificant tendency toward illiterate respondents finding PIASI more difficult but also more enjoyable. Respondents' skills in answering by PIASI were tested by asking them to answer two control questions ("Are you married now?" and "How many wives do you have?") in both the FTF and the PIASI sections of the interview. No differences in the answers between the two methods were found. Missing responses were on average somewhat more common in the PIASI than in the FTF interviews, accounting for 5.7% and 2.5%, respectively. This level was considered acceptable, bearing in mind that there were no reminder functions in the PIASI system, and the interviewer could not be consulted during the interview.

Responses to Sensitive Questions on HIV via PIASI

Participants who responded to the six sensitive questions by PIASI were more likely to express accepting attitudes toward HIV-positive women

Table 1. Comparison of Men's Responses to Sensitive Questions on HIV Given in FTF and PIASI.

	FTF ($n = 292$)	PIASI ($n = 96$)
Knows a man who has divorced his wife due to HIV	15.9% ($n = 46$)	15.7% ($n = 14$)
Knows a woman who has divorced her husband due to HIV	13.4% ($n = 39$)	13.8% ($n = 12$)
Has (ever) been tested for HIV	35.2% ($n = 101$)	40.7% ($n = 37$)
Would attend HIV testing if his wife requested him to do so	93.4% ($n = 271$)	87.1% ($n = 81$)
Accepts that HIV-positive women should be allowed to bear children	2.80% ($n = 8$)*	10.0% ($n = 9$)*
Would continue family life if his wife was found to have HIV	89.7% ($n = 260$)	88.0% ($n = 81$)

Note: Missing responses (<2.9% for each question) are excluded from the analysis. FTF = face-to-face interview; PIASI = picture- and audio-assisted self-interview.
*$p < .05$.

having children than were participants in FTF (10.0% vs. 2.8%, $p < .05$). There was no difference in responses to the other PIASI questions (Table 1). There were no significant differences between the PIASI responses of illiterate and literate respondents.

Discussion

The relevance of self-interviewing methods to research in low-resource settings rests heavily on their applicability to populations with lower levels of literacy (Potdar and Koenig 2005). We found PIASI to be a suitable methodology for a study that involves illiterate respondents. In our study, we found no difference in the number of missing responses by illiterate and literate subjects. This is probably due to the relative simplicity of the PIASI interview, good guidance to using PIASI by the interviewers, the small sample size, and the relatively small variation in education level of respondents. In studies using ACASI, a low level of literacy has been shown to negatively affect data quality (Mensch et al. 2008; Potdar and Koenig 2005; van de Wijgert et al. 2000), and our finding suggests that working with simpler technology may be an advantage in illiterate populations in that a familiar study setting may help the respondents to maintain focus.

In PIASI, the use of audio and images to collect responses limits the complexity of questions and study designs, probably more than is the case

with ACASI. However, we argue that with careful design, the needs of most small studies or sub-studies can be met with this methodology. The overall level of missing responses in our study was higher in PIASI than in FTF answers, which we ascribe mainly to the lack of reminder and checkup functions in PIASI—an aspect that needs further development. But, we also concur with Hewett et al. (2004) in their view that fewer missing answers in FTF than in self-interviewing may indicate pressure to respond in FTF.

PIASI was found to be easy by most respondents but was chosen as the preferred method by only 22%. This is much less than the 85% preference for ACASI found among slightly more educated, urban women in Malawi (Gorbach et al. 2012).

In a multicenter study using ACASI in various low-income settings, more than 80% felt very comfortable entering answers on a computer. However, whether respondents felt ACASI or FTF to be more private or to be their preferred interview method varied by setting (NIMH 2007). Some studies have found less preference for or trust in the confidentiality of ACASI among the least educated (NIMH 2007; Rathod et al. 2011), which we suggest also explains part of the comparatively low preference for self-interviewing found in our study. Other factors may include our rural study population with a strong oral culture and a lack of attractive computer equipment. A limitation of our study is that we did not examine how the participants perceived the length and privacy of the PIASI section, and these factors may also affect acceptability (van der Elst et al. 2009).

We reported more accepting attitudes toward childbearing by HIV-positive women in PIASI than by those in FTF. In our opinion, this must be seen as respondents attempting to conform to social norms and expectations in the interview situation by modifying their responses (Hewett et al. 2004). Given the very recent introduction of prevention of mother-to-child transmission programs in our study area and the involvement of men in these (Aarnio et al. 2009), society is likely not to accept childbearing by HIV-positive women. The male respondents' private angle on the issue is, however, likely to be more liberal, knowing that HIV-positive people's wishes to have a family life and have children are no different from those of other people.

By contrast, we found no differences between PIASI and FTF in responses to divorce due to HIV, which may be because the questions are of limited sensitivity (Hewett et al. 2004; Mensch et al. 2008; Minnis et al. 2007). The indirect and hypothetical formulation of the questions may have reduced the sensitivity more than we expected. However, lack of difference between self-interview and FTF responses is a common finding in

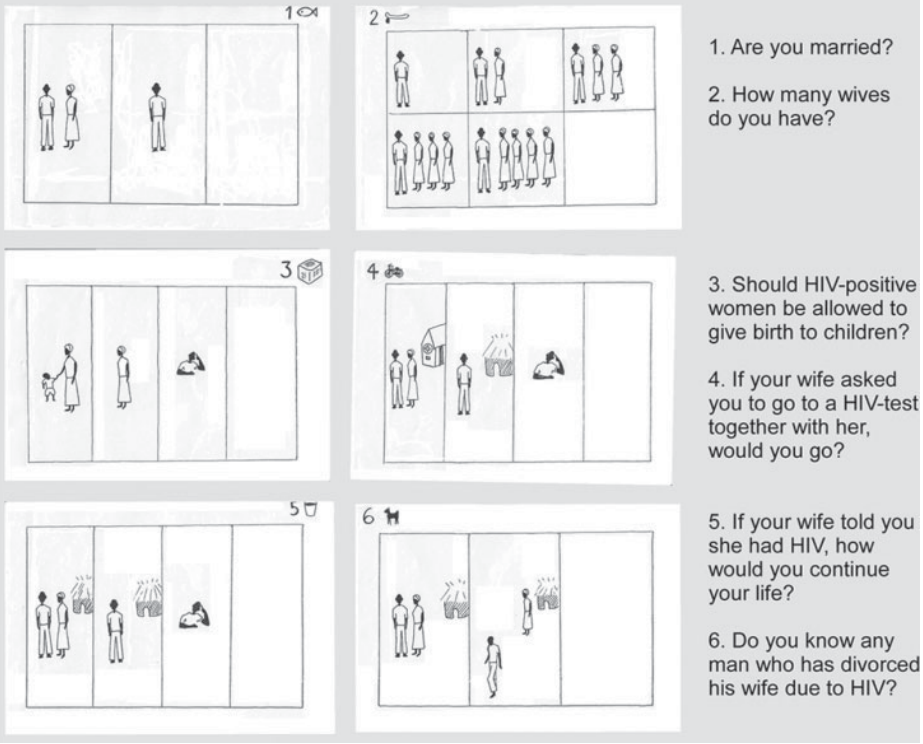
developing country settings (NIMH 2007), and more research is needed to understand the methodological and locally relevant reasons behind this. The lack of differences between FTF and PIASI responses to the questions on HIV testing may also be due to our rather small sample size. In our opinion, self-interviewing continues to be a promising methodology for research on social aspects of HIV and could be added as a component in research based in hospitals or other institutions.

Conclusion

PIASI may provide an alternative to ACASI in small, simple studies that wish to use self-interviewing in field settings and low-income country settings and among illiterate populations. Our pilot study opens the way for more research in this direction. We also recommend more use of self-interviewing in social studies on HIV.

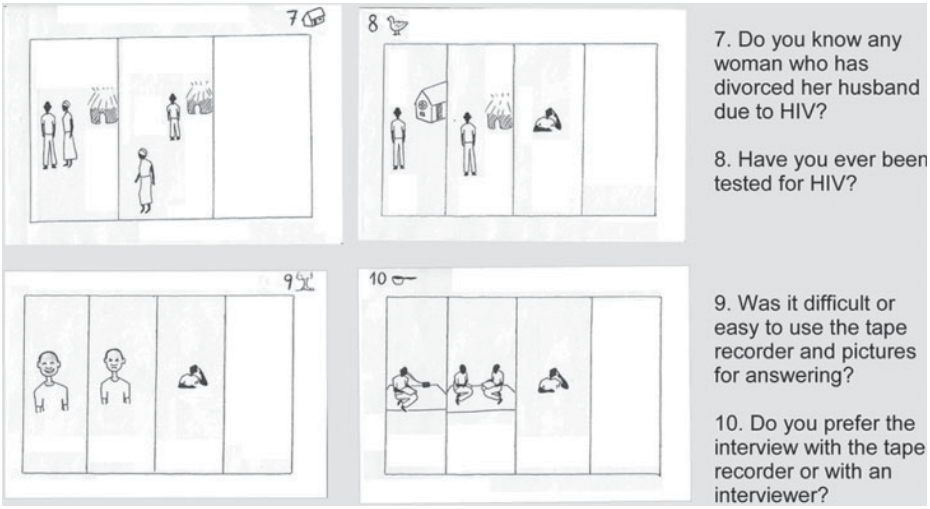
Appendix A

Appendix 1: The PIASI picture booklet and the tape-recorded questions.
Note: Also the answer options were tape recorded. A sample of the complete recorded text is provided in Figure 1.



(continued)

Appendix A (continued)



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Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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PUBLICATION IV

Husband's role in handling pregnancy complications in Mangochi district, Malawi: A call for increased focus on community level male involvement

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Husband's role in handling pregnancy complications in Mangochi District, Malawi: A call for increased focus on community level male involvement

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A B S T R A C T

Objective: The objective of the current study is to provide information about husbands' role in decision-making and healthcare seeking in cases of pregnancy complications in Mangochi district, Malawi with an analysis of qualitative interviews using the concepts of "capital" and "field" from Bourdieu's social field theory.
Study design: Twelve husbands and wives who had experienced pregnancy complications and six key informants from a semi-rural area of Mangochi district were interviewed individually. Thematic analysis was conducted based on the concepts of capital and field in Bourdieu's social field theory.
Results: Husbands have significant economic and symbolic capital in decisions about healthcare seeking during instances of pregnancy complications as a result of their roles as father, head of the household and main income earner. Lack of money is the only acceptable reason for husbands to deny their wives healthcare. Husbands have limited access to knowledge of maternal health, which can compromise their decisions about seeking healthcare. Joint decision-making within families can be bypassed to allow for prompt healthcare seeking in emergencies.
Conclusions: Husbands are important decision makers regarding seeking healthcare for pregnancy complications because of their economic and symbolic power and despite their limited access to knowledge of maternal health. Maternal healthcare seeking practices would benefit from wives gaining an empowered role as well as improved knowledge of maternal health among husbands.

Introduction

Reduction of maternal mortality at the community level

Maternal deaths accounted for 303,000 deaths worldwide in 2015. Indirect causes of maternal deaths are infectious diseases and nutritional conditions that are mostly preventable and predictable [1]. It is difficult to reduce maternal deaths resulting from direct causes related to pregnancy complications such as haemorrhage, hypertensive disorders and sepsis because timely admission to healthcare facilities where skilled care is available is required. These requirements set high demands for not only the accessibility and quality of health services but also timely seeking of healthcare [1,2]. Maternal deaths often occur soon after admission to a healthcare facility; this situation indicates that women arrive when their situations are already severe [3]. The World Health Organization (WHO) has identified five main factors that prevent mothers from seeking timely care: poverty, distance, lack of information, inadequate services and cultural practices [1].

Malawi has one of the highest maternal mortality ratios in the world at 634 maternal deaths per 100,000 live births in 2015, despite recent positive developments [4]. Almost all women receive antenatal care, and most deliveries (88.9%) take place in health facilities. However, admission often takes place too late, quality of care is suboptimal and community involvement is limited [5,6]. Traditional birth attendants (TBAs) cannot substitute for emergency obstetric care, and Malawi is redefining TBAs' role in maternal healthcare [6,7]. Although social norms, gendered belief systems and practical barriers hinder men's involvement in maternal health, the country highlights empowerment of men to contribute to timely referrals as a key approach to reducing maternal mortality [6,8].

Men in Malawi are traditionally socialized to be superior in family decision-making and they are responsible for providing financial support to the family. Financial support is a masculine way for men to take part in pregnancy, while helping the wife in household chores or attending maternal health services requires that men are ready to enter into the female domain [8]. A qualitative study from a rural, low-

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income area in Southern Malawi showed that gender-based cultural scripts make household decision-making husband-dominant in financial and sexual matters, while women dominate decision-making in matterns concerning domestic chores and childbearing, especially in matrilineal areas [9].

The collective dimension of decision-making in seeking healthcare for pregnancy complications is not well understood, since research has largely focused on individually oriented behaviour change communication theories [10]. Additionally, little is known about the role of men in this process. The objective of the current study is to provide information about husbands' role in decision-making and seeking healthcare for pregnancy complications using the concepts of capital and field from Bourdieu's social field theory [11].

Field and capital in Bourdieu's social field theory

The concepts of field and capital in Pierre Bourdieu's social field theory concern the balance of power in a network of individuals with a common interest [11]. The concepts are used in the current study as tools to investigate husbands' role in seeking healthcare for pregnancy complications.

According to Bourdieu "field" is a "set of objective, historical relations between positions anchored in certain forms of power or capital" (…)" The field is simultaneously a space of conflict and competition" [12, p. 16–17]. Actors struggling for power occupy the positions. The power balance is often misrecognized and considered legitimate by the actors. The field is characterised by "illusio", the recognition of a common goal and rules of the game [12]. "Struggles" are defined as debates of opinion with entangled power positions that seek to transform or preserve the power balance. They concern key questions within a field [12].

"Capital" is similar to power; it refers to sums of assets – such as competencies, skills and qualifications – put into use, and it is both a means and an end to games in a field. Bourdieu distinguishes between four types of capital: economic capital concerns economic resources; social capital refers to social relations to others that help players gain authority; cultural capital is legitimate knowledge; symbolic capital concerns social prestige and honour [11,12].

In the present study, the field is composed of the network of positions involved in taking care of women during pregnancy and childbirth at the community level. We analyse the significance of different types of capital in the decision-making on healthcare seeking for pregnancy complications with a special focus on husbands. We also analyse the field and its actors and characteristics ("illusio", "struggles" and "misrecognition of the power balance") to understand the context in which decisions are made.

Methods

Study design, setting and data collection

A qualitative study was conducted using individual in-depth interviews (IDIs) [13] and a thematic analysis was employed [14] based on Bourdieu's concepts of "capital" and "field" [11].

The area in which the study was conducted in Mangochi district, Malawi is semi-rural. The main tribe is the Yao, who follow the Islamic faith and are traditionally matrilineal. The main source of income is fishing, and women commonly depend on their husbands for income. Mangochi district has the lowest education levels in the country for both women and men, but its scores for women's empowerment are average [15]. Free maternal healthcare is provided at public and private hospitals within a 15 km distance, but attendance involves significant food and transportation costs for families. The families rely on bicycles, rented cars, and an occasionally available ambulance for referral transport [16].

The data consists of 24 IDIs with twelve husbands and wives of married couples, who had experienced pregnancy or delivery problems within the last five years. The 12 wives had experienced the following pregnancy complications: Prolonged labour (4), abnormal position of baby (4), small pelvis (2), twin pregnancy (1), miscarriage (1), malaria (1). In addition, IDIs were carried out with six key informants with contextual knowledge; two TBA, a village chief and his wife, and the mother and uncle (head of clan) of one participant (wife). The participants were recruited by purposive sampling with assistance of two village headmen.

Interviews took place in a secluded location in the village. A local male research assistant with experience and training in conducting IDIs held the interviews in the local languages of Chiayo or Chichewa. The woman principal investigator, a Finnish medical doctor, was also present. The interviewer and principal investigator met with all participants prior to the interviews to provide information and obtain oral consent. The husbands and wives were interviewed separately and in direct succession. A semi-structured interview guide was pre-tested in individual interviews and informal discussions with men and women from nearby villages. The interview guide covered husbands' and wives' stories of their pregnancy complications as well as all participants' general perceptions of husbands' role in decision-making and seeking healthcare for pregnancy complications. Preliminary analysis guided the subsequent interviews to clarify any emerging questions.

Participants offered detailed accounts of their experiences that were treated as subjective perspectives [17]. However, two husbands had limited recollection due to absence, and three couples gave highly contradictory accounts. The interviews were recorded on tape, transcribed and translated into English by another research assistant. Quality control achieved through double translations of four interviews by a third research assistant showed satisfactory quality of the translations.

The Malawi College of Medicine Research and Ethics Committee (COMREC) gave ethical approval for the study (05/06/446, 2006).

Data analysis

We chose a social theory linked analysis based on Bourdieu's concepts of "capital" and "field" to investigate the power balance in decision-making, because it may remain hidden in more inductive designs [18]. The analytical process was built on an approach described by Boyatzis [14]. The process and definitions of the concepts are presented in Table 1. All of the interview transcripts were divided into meaning

Table 1
Example of analysis of an extract of an interview at various analytical levels.

Analytical level	Meaning unit	Condensed meaning unit	Code	Category	Theme
Definition	Unit of text that talks about one aspect	Core content of a meaning unit	Common attribute for meaning units	Lower level category of theme	Bourdieu's theoretical concept
Type of reasoning	Inductive	Inductive	←→		Deductive
Example from an interview text	The one who decides where to go with [delivery] problem is the husband. (…) My parents agree, because he is the one who brings money in our family (Wife 6)	Husband's decision is agreed to, because he earns and pays	Husband with money decides	Deployment of economic capital	Economic capital

Table 2
Types of capital that husband possesses in field of pregnancy: themes, categories and codes.

Categories	Themes			
	Economic capital	Cultural capital	Social capital	Symbolic capital
Assets that enable husbands to gain capital	Codes: • Earned money • Saved money • Economic support from relatives • Loans	Codes: • Maternal health knowledge • Knowledge of maternal health services • Traditional knowledge of maternal health	Codes: • Male peers who can assist with transport • Relatives or TBA nearby assist with care • Close relationship with wife	Codes: • Fatherhood • Head of household status • Affectionate partner role
Barriers that hinder husbands in gaining capital	Codes: • Poverty	Codes: • Rupture of traditional networks for men • Men's exclusion from maternal healthcare • Expectations of men's passive role	Codes: • Men's exclusion from maternal healthcare • Separate male and female spheres in society • Weak male networks	Codes: • Poor quality of marital relationship • Absence of husband • Independent position of wife • Matrilineal tradition
Deployment of capital in field	Codes: • Allocate family resources for health • Decide on health seeking • Show emotions	Codes: • Take action in complications • Negotiate health seeking • Advise wife	Codes: • Take action in complications	Codes: • Decide on health seeking • Take overall responsibility for wife and baby's wellbeing

units, looking for content on the role of husbands and decision making in pregnancy complications. Theory-based themes were developed for Bourdieu's concepts of economic, cultural, symbolic and social capital as well as his concepts that describe the field; actors, illusio, misrecognition of power balances and struggles. In the analytical process, codes and categories were developed by constantly going back and forth between the inductive meaning units and the deductive theory-based themes [14]. Responses from husbands, wives and key informants were also considered separately to identify differences in the perspectives.

Results

The results of the analysis of the qualitative interviews with husbands, wives and key informants based on Bourdieu's theoretical concepts of field and capital are presented under themes reflecting actors in the field of pregnancy and illusio; the four different types of capital of the husband; struggles; and misrecognition of the power balance. Supporting quotations from the interviews are included. Husbands' different types of capital are presented in Table 2.

Actors in the field and illusio: Husbands, families and healthcare professionals work together

The field is the network of positions involved in the care during pregnancy and childbirth. The actors who occupy the positions are the husband and wife, their nearby living relatives, the family elders, health professionals, the TBA and sometimes friends.

Illusio, which refers to the rules and common goal in a field, implies that all actors in positions display a willingness to support the health and wellbeing of pregnant women. This support includes first and foremost readiness to contribute to prompt seeking of healthcare in emergencies and the provision of additional nutrition and care. The illusio contains the idea that difficulties, such as the struggle to source money and transportation must be endured. This perspective was primarily brought up by the husbands. Those who do not share this illusio are excluded. The illusio allows all actors to take part in decisions to seek healthcare, but shared decision-making could be bypassed in emergency situations if necessary.

> *"[His wife wanted to go to hospital with malaria, he agreed]. We [husband and wife] did not discuss with the relatives. I just took her to the hospital and let them know afterwards. We had no time to discuss because of her condition at that time. There was no way".*
>
> Husband 8

Cultural capital: Husbands struggle to access knowledge about pregnancy complications

The relevant cultural capital (legitimate knowledge) in the field is the knowledge and skills to manage pregnancy complications, which forms the field's highest attainable power. This power is primarily possessed by healthcare professionals and to a lesser degree by TBAs and older women. Most husbands and wives express that the health professionals' knowledge clearly surpasses the value of traditional health knowledge, female elders' lived experiences and TBAs' skills, but the key informants highlight traditional healthcare providers' skills in managing delivery problems caused by witchcraft.

> *"The nurses advised my wife to wait at the hospital until delivery. (…) I don't know why. I thought that since they know their job, they sensed something. Maybe they though that what happened previously [miscarriage], could happen again. (…) I was very happy and accepted".*
>
> Husband 7

Compared to women and healthcare workers, men have very limited maternal health knowledge. It is rarely sufficient to give them decision-making power in relation to complications. Knowledge of what happens during delivery is culturally considered a female domain and many husbands and wives accept male ignorance. In particular, it is accepted that first time fathers and mothers would be totally ignorant about maternal health.

> *"My mother-in-law had experience of these things, so she knew what would happen if my wife wasn't taken to the hospital quickly. (…) I agreed with her. I could not deny, for I knew nothing about delivery, and she knew better. This is why I accepted. Had it been that I knew more, I would have accepted or refused pending on what I knew".*
>
> Husband 2

However, many husbands and wives express a need for husbands to know more about maternal health. The wives want men to know about blood donation and women's suffering during delivery, while husbands want knowledge of maternal health to act correctly in case of pregnancy complications. All interviewees emphasize the dangers of extra-marital sex, and key informants see little need for increasing men's knowledge.

"I want to know more about delivery. (…) If anything goes wrong, I can advise her [wife] what to do".

Husband 7

Husbands rely on their wives for knowledge about maternal health. Ideally, men want to learn from their fathers, but in practice, traditional systems of passing knowledge from grandparents to young men involve little beyond offering advice on avoiding extra-marital sex. Some women believe that men learn about maternal health in men's initiation ceremonies; this response is quite different from men's accounts.

"I want to know issues concerning health problems in pregnancy. (…) I could have asked my grandpa, had it been he was still alive, things about pregnancy and how to take care of it. (…) There's no-one [to ask from now]".

Husband 10

Economic capital: Husbands' control of money authorizes them to make decisions about seeking healthcare

Husbands are often the sole earners of money and, as a result, in charge of economic capital. In a setting in which poverty limits access to economic resources husbands become important decision makers concerning pregnancy complications.

"The one who decides where to go with [delivery] problem is the husband. (…) My parents agree, because he is the one who brings money in our family. He is the one who will pay everything at the hospital".

Wife 6

Husbands can allocate resources to maternal health seeking as they see necessary. They are expected to spend what they can afford, and seek assistance for remaining costs. Only if husbands have no economic means at all will the next closest relative with resources become economically responsible. Wives can be in charge of family resources only if their husbands are working far away. By spending on their wives' health husbands can demonstrate their love. Unwillingness to spend indicates a rupture in the relationship.

"A husband needs to find money for the pregnant wife to go to the hospital [for malaria treatment]. If you don't have money you need to ask your relatives, and if they have, they assist. (…) In my family we helped each other. My mother-in-law paid half".

Husband 5

"He [husband] went to work and afterwards he came to give the money to me here [at the hospital after delivery]. (…) I was satisfied to say my husband loves me, because he was giving me assistance and visiting me at the hospital".

Wife 6

Husbands who support their wives gain recognition from peers and family members as well as increase their symbolic capital. The opposite applies to negligent husbands.

"His fellow men say 'Oh! You man, how come you don't take care of your wife, yet you earn a lot? You are not good at all'. He is laughed at and he is referred to as a fool because of his failure to take care of his wife".

Village chief

Lack of money is the only acceptable reason for a husband to deny hospital delivery or delay the start of antenatal care without losing respect. The couples accept that poverty limits spending on maternal health.

"A husband needs to take care of his wife and child depending on what he earns. Like my husband, he works at the lake and brings home what he gets. We are satisfied with what we get".

Wife 3

Symbolic capital: As heads of household, husbands decide on family matters such as pregnancy care

Symbolic capital represents prestige in society; it is predominantly husbands and clan elders who share this capital. Husbands' symbolic capital comes from their positions in the family and society as the man, father, and the head of household, who is knowledgeable, revered and trusted. Symbolic capital is husbands' second most important source of capital, but it does not give them the right to deny their wives healthcare in the same way that a lack of money does.

"The husband decides [on health care seeking in pregnancy complications] because he is the head and the only one who decides what to do in a family. He has the power over the wife. (…) I am not interested in my uncle [head of clan] making decisions over my husband because I have my own family and he has his".

Wife 9

To preserve symbolic capital, men have to fulfil their roles as husbands and fathers by demonstrating a willingness and ability to provide long-term support to mothers and babies. If husbands are away for work during pregnancy and delivery, they can maintain most of their authority by providing continuous financial assistance. However, in instances of complications, husbands are expected to be present to take part in their wives' suffering and visit the women at the hospital to reconfirm their fatherhood and guarantee assistance, love and care.

"I visited her [at the hospital after a Caesarean section] because she is my wife and I missed her a lot. (…) I also realized that the child came from my body, so there was no way to leave her there without visiting her. I loved her very much".

Husband 8

Husbands' symbolic power is diminished in families in which wives hold independent positions and challenge their husbands' dominance.

"[If her husband refused her to attend health care with pregnancy problems] I will tell my mother about what my husband said. (…) My mother will be surprised, saying does he need to kill you. (…) Later our marriage will end because he wanted to kill me".

Wife 8

Husbands also have less symbolic power in families that strongly adhere to matrilineal traditions, since women are seen more as minors who belong to their parents.

"I was refusing to take my wife to the TBA [instead of hospital], but the mother-in-law insisted she should go. She said that she delivered her first child at the TBA and my wife should follow that. I accepted because she was the mother of my wife and she has the power over her daughter".

Husband 1

A weak relationship also diminishes husbands' symbolic capital. However, men's extra-marital affairs are tolerated, and do not necessarily result in a loss of status.

Social capital: Husbands' social networks only have the power to assist with transportation

Social capital is defined as significant social relations, and it is primarily the network of female relatives living nearby and TBAs who possess this capital. TBAs are significant because of their knowledge of maternal health and links to healthcare professionals. The social capital gives the women and the TBAs the right to provide care and practical assistance to pregnant woman, but only some decision-making power. Husbands' social connections to male peers allow them to arrange referral transport and little else. However, many husbands wish for stronger male peer networks that could also help in managing pregnancy complications.

Husbands' close relationships to their wives form their most

significant social capital. The husbands are entitled to commence action when pregnancy complications occur.

"It was good my husband came [when I was having problems delivering at the TBA] because when he came everything was okay. He went to hire a car, which I don't think would have happened if he was not around. My mother could not manage that and I don't think her relatives could. (…) Maybe the TBA could have called an ambulance. It was good he came because my father is dead and I had nobody to do the work of a man. Maybe I could have died".

Wife 3

"[Laughter] sometimes labour may start in the night and I will wake him [husband] up and state everything I am feeling. So he goes to my parents and tells them about my problem. So it is good to have him around".

Wife 5

Struggles: Exclusion from maternal healthcare challenges husbands' power

Struggles that refer to debates in the society that seek to transform or preserve the power balance, emerge concerning men's exclusion from maternal healthcare. It is predominantly key informants who want to preserve the current balance in which men are absent from or act passively in the context of maternal healthcare. However, husbands in particular regret men's exclusion from maternal healthcare and the lack of spousal communication about delivery.

"I was told that my wife was going for operation. (…) I thought of asking why, but the relatives of my wife told me not to ask. They said no, just leave it".

Husband 3

"I was getting all the information [about my wife's pregnancy complication] through my mother-in-law [at the hospital]. (…) I would have liked to see her, very much. But we are not allowed".

Husband 2

Another struggle concerns the symbolic power balance between wives' and husbands' families. The respondents express that the matrilineal tradition of the Yao gives wives' relatives symbolic capital in the field of pregnancy and the children are seen as belonging to wives' family. Yet many families who live in husbands' villages allocate more power to his relatives.

"The wife needs to adhere to what the husband decides. She needs to be loyal to the husband, not her parents whom she has separated with".

Husband 6

"Even if she [daughter or sister's daughter] lives in her husband's village, if there's a pregnancy complication, he consults my family for a good decision".

Uncle, head of clan

Misrecognition of the power balance in which wives are dependent on their husbands

Pregnant women have very little capital of any type and very little power in decisions about seeking healthcare for themselves. They are treated as minors in decisions concerning pregnancy complications. In disagreements, they are required to obey their husbands, unless they can find powerful supporters of their opinions among elderly relatives or healthcare workers. The hierarchical structure of the society that makes wives dependent on husbands is largely misrecognised. Wives' dependent position is generally taken for granted, which contributes to its persistence. Power imbalances become evident if husbands do not provide assistance and wives are left with limited options for survival. The question of women's autonomy does not take form of a power struggle because only pregnant women themselves promote autonomy, and their position is weak. However, a few women challenge the situation and make decisions about their own bodies and health, even when they risk divorce as a result of acting against their husbands' wills.

"You can't say no to what your husband has ordered [to deliver at home instead of at hospital]. He is the head of the family, the one who makes decisions. (…) But a wife can report that to the brides-man [middleman] or a relative who calls him, and he takes the advices and accepts you to go to the hospital".

Wife 6

"[If her husband denied hospital delivery] I would go anyway, because I am the one with the problem. My husband may think that I have defied him, perhaps he can think of a divorce. But I don't think one can lose her life because of a family. I will first go to get treatment, then later on we can discuss".

Wife 7

4. Discussion

This qualitative interview study of husbands' role in making decisions about seeking healthcare for pregnancy complications in a semi-rural area in Malawi revealed that husbands are important decision makers because of their economic resources and role as head of household. The power imbalance that gives wives little say in healthcare seeking is largely unrecognised and, as a result, upheld in society. However, lack of money is seen as the only reason why a husband can deny his wife's healthcare. The highest decision-making power is assigned to knowledgeable and skilled maternal healthcare professionals, while husbands have very limited access to maternal health knowledge. The key informants in this study express little need for increased male involvement, compared to the men and women, which indicates that the full significance of husbands' participation may only become evident through the experience of pregnancy complications.

The significant role of the husbands in making decisions around pregnancy complications is based on their economic capital, which is needed to cover referral and hospital costs, as well as on their symbolic capital, which in practice means support to women and children in the long term by guaranteeing their position in society. The husbands' power over their wives in seeking maternal healthcare and the misrecognition of this power imbalance must be related to the cultural context of Malawi, in which gender inequalities are significant in decision making and accessing productive resources in other spheres of life [19]. Only one third of women feel that they can make decisions about their own healthcare [15]. Addressing the female dimension of poverty, in which women lack both economic means and decision-making power can improve maternal health outcomes [15,20,21], and this development can and should coincide with increased and improved male involvement.

Lack of money was the only acceptable reason for a husband to deny his wife the opportunity to seek skilled care, which indicates a need to find solutions for timely healthcare seeking that are effective in the least privileged settings and families. Hierarchical decision-making patterns did not create an obstacle in timely healthcare seeking; this result is in line with some previous studies [20]. Other studies have found decision-making patterns and cultural practices to be major barriers [21,22]. Lack of maternal health knowledge among husbands, TBAs and family members was considered to delay or prevent healthcare seeking in some situations.

The power and appreciation given by husbands and wives to maternal healthcare professionals in this study is somewhat unexpected in a low-income country context [23]. The finding is most likely explained by the specific sample of couples who had experienced severe pregnancy complications that could not be treated in the community but were treated successfully by healthcare professionals. The more

significant role that key informants assigned to traditional healers and TBAs supports this theory. Similarly, the emphasis on timely healthcare seeking as a means to support the health and wellbeing of pregnant woman can be explained by the sample of interviewees as well as the study's focus on men, who traditionally arrange referrals.

Methodological discussion

The use of Bourdieu's concepts helped to illustrate how the power balance influences decision making around pregnancy complications. However, the concepts field and capital focus on social interactions; incorporating individual determinants of decision making would have required the use of additional concepts, such as the habitus, which Bourdieu uses to explain the pre-existing, historically constructed characteristics of individuals that condition them to behave in a certain way [12]. For example, many men explained how their inner strength that came from a religious worldview and the satisfaction of becoming a father influenced their decisions. We also found, that the power balance is not always misrecognized like Bourdieu suggests [11].

In-depth interviews with husbands, wives and key informants were useful for investigating the different points of view of men and women as well as people with and without experience with pregnancy complications. For example, the analysis revealed that men and women had different expectations of what men should know about maternal health; these differences are important when designing maternal health interventions [24]. Although the study included separate IDIs for husbands and wives to facilitate free expression, the reliance on male interviewers may have caused some women to feel shy about speaking. Efforts were made to minimize this effect by including the female investigator and securing a safe and comfortable interview setting chosen by participants. The sampling process purposively looked for couples who had experienced pregnancy complications. However, we relied on the assistance of village headmen, and their understanding of pregnancy complications and possible other preferences influenced how the interviewees were chosen. As expected, discrepancies were found in the men and women's stories. Men expressed more comprehensive male involvement than their spouses did. This result was interpreted as an indication of social desirability bias on the men's part; they may have wanted to present themselves in favourable terms in an interview situation [25]. It is also possible that men's role in delivery complications remains hidden from women in a society in which women and men act in separate spheres.

Conclusion

We conclude that husbands are important in making decisions to seek healthcare for pregnancy complications because of their economic and symbolic power positions grounded in male dominance in society. However, men have limited access to maternal health knowledge. We recommend that the female dimension of poverty, in which women lack both economic means and decision-making power, should be addressed to improve maternal health seeking practices and that men be given direct access to targeted maternal health knowledge in order to enhance male involvement.

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