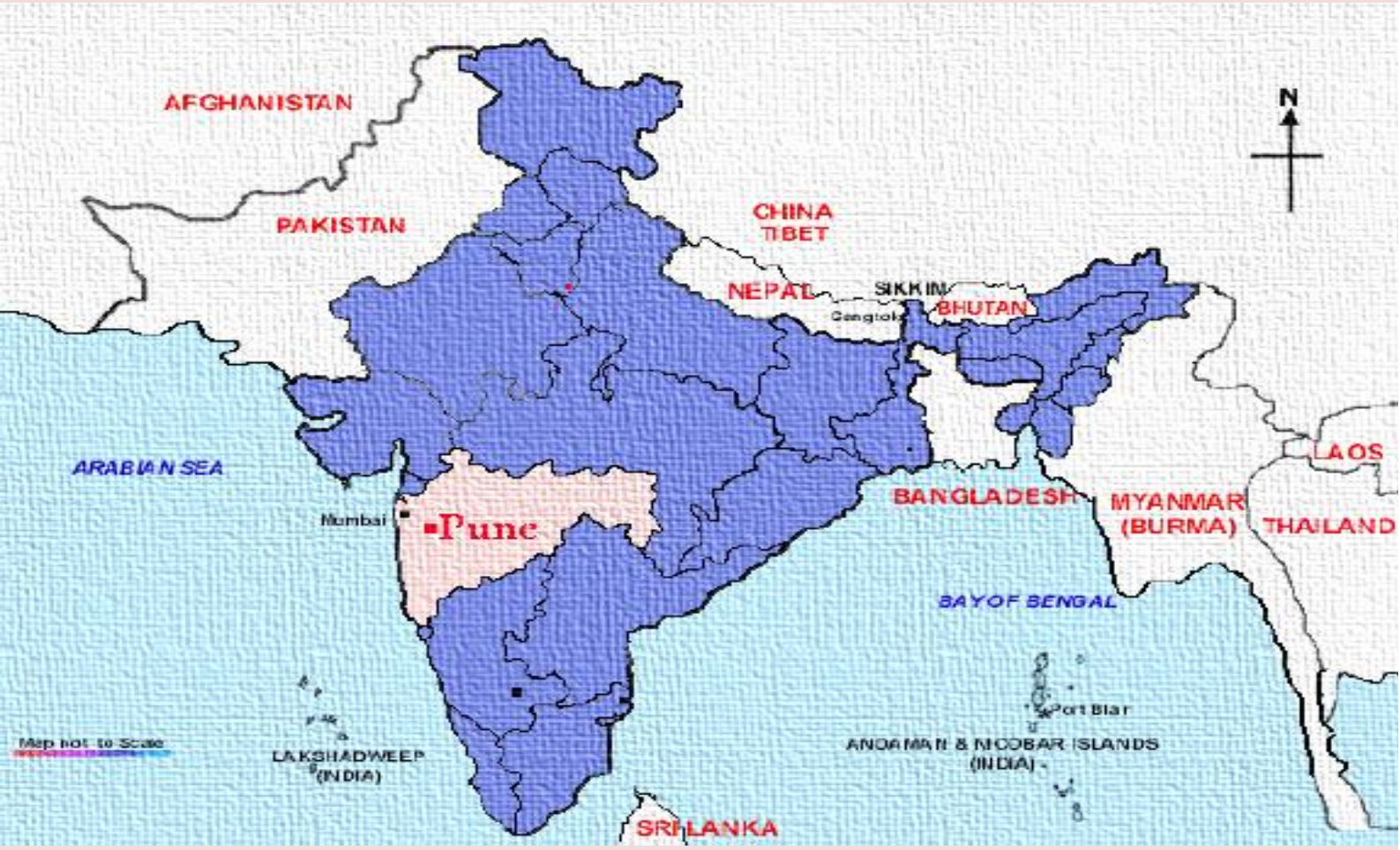
Couple-oriented post-test HIV counselling for encouraging male partner HIV testing in India: The process of persuasion



Simone Elisa Soeters

Couple-oriented post-test HIV counselling for encouraging male partner HIV testing in India: The process of persuasion

Master Thesis

MSc. Population Sciences

University of Groningen
Population Research Centre
Faculty of Spatial Sciences
Landleven 1
9747 AD Groningen

Simone Elisa Soeters
(s2355264)
Supervisors: Dr. Shrivinas Darak and Dr. Ajay Bailey

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ABSTRACT

Objective: Couple-oriented post-test HIV-counselling (COC) aims to encourage male partners to undergo HIV counselling and HIV testing by providing women attending antenatal clinics with tools and strategies to improve communication about these issues with their partners. COC has been shown to increase uptake of male partner HIV testing, compared to standard post-test HIV-counselling (SC), delivered in prevention of mother to child transmission (PMTCT) settings. The exact process of persuasion that leads men to obtain HIV testing is not yet clarified and this research attempts to understand this process of persuasion.

Methods: A mixed methods approach was adopted for this research based on the secondary quantitative and qualitative data from the Prenahtest ANRS 12127 trial in India, a longitudinal intervention trial in which women were randomised to receive SC or COC and followed until six months post-partum. Qualitative research was undertaken firstly to identify the different elements involved in the processes of persuasion through the use of 20 in-depth interview, 11 with women and 9 with men. Based on this, a possible process of persuasion was developed and tested quantitatively using a sample of 479 women.

Results: The qualitative findings identified that men and women's HIV risk perception, HIV knowledge, women's self-efficacy, couple communication, relationship dynamics and men's roles as fathers in accepting HIV testing plays an important role in the processes of persuasion. A selection of these elements was taken to suggest a possible process of persuasion and tested quantitatively. Predictor variables that increased the odds ratio (OR) of persuading men to obtain HIV testing included COC [OR=3.462, 95% CI (2.005-5.980)], an absence of women's HIV risk perception [OR=2.199, 95% CI (1.048-4.615)], more daily couple private time [OR=2.914, 95% CI (1.106-7.679)] and good general communication within a couple [OR=1.756, 95% CI (1.020-3.021)].

Conclusions: The possible process of persuasion that leads men to obtain HIV testing hypothesised in this research proved not to be the exact process occurring. However, this research assists in better understanding the elements and factors involved in the process of persuasion and the results in relation to women's HIV risk perception are especially noteworthy. Additional in-depth research is needed to further explore these findings and identify the exact process by which women are able to persuade their partners to obtain HIV testing.

Keywords: *COC, SC, persuasion, male partner HIV testing, HIV risk perception, HIV knowledge, self-efficacy*

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ACRONYMS

AIDS- Acquired Immunodeficiency Syndrome
ANC- Antenatal Care
ANRS- Agence Nationale de Recherche sur le SIDA/National HIV/AIDS Research Agency
COC- Couple-oriented post-test HIV-counselling
HBM- Health Belief Model
HIV- Human Immunodeficiency Virus
MTCT- Mother to Child Transmission of HIV
PMTCT- Prevention of Mother to Child Transmission of HIV
SC- Standard post-test HIV-counselling
VCT- HIV Voluntary Counselling and Testing
UNGASS- United Nations General Assembly Special Session
WHO- World Health Organisation

Chapter 1- INTRODUCTION

1.1. Background

In 2001, the United Nations General Assembly Special Session (UNGASS) committed to reduce the number of children living with HIV by 50% in 2010. To achieve this goal, it was estimated that 80% of pregnant women receiving antenatal care (ANC) would need to have access to HIV counselling, testing and PMTCT (prevention of mother-to-child transmission of HIV) services (Brusamento et al., 2012). In 2008, an estimated 430,000 children globally were newly infected with HIV and over 90% of them through mother-to-child transmission (MTCT). The risk of MTCT ranges from 20% to 45% without intervention, with intervention this risk can be reduced to between 2% to 5% (WHO, 2010). In 2011 the Global Plan towards the elimination of paediatric HIV was launched with the goals of reducing the number of new HIV infections among children by 90% and reduce the number of AIDS-related maternal deaths by 50% (UNAIDS, 2011).

In India, it is estimated that of the 27 million pregnancies every year, 49,000 occur in HIV positive mothers (UNICEF, 2013). In South-East Asia in 2009, among pregnant women, only 17% received HIV testing, which is lower than the average of 26% in low- and middle-income countries (WHO, 2011). Between 2007 and 2009, population based studies conducted in nine resource limited countries estimated that only 34% of women and 17% of men were ever informed of their HIV status (WHO, 2010). Prenatal HIV counselling and testing services have been primarily focused on pregnant women and rarely take into account the male partner (Farquhar et al., 2004, Msuya et al., 2008). However, it has been shown from a cohort study conducted in Kenya that men's HIV testing during the pregnancy of their partner significantly contributes to the adoption of preventative behaviours within the couple, as well to child survival (Aluisio, 2011). The UN Four-Pronged Strategy for PMTCT has as its first strategy to prevent HIV infection among couples in the reproductive age group (WHO, 2007). This, in the context of the predominantly heterosexual transmission from men to their wives in India (Santhya & Jejeebhoy, 2007), makes it important to test men for HIV.

According to Saggurti and Malviya (2009), in India there exists low HIV risk perception and a lack of knowledge on HIV/AIDS and safer sex practices among the general population, including pregnant women. They go on to explain that many women in monogamous marital relationships do not consider themselves at risk for HIV. From the research of Santhya and Jejeeboy (2007), they found that women's trust in their husbands and women's belief in fidelity are primary reasons for not using condoms, even though the primary risk factor for HIV in married women appeared to be their partner's extramarital or paid sexual relations. Even women who were aware of their husbands' infidelity were unable to take preventative action for fear of the social risks and repercussions. In India there is low HIV risk perception, lack of knowledge of HIV/AIDS and safer sex practices, as well as a lack of involvement of male partners in issues regarding PMTCT and sexual and reproductive health. Considering this, it is important to evaluate interventions that attempt to improve this situation.

Couple oriented post-test HIV-counselling (COC) is a strategy that aims to empower women to communicate with their partner about HIV and sexual health, while encouraging the men to obtain HIV testing. Personalised information, tools and strategies about HIV and how to suggest HIV testing to the male partner is provided during the COC session (Orne-Gliemann, 2013). For this Master's research, data from the Prenahtest ANRS 12127 trial was used, which had the aim of assessing COC and its efficacy on the incidence of partner HIV testing and couple counselling, as well as sexual, reproductive and HIV prevention behaviours

(Orne-Gliemann et al., 2010). The COC intervention resulted in an absolute gain in male partner HIV testing rates with 35.4% of men from the COC group compared to 26.6% of men from the standard post-test HIV counselling (SC) group obtaining HIV testing at the Indian site in Pune, Maharashtra (Orne-Gliemann et al., 2013). These results show the efficacy of COC in increasing male partner HIV testing. However, the following questions remained: how exactly does this occur; what are the elements involved; and what is the process by which women are able to persuade their partner to obtain HIV testing after undergoing post-test HIV-counselling. Hence the research objective of this Master's research was developed.

1.2. Literature review

Considering the fairly recent acknowledgement of the importance of male partner involvement in women's reproductive health and in PMTCT interventions, studies have been carried out to explore and measure men's involvement in these areas. In order to place this Master's research within the larger body of scientific knowledge already in existence, a literature review examining different aspects of male involvement was carried out. Firstly studies regarding the importance of male involvement for PMTCT, with a focus on encouraging male partner HIV testing and counselling uptake were investigated (1.2.1). The barriers that exist to male involvement in PMTCT services formed another group of studies explored (1.2.2). Specific factors identified by a range of studies that were shown to influence male partner HIV testing and counselling in PMTCT settings are also presented (1.2.3). The findings of published articles based on the Prenahtest trial were also explored (1.2.4). Finally, the scientific relevance of this research is outlined (1.2.5).

1.2.1. Importance of male involvement for PMTCT

A study (Farquhar et al., 2004) that investigated the effect of male partner HIV testing and couple counselling on uptake of interventions to prevent HIV transmission found significant benefits associated with partner involvement. They found it was a useful strategy in reducing perinatal HIV transmission risk. Aluisio et al. (2011) found that male involvement in antenatal PMTCT services with HIV testing was associated with reduced mother-to-child-transmission of HIV and reduced infant mortality from a prospective cohort study undertaken between 1999 and 2005 in Nairobi, Kenya. Several studies have reported that male involvement in antenatal HIV counselling and testing increases the use of PMTCT services in resource-limited settings and is associated with the acceptability of PMTCT interventions by women (Peltzer et al., 2010, Bajunirwe et al., 2005 and Kiarie et al., 2003). Allen et al. and Roth et al. (2003 & 2001) also identified male partner HIV testing as a key for prevention of sexual transmission of HIV during pregnancy and after delivery. According to Dunkle et al. (2008), a large proportion of new HIV infections have been proven to occur within marriage and cohabitation.

Considering the Indian setting, Sharma (2002) explains the importance of men's influence on women's health. Men often act as social gatekeepers to women's access to reproductive health services. In the patriarchal Indian system, women are often economically and emotionally dependent on their male partners and find it difficult to raise issues related to reproductive health, such as HIV testing, with their partners. Men have an extremely important role in women's reproductive health and marginalising men would be detrimental. According to Chatterjee and Hosain (2006), heterosexual transmission accounts for the majority of HIV/AIDS cases in India and increasing rates of infection in married women contracting HIV from an infected husband have been found. The position of married women and cultural roles in Indian society, in which girls are taught to aspire to get married and the husband-wife bond is considered one of the most sacred, means women rarely question their husband or relationship. Married women are rarely in a position of empowerment, meaning

that men's involvement and approval of, in PMTCT programs is essential for such interventions to be successful.

1.2.2. Barriers to male participation in PMTCT services

Several studies described male attitudes to participating in ANC and PMTCT programs. One study by Katz et al. (2009) in Nairobi highlighted several reasons why men do not accompany their partners to ANC where HIV testing and counselling services are provided. Reasons presented by the researchers included traditional beliefs that pregnancy is a woman's affair, long wait times at clinics, lack of care available for children at home and shame associated with male participation in ANC. Another study in Tanzania identified several barriers in to male participation, including: a lack of knowledge, information and time; the perception of ANC as women's responsibility; and the neglected importance and fear of HIV test results (Theuring et al., 2009).

Research conducted in southern Malawi through the use of focus group discussions and a cross-sectional survey investigated the lack of male involvement in ANC and explored men's perceptions of their involvement in antenatal HIV testing and counselling, as well as their perceptions of HIV in pregnancy. The main barriers were that men were largely unaware of antenatal HIV counselling and testing services perceived it as problematic to attend female-oriented health care. Involvement was further compromised by men's reluctance to know their HIV status and the potential threat this knowledge could have on marriage (Aarnio et al., 2009).

Another study in eastern Uganda identified low male involvement in a PMTCT programme that offered HIV testing services was related to the poor quality health system, including charging of unofficial user fees and lack of space in the ANC clinics. Socio-economic factors, including not being able to take time off work due to financial difficulties, was cited as another reason for low male participation. Finally cultural factors relating to men being perceived as 'weak' if they attend the antenatal clinic too often was another barrier (Byamugisha et al., 2010). Similarly, Larsson et al. (2010) found in Uganda the barriers men expressed to obtain HIV testing included men's perception of their marriages as unstable and distrustful, making the concept of couple HIV testing unappealing. The stigmatizing nature of HIV care and rude attitudes among health workers resulted in men's perception of the health facilities as unwelcoming.

1.2.3. Factors influencing male partner HIV testing and counselling in PMTCT setting

Communication within the couple proved to be an important determinant of HIV testing and counselling uptake. Sarker et al. (2007) analysed the factors associated with the uptake of HIV counselling, HIV testing and returning for test results during a PMTCT programme in rural Burkina Faso. They concluded that HIV testing participation was related to discussing HIV screening with the partner and the number of antenatal care visits already experienced. Couple communication plays a crucial role in the uptake of HIV testing and women should be encouraged to engage in discussion about testing with their partners to improve male participation. A study conducted in rural Malawi regarding spousal communication about the risk of contracting HIV/AIDS saw marital partners actively challenge and persuade one another to reform sexual behaviour to avoid HIV/AIDS infection within the couple, including the encouragement of obtaining HIV testing (Msiyaphazi & Chepngeno, 2003).

Byamugisha et al. (2011) conducted a study to evaluate the effect of a written invitation letter to spouses on antenatal care attendance by couples and on male partner HIV testing in eastern Uganda. The found that a simple intervention, invitation letter, could increase couple antenatal care attendance by 10% and the majority of male partners who attended the

antenatal care visit accepted HIV testing. Another study aimed to describe the predictors for male partner participation in HIV voluntary counselling and testing (VCT) in Tanzania found that women were more likely to bring their partner to VCT if they had collected their own test result, were living with their partner, had a high monthly income and had expressed at enrolment the intention to share HIV results with their partner. Furthermore, promotion of VCT outside antenatal settings in male friendly and accessible situation was emphasized (Msuya et al., 2008).

A three-armed randomized controlled trial conducted in Kinshasa, Democratic Republic of Congo offered voluntary HIV counselling and testing services at a local health centre, bar or church to the male partners of pregnant women attending a maternity unit in Kinshasa. The trial found men's participation in voluntary HIV counselling and testing, linked to ANC, was highest in non-health service settings, especially in bars (Ditekemena et al., 2011). In eastern Uganda, research stressed the importance of community sensitization of men about the positive aspects of ANC and PMTCT and that improving the client-friendliness in clinics was a necessary priority to ensure the increase of male participation in antenatal HIV counselling and testing (Byamugisha et al., 2010).

Pertaining to the women's perspective on HIV testing and counselling, overall male participation in antenatal care was found to be associated with increased acceptance and willingness of HIV testing and counselling by pregnant women in resource-poor settings. The factors associated with increased uptake of HIV testing and counselling among pregnant women included perceived willingness of the male partner to accompany her to the antenatal clinic (Baiden et al., 2005), simultaneous testing within the couple (Okonkwo et al., 2007), improved ease of being tested as a couple (de Paoli et al., 2004), the woman's perception regarding her partners acceptance of HIV testing (Bajunirwe et al., 2005) and if the male partner had been tested for HIV (Creek et al., 2003). Socio-economic factors such as educational level, wealth quintile and age of women and men may also influence women's empowerment in decision -making regarding HIV testing and counselling (Mbonye et al., 2010). Factors that are negatively associated with willingness for HIV testing include women's fear of her partner's reaction, less authority in decision-making, poor couple-communication patterns and male partners reluctance towards HIV testing and counselling (Maman et al., 2001).

1.2.4. Findings of the Prenahtest trial

Considering this Master's research is based on the larger Prenahtest ANRS 12127 intervention trial and several findings have already been published, it is important to consider this literature separately. By doing so the added value and the scientific relevance of this research can be made more explicit.

It has already been shown that COC increases male partner HIV testing uptake to a greater extent than SC (Orne-Gliemann et al., 2013). An acceptability study conducted by Orne-Gliemann et al. (2010) found that some of the main factors contributing to men's involvement within prenatal HIV counselling and testing included better understanding of couple communication, relationships and attitudes. Huet et al. (2012) identified several barriers that explained why men were not involved in prenatal HIV counselling and testing in Cameroon, Dominican Republic, Georgia and India. Men's professional occupation appeared as one of the first barriers to getting men involved in HIV counselling and testing services, as they were often unable to find the time to attend the clinic to receive HIV counselling or testing. Furthermore, the female dominated nature of health centres when issues related to reproductive health are the focus, make men's presence in these environments problematic. The Prenahtest researchers argued that the male-friendliness of ANC settings needs to be

improved in order to ensure male-involvement in prenatal HIV counselling and testing. Other elements were identified as facilitating men's involvement in prenatal HIV testing and counselling. These included the appeal to men's responsibilities as fathers for the baby to be born and the involvement of the health worker as a professional and third voice.

Considering the four Prenahtest study sites, it was found that the main factors associated with partner HIV testing in India and Georgia was the existence of couple communication around HIV testing. In Cameroon, Dominican Republic and Georgia a history of HIV testing among men was found to be important (Orne-Gliemann et al., 2013). In Cameroon, specifically, other reasons for male partner HIV testing in Cameroon were related to self-motivation and clinical symptoms (Tchendjou et al., 2011).

Based on the published results from the Prenahtest trial, communication within the couple in the Indian settings is clearly an important determinant of HIV testing and counselling uptake. Factors that facilitate and hinder male involvement are also valuable findings that need to be considered in this research. However, many questions pertaining to the Indian context still remain as no literature in which the Indian context only is considered has been published. Furthermore, it is clear that communication plays an important role, but COC is also linked to increased male partner HIV testing uptake and therefore the question regarding how exactly women are persuading their partners to obtain HIV testing still remains.

While these findings are valuable for this research, more information pertaining to the situation of male involvement in PMTCT in India is still needed. The majority of these studies have been conducted in sub-Saharan African countries, with an exception of the Prenahtest trial that included India, and while these results give valuable insight into this topic, the Indian context remains unique and therefore demands further exploration. Furthermore, this literature review has uncovered many factors involved in male partner uptake of HIV testing, but the exact process by which men are persuaded to change their sexual health behaviour remains unclear.

1.2.5. Scientific relevance of research

The importance of increasing male involvement in antenatal PMTCT services with HIV testing is clear, especially in terms of the effect it has in reducing mother-to-child transmission of HIV and the risk of sexual transmission of HIV during pregnancy and after giving birth. While several barriers exist to male involvement in antenatal PMTCT services, it is clear that interventions, such as the Prenahtest trial, which promote male partner HIV testing and counselling, as well as couple counselling, is positively associated with male partner HIV testing. Specific factors such as couple communication, the male-friendliness of ANC settings, women's socio-economic factors and the relationship dynamics within the couple were shown to be associated with male involvement. However, the majority of the studies described above were conducted in African countries. While the resource-limited setting is comparable to the Indian situation, the context of India is completely different in terms of culture, gender relations and relationship dynamics. Studies are needed that focus specifically on the Indian context.

Furthermore, while factors are identified that are positively associated with male partner HIV testing uptake, the exact process by which men are persuaded to become involved in interventions that promote such practices is not clear. It is important to understand the exact influence interventions that look to change sexual behaviour within couples have on the process by which said sexual behaviour changes. One such specific behaviour change is male partner HIV testing. As was shown, the Prenahtest trial highlighted the positive influence COC had on male partner HIV testing uptake, but the exact process by which those men were

persuaded to obtain the HIV test is not yet clear. In order to further improve and refine such couple-oriented counselling services and increase male involvement in antenatal PMTCT services, studying the process of persuasion that leads to male partner HIV testing will allow for increased male partner testing in the future

1.3. Research objective and research questions

The overall objective of the study is to understand the process of persuasion that leads men to obtain HIV testing. This process begins with a counselling modality, standard post-test HIV counselling (SC) or couple-oriented HIV counselling (COC), received by women and results in partner HIV testing occurring, or not, after the women suggests it to them. Persuasion is seen as effective when the man gets HIV tested and ineffective when he does not. From previous research based on the Prenahtest trial it was shown that COC increased rates of partner testing as compared to SC, but the process by which this occurred is unclear. At the end of this study we expect to better understand the possible processes of persuasion that lead to partner HIV testing.

Main Research Question

What is the process of persuasion that leads men to obtain HIV testing?

Qualitative Sub-Research Question

What are the different elements involved in the processes of persuasion women employ to encourage uptake of HIV testing to their partner?

Quantitative Sub-Research Questions

Does HIV knowledge, HIV risk perception and self-efficacy differ according to the modality of counselling received by the women?

What is the contribution of HIV knowledge, HIV risk perception and self-efficacy, in addition to counselling modality, to persuasion effectiveness?

1.4. Structure of paper

The research topic and necessity for this research is presented in the introduction chapter one by outlining the background, literature review, research objective and questions. The theoretical framework developed for, and leading, this research is presented in chapter two. The data and methodology chapter three follows in which a description of the data, conceptualisation of the concepts and analysis techniques used for both the qualitative and quantitative research is given. Chapter four presents the results of both the qualitative and quantitative analysis. The final section chapter five consists of a synthesis of the main results and conclusions regarding these and future research directions.

Chapter 2- THEORETICAL FRAMEWORK

2.1. Theories

In order to investigate the process by which male partners in India agree to HIV testing after receiving a counselling modality, a comprehensive theoretical framework and approach is needed. It is important to note that these theories were applied to interpret the data and did not necessarily influence the data collection. Communication theories pertaining to interpersonal communication regarding persuasion form the basis of the conceptual model for this research. Theories related to cultural symbolic perceptions of risk and the Health Belief Model, a social cognitive model of health behaviour are also included. The objective of this research is to understand the process by which men are persuaded by their female partners to obtain HIV testing after these women receive post-test HIV counselling, rather than the behaviour change itself. As such, this research focuses on the risk perceptions that exist, HIV related knowledge, self-efficacy, the communication interactions that are occurring between individuals and how this affects behaviour.

Whilst the Health Belief Model provides valuable insight into the ways in which individuals interpret and react to certain risks, and therefore influence their behaviour, communication is also one of the central components of persuasion. Communication can be seen to influence peoples' perceptions and behaviour. Together concepts from the HBM and interpersonal communication, focusing on persuasion, form the main aspects of this research that are under scrutiny and are driving the theoretical framework.

2.1.1. Communication Theories

Interpersonal communication is defined by Monsour (2006, p.58) as the creation of meaning through messages, both verbal and non-verbal, shared between individuals in a relationship. The process is said to be "dynamic, systemic and to take place on content and relationship levels" (Wood 2004, cited by Monsour 2006, p.58). Risk communication can be defined as "communication with individuals (not necessarily face to face), which addresses knowledge, perceptions, attitudes and behaviour relating to risk" (Edwards & Bastian, 2001, p.147). According to Covello (1991), there are specific areas where risk communication is applied including informing and education; stimulating behaviour change and taking protective measures; and exchange of information and a common approach to risk issues. To understand how these communication theories have been incorporated into the conceptual model, interpersonal communication will be looked at first.

Interpersonal Communication: Persuasion

Persuasion, one aspect of interpersonal communication, is a central factor of communication theory and can be seen as the study of social influence. According to Miller and Levine, social influence can be defined as "creating, changing, or reinforcing the cognitions, affective states, or overt behaviours of another person" (2009, p.245). Persuasion is seen to use intentional communication, excluding force, to achieve private acceptance. In the case of this research, the objective is to explain the process by which the women produce messages that are able to change the behaviour and attitudes of their partner. However, numerous variables can influence the effectiveness of persuasion, these include source effects, message effects and recipient characteristics (Miller & Levine, 2009).

Miller and Levine explain that source effects refer to the credibility of a source and to their perceived believability, which makes them more or less influential. The perceived competence and trustworthiness of a source are seen as dimensions of credibility. Other source effects that should be noted include social power, authority, attractiveness, liking, demographic and attitudinal similarity. Message effects including "discrepancy, language

intensity, message sidedness, and the quality and quantity of evidence provided" also influence persuasiveness (Miller & Levine, p.246, 2009). Discrepancy is defined as the distance between the position advocated for in a message and the recipients existing attitude. Language intensity describes the extent to which the language used varies from a neutral tone (Miller & Levine, 2009). Message sidedness is concerned with the extent to which both sides of an issue are put forth. According to O'Keefe (1999), two-sided messages are more effective in persuasion, but only if the opposing message is clearly refuted. Furthermore, when the recipient is involved in the issue, providing evidence is most effective (Reinard, 1988). Finally the recipient characteristics influence the persuasive impact of the message, numerous variables have been shown to affect the persuasive message. Miller and Levine (2009) provide a summary of the varying research that has been undertaken to investigate these variables including, the recipient's gender, intelligence, personality traits, including self-esteem, and argumentativeness. In this thesis, persuasion is seen as the focus of the theoretical framework and the primary phenomenon under study. Therefore it is important to consider the different factors that influence persuasion effectiveness. Source and message effects are considered in this process, however several modifying factors, individual perceptions and cultural risk norms in India are also seen to influence the process of persuasion.

Risk Communication: Trust

Another component of communication involved in the process of persuasion is risk communication. Risk communication and persuasion are in turn affected by several factors including trust, which affects behaviour change. Effective risk management and communication, with an intention to persuade others, relies heavily on trust. If risk is to be communicated effectively it is crucial to understand how people view and trust varying sources of risk information (Berry, 2004). Characteristics of source information that have been found to affect trust include perceived competence, objectivity, fairness, consistency and faith (Renn & Levine, 1991). Where there is an absence of trust, risk messages may be ignored or not trusted. In the context of this research, trust is needed within the couple for behaviour change, the man obtains a HIV test, to occur. The credibility of a source and their perceived believability makes them more or less influential. If trust exists between the source and the recipient of the message, the message being given is deemed more credible and behaviour change is more likely to occur through the process of persuasion (Miller & Levine, 2009).

In this study, trust is linked to the relationship dynamics within a couple and classified as a modifying factor within this conceptual framework, as it is seen to influence the process of persuasion by which men obtain HIV testing. Within relationship dynamics relationship satisfaction and couple communication are also explored. These have been included after analysis of the qualitative data and observation of participants discussing these elements during the in-depth interviews.

2.1.2. Social Cognitive Model of Health Behaviour

Health Belief Model

The Health Belief Model (HBM) is one of the most widely used conceptual frameworks in health behaviour. Initially developed in the United States in the 1950s in order to understand the failure of individuals to participate in programs to either prevent or detect disease (Bailey, 2008), the model was originally proposed by Rosenstock and further developed by Becker and his colleagues in the 1970s and 1980s (Berry, 2004). According to Janz et al. the HBM "has been used to explain change and maintenance of health-related behaviours and as a guiding framework for health behaviour intervention" (2002, p.45). Furthermore, the model is seen to have a linear link with a person's perceptions about the severity of a risk, their

acknowledgment that they are personally at risk and their eventual decision to adopt a behaviour to reduce or prevent the risk (Berry, 2004).

The model contains several factors including perceived susceptibility of an individual to contracting a health condition/illness, perceived severity by which individuals subjectively assess the seriousness of a certain illness, perceived benefits and perceived barriers to a proposed health action or behaviour. Finally, perceived threat, which is seen to motivate people to take action, however the type of action undertaken is determined by beliefs about potential behaviour (Rosenstock et al., 1988). If HIV protective behaviours are considered, the HBM proposes that for individuals who exhibit high-risk behaviours, it is crucial that perceived susceptibility to HIV becomes heightened before commitment to changing these risky behaviours can occur (Janz et al, 2002). Perceived threat is affected by both a person's perception of the severity of a health problem and the person's perception of their susceptibility to that health problem. According to Berry (2004), relevant beliefs influence the perceived benefits of changing certain behaviour as well as any perceived barriers to taking that action. The cues to action included in the model are considered as either internal, such as bodily symptoms, or external, such as media campaigns. Other modifying factors including demographic, socio-psychological and structural variables form part of the model and may affect individuals' perceptions and indirectly health-related behaviour (Janz et al., 2002).

Cues to Action and self-efficacy

For this research, the cue to action factor is seen as a focal point of the theoretical framework. As can be seen in the conceptual model, couple-oriented post-test HIV counselling (COC) is taken as the external cue to action under study. COC provides the pregnant woman with the goal, of encouraging male partner uptake of HIV testing, as well as the plan, in terms of providing them with risk information and interpersonal communication skills in order to persuade their husband. Another factor important for this research is a persons' self-efficacy. According to Bandura, "perceived self-efficacy is concerned with people's beliefs that they can exert control over their motivation and behaviour and over their social environment" (1990, p.9). Self-efficacy was only included in later models of the HBM, but this factor is seen as crucial in the present context as women's perceived ability to suggest HIV testing to their partners affects the influence of the cue to action, COC. However, as mentioned earlier, there are other modifying factors that affect the process of persuasion that must also be considered.

Modifying Factors

The Health Belief Model includes diverse modifying factors and a range of variables, including demographic, socio-psychological and structural variables, which are proposed as possible explanatory variables of individual's perceptions and subsequent health behaviour (Janz et al., 2002). For this research, socio-demographic modifying variables that can affect the process of persuasion have been identified and therefore must be controlled for in the quantitative analysis. These variables include the age and education of the men and women in the trial, duration of relationship, couple's daily private time, experience of emotional or physical violence by the women and general communication.

However, some of these variables, specifically education and factors relating to relationship dynamics, can be considered as contextual factors. Education is seen as an individual factor, however this implies that individuals have the choice to reach the level of education they desire. In India, the level of education attained may not decided by the individual, but rather by one's family suggesting contextual factors are influencing this decision. Regarding couple's daily private time, once again it is not only dependent on the couple's wish to spend

private time together that determines this, but rather the contextual situation in which they live as many Indian couples live with their family leading to fewer opportunities for couples to find themselves alone.

2.1.3. Cultural Symbolic Perspective of Risk and Cultural Norms

Cultural Symbolic Perspective of Risk

The Health Belief Model does have certain shortcomings, especially in relation to the individualistic focus of the model. This social cognitive approach tends to focus on individuals perceiving and responding to risks, rather than as members of a certain group, organisation or culture (Berry, 2004). Douglas (1992) has argued that the perception and responses to risk are linked to an individual's position in a cultural system and emphasises that risk judgements are constructed through frameworks of shared social and cultural understanding. No fixed objective measures of risk exist, but rather each individual and society defines and perceives risk in a different way. Constructivist approaches to risk also view risk construction by individuals as dependent on their relationship with other people and the social context (Bajos, 1997). These cultural symbolic perspectives of risk and constructivist approaches are an important determinant of health risk behaviour and should not be excluded from this analysis. The Indian context will now be considered.

Cultural norms related to risk in India

According to Saggurti and Malviya (2009), in India there exists low HIV risk perception and a lack of knowledge on HIV/AIDS and safer sex practices among the general population, including pregnant women. They go on to explain that many women in monogamous marital relationships do not consider themselves at risk for HIV. The research of Santhya and Jejeeboy (2007) found that women's trust in their husbands and their belief in fidelity are primary reasons for not using condoms, even though the primary risk factor for HIV in married women appeared to be their partner's extramarital or paid sexual relations. Even women who were aware of their husbands' infidelity were unable to take preventative action for fear of the social risks and repercussions. Those women raised in traditional sociocultural environments with ingrained gender roles and expectations, in which girls are often taught to aspire to get married and the husband-wife bond is considered sacred, rarely question their relationship or spouse (Chatterjee & Hosain, 2006). Thus, the perceptions and responses to risk in India can be seen to be socially and culturally constructed. Therefore, the cultural symbolic perspective of risk and constructivist approaches need to be considered in this research because they can influence perceived susceptibility and severity of HIV, self-efficacy, HIV risk perceptions, HIV knowledge and interpersonal communication within couples.

2.2. Conceptual model

Based on the above theoretical explanation, a conceptual model of the process by which men are persuaded to obtain HIV testing was formulated. A combination of all of the above-mentioned theories and concepts assisted in developing the final proposed conceptual model. Figure 2.1, showing the conceptual model, will now be outlined.

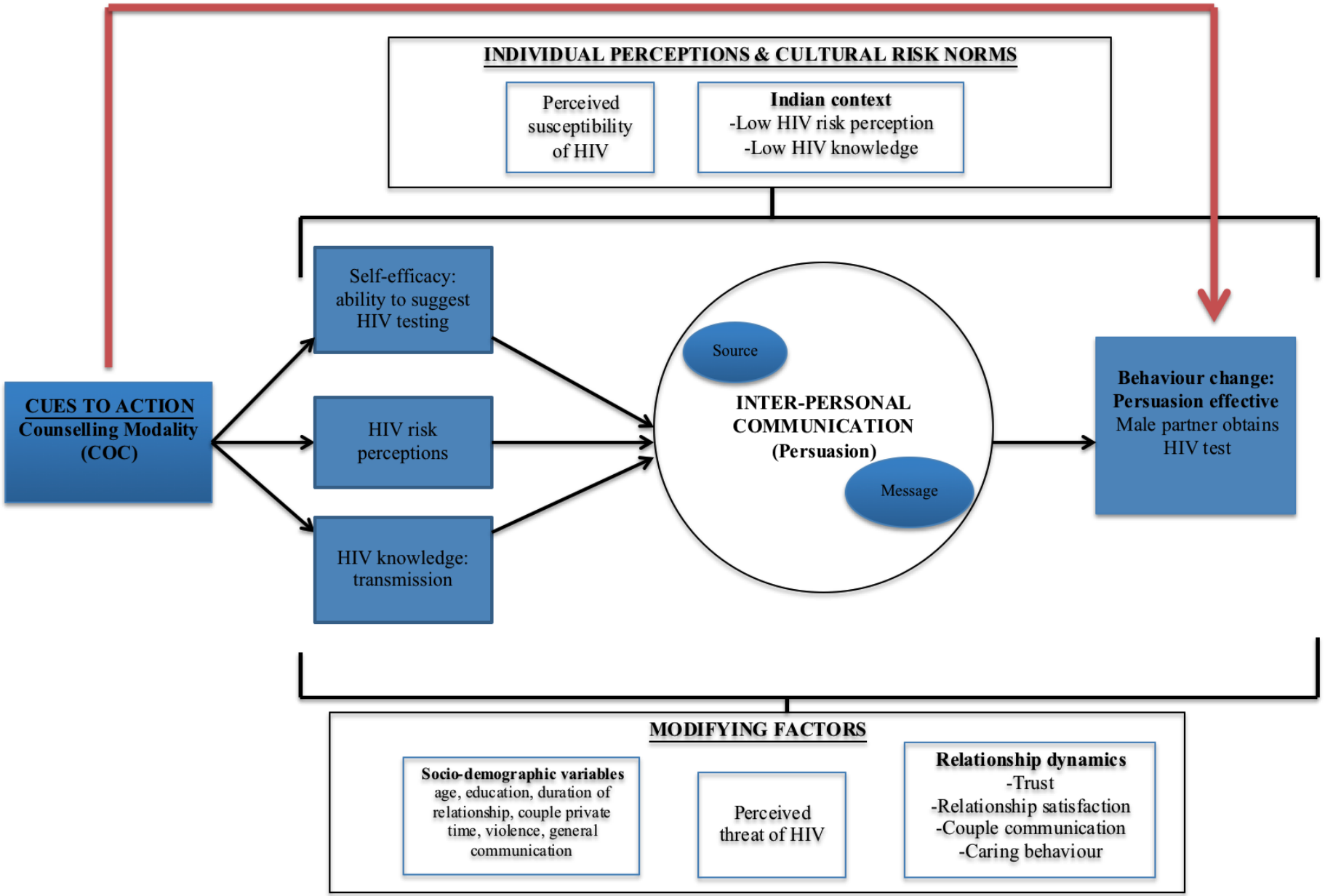
For this research, the cue to action factor is seen as a focal point of the conceptual model. Counselling modality, specifically COC, is taken as the external cue to action under study. COC provides the pregnant women with the goal of encouraging their partner to obtain HIV testing and the plan, in terms of providing the women with HIV risk information and interpersonal communication skills in order to persuade their husband. The counselling modality is seen to affect women's self-efficacy, in terms of their ability to suggest HIV testing, HIV risk perception and HIV transmission knowledge. In turn these three factors

influence the interpersonal communication within the couple and more importantly play a crucial role in the women's ability to persuade their partner to obtain HIV testing. The message the woman is transmitting, but also the source of the information, in this case the COC counsellor, used to persuade the partner influences the process of persuasion. The outcome of this proposed process of persuasion is the behaviour change of the male partner obtaining HIV testing.

The conceptual model identifies several modifying factors, also determined by contextual factors, which can influence the whole process of persuasion proposed in this research. The relationship dynamics, including trust within the couple, relationship satisfaction, couple communication and caring behaviour; the women and man's perceived threat of HIV; and several socio-demographic variables are taken as important modifying variables. In terms of the socio-demographic variables age and education of the men and women in the trial, duration of relationship, couple's daily private time, experience of emotional or physical violence by the women and general communication are seen as potential influential factors in the process of persuading the man to obtain HIV testing. Individual perception of the men and women regarding their perceived susceptibility of HIV can also influence this process, as well as the cultural norms relating to HIV risk in India.

However, the process of persuasion described above is a hypothetical one. From previous research within the Prenahtest trial, it has already been shown that COC is positively associated with men obtaining HIV testing (Orne-Gliemann et al., 2013) and this is depicted with the red arrow in Figure 1 leading from COC to men obtaining HIV testing. But the exact process by which this occurs is the primary question being explored here and the conceptual model defines a potential process that is being investigated. However, if this proposed process proves to be lacking, the red arrow signifies that COC is still positively influencing men obtaining HIV testing, but another process is at work.

Figure 2.1. Conceptual model of the process of persuasion that leads men to obtain HIV testing



2.3. Research hypothesis

As mixed methods were used for this Master's research, discussed in section 3.2, hypotheses can only be formulated for the quantitative research questions developed. However, the qualitative research did inform the hypotheses by highlighting the importance individuals' HIV risk perception, HIV knowledge and, to a lesser extent, women's self-efficacy play in the process of persuasion. With the support of these qualitative findings a possible process of persuasion was formulated. Regarding the first quantitative research question:

'Does HIV knowledge, HIV risk perception and self-efficacy differ according to the modality of counselling received by the women?'

The hypothesis developed for this research question is that the women who received COC would experience improved HIV knowledge, greater HIV risk perception and improved self-efficacy, in terms of their perceived ability to suggest HIV testing to their partner, compared to the SC group.

For the second quantitative research question:

What is the contribution of HIV knowledge, HIV risk perception and self-efficacy, in addition to counselling modality, to persuasion effectiveness?

The hypothesis developed for this second research question is that women's increased HIV knowledge, greater HIV risk perception and improved self-efficacy would contribute to effective persuasion of men, in terms of men obtaining HIV testing, in addition to counselling modality received.

2.4. Definition of concepts

Antenatal Care (ANC): defined by the World Health Organisation (2006, p.34) as recording medical history, assessment of individual needs, advice, and guidance on pregnancy and delivery, screening tests, education on self-care during pregnancy, identification of conditions detrimental to health during pregnancy, first-line management and referral if necessary.

Couple-Oriented post-test HIV Counselling (COC): is a clinic-based behavioural intervention. It aims at providing pregnant woman with information, building-up her negotiation skills and confidence, and giving her the tools and strategies to actively involve her partner within the prenatal HIV counselling and testing process. (Orne-Gliemann et al., 2010, p.2).

Cues to action: readiness to take action that is enhanced by other factors, particularly by cues to instigate action, such as bodily event or environmental events (Janz et al., 2002, p.50).

HIV risk perception: refers to an individual's subjective perception of contracting an illness, in this case HIV, and feelings concerning the seriousness of contracting that illness (Janz et al., 2002, p.48). For this research participants HIV risk perception is considered.

Human Immunodeficiency Virus (HIV): a retrovirus that infects cells of the immune system, destroying or impairing their function. The most advanced stage of HIV infection is acquired immunodeficiency syndrome (AIDS). HIV is transmitted through unprotected sexual intercourse, transfusion of contaminated blood, sharing of contaminated needles, and between a mother and her infant during pregnancy, childbirth and breastfeeding (WHO, 2013, p.1 of webpage).

Interpersonal communication: defined by Monsour (2006, p.58) as the creation of meaning through verbal and non-verbal messages exchanged by individuals in a relationship.

Message: Another element seen to influence persuasion effectiveness is message effects, which includes "discrepancy, language intensity, message sidedness, and the quality and

quantity of evidence provided" (Miller & Levine, p.246, 2009). Discrepancy is defined as the distance between the position advocated for in a message and the recipients existing attitude. Language intensity describes the extent to which the language used varies from a neutral tone Message sidedness is concerned with the extent to which both sides of an issue are put forth. (Miller & Levine, 2009, p.246).

Persuasion: can be seen as the study of social influence, defined by Miller and Levine as "creating, changing, or reinforcing the cognitions, affective states, or overt behaviours of another person" (2009, p.245). Persuasion is seen to use intentional communication, excluding force, to achieve private acceptance.

Risk communication: defined as "communication with individuals (not necessarily face to face), which addresses knowledge, perceptions, attitudes and behaviour relating to risk" (Edwards & Bastian, 2001, p.147).

Self-efficacy: defined by Bandura as "people's beliefs that they can exert control over their motivation and behaviour and over their social environment" (1990, p.9).

Source: refers to element that can influence persuasion effectiveness. Miller and Levine (2009, p.246) explain that source effects refer to the credibility of a source and to their perceived believability, which makes them more or less influential. The perceived competence and trustworthiness of a source are seen as dimensions of credibility.

Standard post-test HIV Counselling (SC): in the context of this research, this form of counselling includes reminding the pregnant woman of pre-test counselling messages, announcement of HIV test results, discussion of plans according to HIV status and providing information regarding HIV transmission, prevention and PMTCT (Orne-Gliemann, 2008, p.5).

Chapter 3- DATA and METHODOLOGY

3.1. Data source

The source of data for this Master's thesis comes from the Prenahtest ANRS 12127 trial, a longitudinal study in which quantitative and qualitative data collection was done. The study was undertaken at four urban health centres in low/medium HIV prevalence countries including Cameroon, Dominican Republic, Georgia and India. All the health centres catered for mainly underprivileged populations. For this research the data collected in India, at the Sane Guruji Hospital in Pune in the state of Maharastra, was used for analysis. All women attending their first prenatal care visit at the study site, between 26 February and 15 October 2009, were informed of the study and if they showed interest to participate were screened for eligibility. The women who were eligible provided written informed consent and were individually randomized to receive either standard post-test HIV counselling (SC) or the couple-oriented post-test HIV counselling (COC) intervention (Orne-Gliemann, 2013).

Considering the quantitative data first, three structured quantitative questionnaires, face-to-face, were administered to participants at baseline prior to prenatal HIV testing (T0), 2-8 weeks after post-test HIV counselling (T1) and six months post-partum (T2). No monetary incentives were given to encourage women to return for interviews at T1 and T2, but non-monetary incentives including family planning visits, condoms, selected contraceptive methods and sexually transmitted infections screening were offered for free (Orne-Gliemann, 2013).

Regarding the qualitative data collected, a sub-sample of the women enrolled in the study was also administered in-depth interviews using a semi-structured interview guide. These pregnant women were interviewed at the same three different time points as was done in the quantitative data collection. At the end of the intervention trial, a sub-sample of male partners of the female participants was also invited for an interview, using a semi-structured interview guide as was done for the women. During these in-depth interviews, the women and men's point of view regarding issues around couple relationships, including couple communication and attitudes and practices in terms of family planning and HIV prevention were explored (Huet, 2010).

For this Master's research, the quantitative data for women at T0 and T1 only was used. The first quantitative research question used the data regarding women's HIV risk perception, HIV knowledge and self-efficacy at T1 and the type of post-test HIV-counselling they received. The second quantitative research question used the data at T0 in order to measure the predictor variables and the outcome variables, persuasion, was measured at T1 in terms of whether men had obtained HIV testing or not. In order to answer the qualitative research question, the data from the qualitative interviews with women at T0 and T1 were used, as well as the data from qualitative interview's conducted with men.

3.2. Study design

A mixed methods approach using both qualitative and quantitative research techniques was chosen for this Master's research. Originally only qualitative research was to be undertaken, but as the opportunity to use quantitative data was also a possibility, this was taken to gain experience in both research techniques. Furthermore, it became clear that by first analysing the qualitative data, the observations about the process of persuasion that arose could then be tested quantitatively. Specifically, the qualitative results assisted in the formulation and operationalization of certain quantitative predictor variables. The quantitative research assisted in generalising the findings of the qualitative research within the smaller group to the larger population and to know whether the qualitative findings were in fact true for the general population.

As a result of this approach this research is both descriptive and explanatory. The qualitative analysis is descriptive in that the experience of the process of persuasion of the participants is described. Specifically the different processes of persuasion women employ to communicate uptake of HIV testing to their partner is observed and presented. However, this research did not want to remain limited to only describing the observed patterns, but also attempt to explain why they exist. This is where the mixed method approach becomes invaluable and further justifies the use of quantitative analysis as a follow up to the qualitative observations. Based on this, the quantitative analysis can be described as primarily explanatory research, as a proposed process of persuasion is proposed and tested to indeed understand whether it explains the phenomenon under study. For example, in the qualitative analysis, the importance of individuals perceiving themselves at risk of HIV in persuading them to obtain a HIV test was shown, this concept was then tested in the quantitative analysis.

3.3. Study population and sampling

This Master's study is based on the India data collected during the Prenahtest trial. For the trial the population under study was pregnant women of Indian nationality who were aged at least 15 years, had a male partner and accepted follow-up by the study team until six months post-partum. For those women included in the trial, their partners were also part of the population under study. For the Prenahtest trial the quantitative sample size was 484 women, with 242 women in each counselling group, SC or COC. Considering 15% of women lost to follow-up and non-interpretable results, this sample size was decided on (Orne-Gliemann, 2013). For the Indian site, at T0 479 women completed a quantitative interview and at T1 413 women. At both time points the sample of women falls within the 15% proportion already considered as lost to follow up or non-interpretable observations, making the sample size acceptable.

Considering the qualitative sample, for the women a total of eleven in depth interviews were available for this research, seven of which were at T0 and four at T1. Considering the small sample this represented, the qualitative data available for men was also included for analysis. Nine in-depth interviews were available and these interviews were conducted at the end of the intervention trial period. In total, 20 interviews were used to explore the qualitative research question formulated. Of these interviews, four complete transcripts were available for women and for the other 16 interviews, interview 'grids' were available, only interview grids for men were available. These were grids divided by major topic, theme and issue discussed during the in-depth interviews in which the most relevant excerpts from the interview were included. Direct quotes from the participants and interviewer were included in these grids. This of course raises questions of data quality issues, which will be addressed in section 3.7.

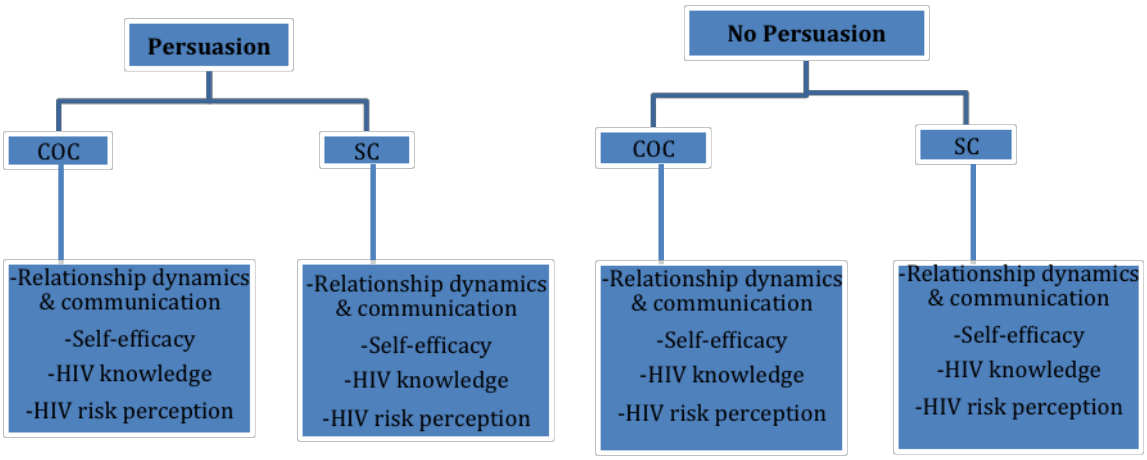
3.4. Qualitative research

3.4.1. Conceptualisation of qualitative data

Conceptualizing theory is an important step in the research cycle by which a broad conceptual understanding of the phenomenon under study is developed and moves analysis to a more abstract level. However, in order to develop an empirically based conceptual understanding of the data, it is important to stay close to the data. The approach to conceptualization of the data taken in this research is the process approach. This approach can clarify the data by highlighting and sequencing distinct stages, or discover different processes that are characterised by certain features or circumstances. If the overall process is understood, it can be used as a framework to understand different processes (Hennink et al., 2011).

In order to identify the key elements driving these processes of persuasion, two frameworks were conceptualised to understand this process of persuasion, highlighting the most important elements. This is based on the overall conceptual model for this research, linked to the theoretical framework. Figure 3.1 below shows the two frameworks developed, the first in which women are able to persuade their partners to obtain HIV testing and the second in which the women are unable to persuade their partners. In the overall conceptual model for this research, the process of persuasion was shown to start with counselling modality and end with persuasion occurring or not. In this qualitative framework, the starting point used is whether the women was able or unable to persuade her partner to obtain HIV testing, and by highlighting case studies, the potential process of persuasion is visualised and important elements involved shown.

Figure 3.1 Deductive model of possible elements involved in the processes of persuasion in which women are able to persuade and unable to persuade uptake of HIV testing by their partners



3.4.2. Operationalization

An extension of conceptualization is operationalization of the understanding or theory developed in the research. This is linked to the grounding of the theory, meaning the verification that a theory or explanation is well supported by the data (Hennink et al., 2011). Considering the data was not collected first hand, both full transcripts of some in-depth interviews and interview grids were used. Rather than operationalize the concepts based on questions I would normally ask the participants, the major concepts were visualised and key issues related to each that I was attempting to explore was developed and listed. The codes developed were also based on this classification and assisted in coding the qualitative data available. The following section shows the main concepts identified and the key ideas and issues that wanted to be explored for each. They are presented as follows:

Persuasion

Whether the women had been able or unable to persuade her partner to obtain HIV testing was one of the first important observations required. The questions that were used to gain insight into this question included:

-HIV testing of partner, whether it occurred or not
-Reasons HIV testing was agreed to or not
-Benefits of HIV testing and counselling according to participants
-Couple communication regarding HIV testing and counselling

Counselling modality received

Which counselling modality each women received was important to know to place the women in the process framework, however other topics related to the counselling modality women received were also explored:

-Type of post-test HIV-counselling woman received, SC or COC
-Influence of post-test HIV-counselling on HIV testing

Some of the key elements that were identified as important in the process of persuasion women employ to communicate uptake of HIV testing to their partners are listed below. Evidence of these elements, or lack thereof, in a relationship and a women or man's profile were seen to influence the process of persuasion. Each of these elements are described below and the issues focused on are presented.

HIV risk perception

-Women and men's HIV risk perception before and after Prenahtest intervention
-Couples shared HIV risk perception

HIV knowledge

-Women and men's HIV related knowledge before and after Prenahtest intervention
-Couples shared HIV related knowledge

Women's self-efficacy

-Women's perceived ability to discuss HIV/AIDS, condom use, PMTCT with partner
-Women's perceived ability to suggest HIV testing to partner
-Whether women suggest HIV testing to partner

Couple communication

-Extent of couple communication before Prenahtest intervention
-Couple communication about HIV/AIDS, condom use, PMTCT, couples sexual relationship

Relationship dynamics

-Couple relationship: Background in terms of trust, satisfaction, caring behaviour and again communication within couple
-Couple relationship: any change due to Prenahtest intervention

3.4.3. Qualitative data analysis

Considering the qualitative data analysis in more detail analysis began by detailed consideration and review of all the in-depth interviews available, as I did not conduct the interviews myself it was extremely important to familiarise myself as much as possible with the qualitative data. Deductive, inductive and in vivo codes were continuously developed and revised. Interestingly, of the 104 codes initially developed, only 54 were eventually used. This was an interesting process to experience as a first time qualitative researcher and highlighted the importance of critical reflection on all codes and their necessity. Appendix I provides a table with the different codes used for the qualitative analysis. These codes were used to code both the complete interview transcripts and the qualitative grids. Coding the qualitative grids presented some difficulties because the data had already been organised by theme and sometimes the interaction between the interviewer and participant was not shown, meaning the exact question that had been asked was not known. Considering this the complete interview transcripts were preferable, however the organisation of the qualitative grids into themes also provided added structure while coding.

Family codes were then developed, which began the process of categorisation of codes, and thick descriptions of each of these family codes was carried out in order to describe and compare codes. In order to conceptualise the data, a process approach was adopted in order to consider whether the data described a particular process. The data was explored to identify whether it described "steps, stages, a process or strategy, which may be used to initiate a conceptual understanding of the data (Hennink et al., 2011, p. 251). In the writing of the qualitative results experiences of participants were used to highlight key research findings and comparisons were made between the participants. Throughout the qualitative analysis this research has adopted the broad principles of grounded theory in an attempt to equally develop inductive and deductive reasoning. The qualitative data analysis software program Atlas.ti was used for data management and analysis.

3.5. Quantitative research

3.5.1. Conceptualization of quantitative variables

Based on the theoretical framework developed in this research, literature review and results of the qualitative findings specific predictor variables were chosen for the quantitative analysis. Women's "HIV risk perception", "HIV transmission knowledge" and "self-efficacy" were all variables that were primarily developed from the theoretical framework and qualitative findings. Findings regarding the influence of HIV risk perception and HIV knowledge were especially evident in the qualitative findings, and to a lesser extent self-efficacy. Theories developed by Douglas in relation to cultural symbolic perspectives of risk discussed in section 2.1.3 also stress the importance of an individual's position in a cultural system and how this affects individuals risk perspective, as well as other factors such as HIV knowledge. In this sense, women's HIV knowledge was also seen as a potential explanatory factor of the phenomenon under study. Of course counselling modality was included as an explanatory variable, as the purpose of this research is to better understand the process by which men are persuaded to obtain HIV testing after their wives receive post-test HIV-counselling.

From the theories of communication (section 2.1.1) emphasis was placed on the importance of couple communication and relationship dynamics, including trust, for successful behaviour change to occur. Unfortunately, there were no questions in the quantitative questionnaire that dealt directly with the women's trust of their partner, so this issue could not be analysed quantitatively and was analysed qualitatively only (section 4.1). Concerning, relationship dynamics, it was possible to analyse this quantitatively and several variables were chosen or constructed to look at the relationship dynamics within the couples.

Based on the literature review, several studies mentioned the importance of couple communication when testing interventions that encouraged male partner HIV testing (section 1.3.3). Based on this, couple's baseline communication before the Prenahtest intervention was taken as another potential predictor variable of effective persuasion. Other socio-demographic variables such as age of men and women, as well as the education level of men and women were also included in the analysis as control variables based on the literature review. From the qualitative data, men's desire to ensure the well-being of their unborn child was noted as an important element in persuading men to obtain HIV testing, but considering only the quantitative data pertaining to women was used this factor could not be tested. Furthermore, other researchers from the Prenahtest trial had already assessed this factor and published findings on it.

3.5.2. Operationalization of variables

Dependent variables

From the data collected from women at T1, the dependent variable was constructed from the question "Was your current partner tested for HIV since last interview?" A discrete binary variable coded as "0" man does not obtain HIV test and "1" man obtains HIV test was constructed for **persuasion**. If the man obtained a HIV test, effective persuasion was seen to have occurred and if the man did not obtain a HIV test ineffective persuasion was seen to have occurred.

Independent variables

Table 3.1 below shows the independent variables used in the multivariate logistic regression model. They have been categorised into theoretically defined and socio-demographic variables. The third column shows how the chosen variables were categorised in the original data set and the fourth column shows the categorisation used in this Master's research. These variables were considered at T0, before the women had received the post-test HIV-counselling, to ensure that any effect of these variables on the outcome variable would be properly measured.

Table 3.1. Independent variables used in multivariate logistic regression

Independent variables	Operational definition	Prenahtest trial measurement scale	Master research adjusted measurement scale
Theoretically defined variables			
Counselling modality	Type of post-test HIV counselling women received	1= SC 2= COC	1= SC 2= COC
HIV risk perception T0	Women's perceived HIV risk at T0	1= Yes a lot 2= Yes a little 3= No 4= Doesn't know	1= Yes (1, 2 & 4)* 2= No (3)
HIV transmission knowledge T0	Women's HIV transmission knowledge at T0	a. During sexual intercourse b. Via blood transfusion c. Via IVD needles d. From mother to child e. Through contaminated objects f. Doesn't know g. Other	1= Sexual only (a)* 2= Sexual & other (a-e & g) 3= No sexual or no knowledge (f)
Self-efficacy T0	Women's self-efficacy in terms of their perceived ability to suggest HIV testing to partner at T0	1. Yes 2. No 3. Not sure	1= Yes (1)* 2= No (2 & 3)

Socio-demographic variables			
Couple private time daily	Amount of daily private time couple has	1= Less than one hour 2= 1-3 hours 3= More than 3 hours	1= Less than one hour 2= 1-3 hours 3= More than 3 hours
Age of women	Age of women in 5-year age categories	Age in completed years	1= <20 2= 25-29 3= >30
Education of women	Highest level of education that women attained	Education in completed years	1= No or primary education (0-7 yrs) 2= Secondary education (8-12 yrs) 3= Higher education (> 12 yrs)
Age of men	Age of men in 5-year age categories	Age in completed years	1= 20-24 2= 25-29 3= >30 4= Don't know
Education of men	Highest level of education that men attained	Education in completed years	1= No or primary education (0-7 yrs) 2= Secondary education (8-12 yrs) 3= Higher education (> 12 yrs)
Violence	Experience of violence by women from male partner	Emotional violence (1=Yes, 2=No) Verbal violence (1=Yes, 2=No) Physical violence (1=Yes, 2=No)	1= No violence (2 for all types of violence)* 2= Ever experience of emotional or physical violence (1 for at least one type of violence)
Duration of relationship	Duration of relationship in 3-year age categories	Duration of relationship in completed months	1= <1 year 2= 1-3 years 3= 3-5 years 4= >5 years
General communication	Extent of daily communication within couple on general topics	1. Always 2. Most of the time 3. Sometimes 4. Never	1= Good communication (1, 2)* 2= Poor communication (3, 4)

*** =** Refers to response options from Prenahtest trial measurement scale adjusted for Master's thesis

Table 3.1 clearly shows how the variables used in this research have been constructed. However, a small comment must be made in relation to the variable "HIV risk perception" at T0. The decision to classify women who 'did not know' whether they perceived themselves at risk of HIV as 1= Yes, they did perceive themselves at risk of HIV, was because this doubt as to their HIV risk was taken as an admission of some perceived HIV risk. Otherwise a "no" response to this question would have been expected. Considering the variable "self-efficacy" at T0 only three participants responded "Not sure" and this was combined with 2= No. It was considered that if these women were unsure of their ability to suggest HIV testing to their partner, it was unlikely they would, as they doubted their ability to do so.

3.5.3. Quantitative data analysis

Regarding the quantitative analysis, in order to answer the two research questions developed the analysis was done at three steps. Univariate analysis in which descriptive statistics using frequencies of selected variables, including age, education level and specific couple relationship dynamic variables, was used to describe the data. Bivariate analysis using cross

tabulation to answer the first research question was then used. Counselling modality was taken as the explanatory variable for any difference in the outcome variables HIV knowledge, HIV risk perception and self-efficacy at T1 between the SC and COC groups. For the second quantitative research question, multivariate analysis, in which binary logistic regression was used to measure the effect of the independent variables on the dependent variable, effective persuasion (man obtains HIV test).

The binary logistic regression model is used to model the probability that an event occurs, in this case effective persuasion (man obtains HIV test). Estimated regression coefficients are in the form of exponential coefficients or odds ratio (OR). The odds ratio of the predictor variable highlights the relative amount by which the odds ratio of the outcome variable increase or decrease relative to the reference, when the predictor variables is increased by one unit. All groups are compared based on the reference category, which has an OR of one. An OR that is less than one signifies that the predictor variable has a lower probability than that of the reference category in predicting the dependent variable. Similarly, when the OR is greater than one it signifies a higher probability than that for the reference category (Norusis, 2008).

The enter selection criteria was used in the binary logistic model as it was clear from the bivariate analysis many of the independent variables were not significantly associated with the outcome variable. However, as these variables were theoretically defined, and based on the literature review, it was decided to include them in the regression model to assess their effect on the outcome variable. Analyses were executed using the Statistical Package for Social Scientists (SPSS) version 20.0.

3.6. Ethical considerations

The Prenahtest study protocol V4 (18 December 2006) received ethical clearance from the Independent Ethics Committee for Prayas Health Group in India on 27 March 2007. The ethical considerations the Prenahtest trial researchers took included providing an information leaflet to all participants and obtaining informed consent from all participants in the trial. No financial incentives were provided to participants, but free psychological support services, condoms and contraception were routinely available or made available until 18 months after delivery for the women who requested it (Orne-Gliemann et al., 2010). Assigning case numbers to each individual ensured anonymity of all participants in both the quantitative and qualitative data.

Other ethical considerations pertaining directly to this Master's research were related to the use and confidentiality of the data. After agreement from the PRAYAS Health Group to allow the use of this data for this Master's thesis, it was of importance to maintain complete confidentiality of the data and not use the data for any other purpose than agreed to in the Memorandum of Understanding (MOU).

3.7. Reflections on data quality

Reflection on the quality of the qualitative data will be assessed first. The main issue faced with the qualitative data was that very few in-depth interviews had been translated into English. The in-depth interviews had been conducted in Marathi and were transcribed into this language. Upon first receiving the data, only four full transcripts of in-depth interviews with women were available in English. In order to resolve this problem, in-depth interview grids for both men and women became available. These were grids divided by major topic, theme and issue discussed during the in-depth interviews in which the most relevant excerpts from the interview were included. Direct quotes from the participants and interviewer's were included in these grids. As there were only seven available for women, the decision was

made to include men as well in the qualitative analysis in order to have enough qualitative data to analyse.

The next concern with the qualitative data then pertained to the qualitative grids themselves. Through the use of the in-depth interview grids, a risk of 'double' researcher bias was a possibility as these grids had already undergone research selection of only specific data. By using this and then again selecting evidence most relevant to this research, it could undermine the validity of the research. There is no easy solution for this, but being aware of this potential bias and highlighting it is one of the best ways to proceed. Furthermore, while the interview grids provided quotes or interactions between interviewer and participant, and some comments regarding the impressions of the interviewer about the interviewer, these grids cannot replace the use of full transcripts. Especially regarding the data available for female participants, often only data at T0 was available and not at T1, which meant that some of the issues that were developed for analysis could not be properly assessed, as the relevant data was not available.

Furthermore, not conducting, or being present, for the in-depth interviews presents issues as it means the nuance and context specific to each interview is unknown to me. Non-verbal communication including facial expression, tone of voice, and reactions to specific questions cannot be analysed in this research. Furthermore, not being able to design the qualitative research myself proved problematic. Rather than develop the research objectives and questions and then collect the relevant data, the data had already been collected several years earlier and the research objectives and questions were formulated much later for this Master's research. While the opportunity to be involved in a larger research project was one not to be missed, designing a qualitative study in this way was not ideal and lead to the depth of information needed for the specific qualitative research question under study not being satisfied, in my opinion, for this research. This is a shortcoming of the study.

Considering the quantitative data, loss to follow up from T0 to T1 occurred. In total 66 women were lost from T0 to T1, both from loss to follow up and non-interpretable results, reducing the sample size from 479 to 413. However, this was still within the statistically acceptable margin expected reduction in the sample size. Furthermore, coding of some of the predictor variables may not have fully captured the reality regarding that topic, especially the HIV transmission knowledge variable. This variable only focused on HIV transmission knowledge and on further reflection it would have been preferable to also include information on women's knowledge on PMTCT to test as an explanatory variable. This is a weakness of the study and perhaps future studies on this topic could measure HIV knowledge in a more robust manner.

Finally a point of consideration relevant to both the qualitative and quantitative aspects of this research includes the positionality of the main researcher for this Master's thesis. Not being of Indian decent meant that some nuanced understandings or culturally significant observations could be missed or interpreted incorrectly when analysing the qualitative and quantitative data. Especially considering the researchers Western understanding of love, marriage and relationships could lead to incorrect interpretation of the data. Extensive reading and consideration of the cultural context in India regarding HIV, intimate relationships, couple communication and sexual health was needed in order to avoid such misinterpretations.

Chapter 4- RESULTS

In this chapter both the qualitative findings and quantitative results are summarised. The qualitative findings are presented first in section 4.1 and deals with the identification of different elements that are involved in the processes of persuading men to obtain HIV testing. This is followed by section 4.2 that addresses the quantitative results in which any difference in HIV knowledge, HIV risk perception and self-efficacy are analysed according to the type of counselling women received. Finally the results of the contribution of HIV knowledge, HIV risk perception and self-efficacy, in addition to counselling modality, to persuasion effectiveness are presented.

4.1. Qualitative

From previous research conducted in relation to the Prenahtest trial, it had already been shown that COC had a positive effect on the uptake of male partner HIV testing (Orne-Gliemann et al., 2013). However, it was not only women who received COC that managed to persuade their partners to obtain HIV testing, but also women who received SC were successful in persuading their partners. This suggests it is not only COC that is important in the process of persuasion, but other elements are contributing to this process. Therefore the different elements involved in the processes of persuasion women employ to encourage uptake of HIV testing to their partner is the phenomenon of interest for the qualitative analysis.

In order to answer the qualitative research question, the experiences of male and female participants are used to understand the process of persuasion experienced by each of those participants. These chosen cases present contrasting experiences and outcomes that allow for the key issues and core message of the research findings to be outlined. Based on the qualitative findings and the theoretical framework developed, the results have been organised into three main categories; "Cues to action"; 'Persuasion through HIV risk perception, HIV knowledge and self-efficacy' and 'Persuasion through interpersonal communication and relationship dynamics'.

4.1.1. Cues to action

The cue to action considered in this research is COC and is seen to influence HIV risk perception, HIV knowledge and women's self-efficacy. Based on the theoretical framework (section 2.1.2) and shown in the conceptual model (section 2.2), COC plays an important role in the process of persuading men to obtain HIV testing and is considered as a starting point for the process of persuasion. For several participants after women received COC, the HIV risk perception of both men and women changed:

P6: *"It happened very soon after my consultation. We had detailed discussion about this at home. I told him that this infection may be dangerous even during the pregnancy. He listened to me with interest and when heard that there was the risk that we may be infected and that the baby could get this infection he agreed without even thinking."* (Female, COC, 26 years of age)

HIV risk perception can often only change when the necessary HIV related knowledge is given. However, also participants who received SC reported improved HIV knowledge. In these cases not only is COC acting as a cue to action to increase knowledge and begin the process of persuasion, but SC is also providing participants with the necessary information to change behaviour:

P14: *"The main good thing [regarding counselling intervention] is that we got to know things which we did not know…There was change in communication. That this too should be*

known. Just being afraid and worrying is not helpful." (Male, wife received SC, 26 years of age)

Case Study 2, on page 35, provides another example of a woman who received SC and insisted on her husband coming to couple counselling and obtaining HIV testing. However, while her partner agreed to couple counselling, he did not agree to get HIV tested.

Finally, COC was seen as a cue to action in improving women's perceived self-efficacy, in particular regarding couple communication and suggesting HIV testing to their partner. Several women reported increased self-confidence and ability to discuss sensitive issues with their partners after receiving COC. Men also noted changes in their wife's behaviour:

P18: *"I felt it was useful. There is a lot of difference in her, I feel. Initially she used to be very shy so she did not share much with me. But now because of all the information, she is able to tell that this happens that happens…she can tell now. Yes there is difference in her."* (Male, wife received COC, 25 years of age)

4.1.2. Persuasion through HIV risk perception, HIV knowledge and self-efficacy

Individual perspectives of HIV risk, HIV-related knowledge and self-efficacy have been placed together as they are linked to the social cognitive model of health behaviour, the Health Belief Model (HBM). Inspired by the HBM and based on analysis of the in-depth interviews with participants, individuals' HIV risk perception is seen as essential in the process of persuading men to obtain HIV testing. Both the women and men must perceive themselves at risk before any health related behaviour change, in this case men obtaining HIV testing, can occur. In order for individuals to perceive themselves at risk, HIV knowledge about the risk of HIV needs to be transmitted first. Women are given the necessary HIV information through post-test HIV-counselling and dependant on the women's self-efficacy, transmit this HIV knowledge to their partners who in turn begin to perceive or increase their individual HIV risk perception. For some women their self-efficacy, in terms of their perceived ability to suggest HIV testing to their partner, was already developed and for others the counselling interventions assisted in strengthening their self-efficacy.

HIV risk perception

The HBM, which forms part of the theoretical framework of this research, contains several factors including perceived threat, which is seen to motivate people to take action (Rosenstock et al., 1988). If HIV protective behaviours are considered, the HBM proposes that it is crucial that perceived susceptibility to HIV becomes heightened before commitment to changing HIV risk behaviours can occur (Janz et al, 2002). Greater detail relating to this theory can be found in section 2.1.2. Based on this reasoning, part of the process of persuading men to obtain HIV testing involves these men, and their female partners, perceiving themselves at risk of contracting HIV.

For participants in the Prenahtest trial, heightened HIV risk perceptions played a role in men agreeing to HIV testing. For many, after learning that HIV is not only contracted through sexual transmission, but other modes as well, participants began to perceive themselves at risk of HIV. This allowed for greater acceptance of HIV testing in some cases, as it distanced individuals from the stigma often associated with sexual transmission of HIV. Both participants who received COC and SC experienced change HIV risk perceptions after the counselling intervention:

P8: *"He started talking about it [HIV] and said that it is possible to acquire this infection through needles. And we might have had it, maybe when we were small. So it is good to be tested. Earlier he used to feel that if I am not a bad person then why to bother about it but I*

told him not to think only about himself. There are other ways by which the infection can be acquired." (Female, SC, 24 years of age)

In the example given above, it is only once the risk of non-sexual modes of HIV transmission is introduced that behaviour change begins and the male partner agrees to HIV testing. This is linked to the cultural norms related to risk in India where low HIV risk perception exists, especially among women in monogamous marital relationships (Saggurti & Malviya, 2009). Even though the primary risk factors for HIV in married women appears to be their partner's extramarital or paid sexual relations, social risks and repercussions do not allow women to take preventative action, such as using condoms (Santhya & Jejeeboy, 2007). By introducing the risk of HIV through non-sexual modes of transmission, it appears to allow participants to distance themselves from the negative associations of sexual transmission of HIV and take preventative actions without fear of repercussions.

For some of those men who chose not to get HIV tested, they displayed no concern regarding their HIV risk:

P12: *"I did not get tested because I am confident that I am not like that [do not engage in extra-marital sexual relations], HIV cannot happen to me, because I take care so it would not happen to me, so I did not feel the need to get tested."* (Male, wife received SC, 26 years of age)

If individuals do not perceive themselves at risk of HIV, they often will not change their sexual health risk behaviour. However, this needs to be interpreted with caution as it assumes that all men exhibit risk behaviour, which of course is not the case. Nevertheless, to persuade men to obtain HIV testing, a step in that process is to effectively communicate the risk that man have of contracting HIV, whether it be through sexual modes of transmission or others. In Case Study 2 presented on page 35, the man does not perceive himself at risk of HIV, and his wife was unable to persuade him to obtain HIV testing. However, from the qualitative data many participants only perceived themselves at risk of HIV through contaminated objects or medical equipment. Only very few participants acknowledged their risk of HIV transmission through sexual modes, suggesting that by conveying to individuals the risk of non-sexual modes of HIV transmission is more effective in persuading men to obtain HIV testing.

However, for others it was not the risk that HIV posed to them as individuals but rather the risk HIV posed to the unborn child that persuaded men to obtain HIV testing. This is well illustrated in Case Study 1 presented on page 31 and in this quote:

P6: *"I told him that this infection may be dangerous even during the pregnancy...when [he] heard that there was the risk that we may be infected and that the baby could get this infection he agreed without even thinking. He soon did that test after that talk."* (Female, COC, 26 years of age)

The appeal to men's responsibility as fathers for the unborn baby appears to facilitate men's involvement in HIV testing and men are willing to act in order to protect their children (Huet et al., 2012). However, this also shows that men are still distancing themselves from their individual risk of HIV as was already identified previously, in which men distanced themselves from sexual transmission of HIV. Men do not agree to HIV testing because they feel that they are at risk of HIV, but rather their unborn child is at risk of HIV and they must protect their child. In this way the focus is removed from men being identified as the primary cause of HIV transmission to their wife through extra-marital unprotected sexual relations,

but rather men can be identified as fathers who have the intention and role to protect their unborn children from the risk of HIV. This appears to be a more culturally accepted position:

P16: *"When I was told to get tested for HIV, I too was of the opinion that if she has got tested, then it is necessary for me to get tested as well…If the baby is at risk of HIV due to us, we come to know about it. Then we can make one understand, the doctors can make one understand…Even the baby can get it. So it's necessary to get tested."* (Male, wife received COC, 34 years of age)

This in itself may increase men's involvement in prenatal PMTCT services, including partner HIV testing, by appealing to their sense of responsibility as fathers and shifting the focus away from the negative image of male partners often as the source of HIV infection, but rather as a force for positive action.

Case Study 1
Woman was able to persuade partner to obtain HIV testing

Sunil, 34 years, and Ayesha, 26 years, (not their real names) have been married for two years. They both studied at university and Sunil is a salesman in a shoe company. Ayesha is currently not working, as she is pregnant, but plans to return to her job in childcare once the baby is born. Ayesha explains that her husband is a good person, who never gets angry and pampers her a lot, even more now that she is pregnant, making sure she eats well and accompanying her to the hospital. Both Sunil and Ayesha trust each other completely, and from the beginning of their marriage they began freely discussing a range of topics and they tell each other everything that is on their mind. Before the counselling intervention they did not often discuss issues related to HIV as Ayesha explains: *"Before I took part in this project, I didn't know about other STIs. But when I was here yesterday, the interviewer told me that there is a disease called "garmi" [HIV] which is contracted through sexual relations"*. After receiving COC, Ayesha wanted to share all the information she had learnt about HIV with Sunil because she wanted them to be protected from contracting HIV. Sunil explained that Ayesha came home from the counseling session and told him everything she had learnt. Sunil already knew some of the information about HIV, but he explained they discussed what she had learnt and decided together that he should also get HIV tested and they would also start using condoms. Sunil felt that if Ayesha should get HIV tested, then he should too, to know if either of them is at risk, including their unborn child. Sunil did not want their child to become HIV infected, so it was necessary for them both to be tested to ensure that would not happen. Sunil does not see himself at risk of contracting HIV through *"outside contacts"* [extra-marital sexual relations], but thinks he is at risk of infection through contaminated objects.

HIV knowledge

In order for participants to perceive their individual risk of HIV or the risk to their family, knowledge about HIV and its modes of transmission are needed before any changes to HIV risk perception can occur. The source of the information must have accurate knowledge on a given topic for the process of persuasion to be successful (Miller & Levine, 2009). This is discussed in section 2.1.1. Considering this, if women from the Prenahtest trial are to persuade their partners to obtain HIV testing, they must possess the relevant knowledge and information on this topic.

Participants from both the SC and COC groups reported gained HIV related knowledge and most women willingly shared this information with their partner, as was the situation presented in Case Study 1 above. From the qualitative analysis, participants described increasing their knowledge about the varying modes of HIV transmission, the importance of PMTCT and the benefits of condom use and HIV testing in preventing HIV:

P6: *"I told him that this infection may be dangerous even during the pregnancy. He listened to me with interest…He was also interested in AIDS and asked me how this disease is spread throughout the world and what happens in the human organism when this infection gets in it or why immunity becomes weakened…I was more interested in everything what was connected with the pregnancy…I learnt a lot of new facts about HIV and its modes of transmission. For example I did not know that it can be transmitted via razor and nail devices and other contaminated items."* (Female, COC, 26 years of age)

For some participants, the post-test HIV-counselling provided information about HIV transmission modes that appear to have finally convinced men to obtain HIV testing. This is again linked to men's HIV risk perception changing to encompass other modes of transmission, not only sexual, and allowing them to be distanced from sexual transmission of HIV:

P8: *"Before the post-test counselling my husband knew that HIV is transmitted through sexual relations. He did not know about other modes. So he used to think that it happens to bad people and didn't know that even good people can get the infection."* (Female, SC, 24 years of age)

SC does not provide the practical elements that COC does, including developing women's communication skills and self-efficacy in order to empower them to discuss HIV and sexual issues, including HIV testing, with their partner. However, the knowledge gained during SC still appears to assist in the process of persuasion. If couples begin at a low level of HIV related knowledge, the SC can still provide the most important pieces of information that may suffice in persuading men to take action and get HIV tested. Suggesting in some cases that women do not necessarily need to develop their self-efficacy in order to empower them to communicate about these sensitive issues with their partner, but rather only require the relevant HIV related knowledge to provide accurate and convincing information to their male partners.

Self-efficacy

Returning to the HBM and factors important in the adoption of health-related behaviour changes, self-efficacy plays a role in this process. Perceived self-efficacy is concerned with individuals' beliefs that they can exert control over their social environment, motivation and behaviour (Bandura, 1990). This is discussed in greater detail in section 2.1.2. In this research, self-efficacy was considered in terms of women's perceived ability to suggest HIV testing to their partners and COC has the objective of developing women's self-efficacy so they are empowered to communicate with their partner about HIV and sexual issues, as well as suggest HIV testing to their partners. However, for some women their perceived self-efficacy may be sufficient to discuss these issues and suggest HIV testing to their partner, this will be explored in the next section.

From the qualitative analysis some participants discussed their perceived ability to suggest HIV testing to their partner and did not anticipate any resistance from their partner in this matter. These participants' comments suggest that they already possessed the necessary perceived self-efficacy to suggest HIV testing to their partner:

P1: *"I told her [counselor] that I will tell him to get the test done. I told her that he will surely get it done. There's nothing like that with him...he wouldn't have said, "I will not get tested, why should I? Am I going to have HIV?" or any such thing. I mean, there are people who say such things, isn't it? But he is not like that. So when I told him, that Tai is suggesting that you also get your HIV test done, and its also free, he immediately said, so let us get it done. That's what he said."* (Female, COC, 19 years of age)

However, for other participants COC appears to have assisted them in developing their self-efficacy and indeed empowering them to discuss HIV and sexual issues with their partner by increasing their HIV knowledge giving them a sense of confidence and pride:

P6: *"I mean I feel much confident in general than I used to do before. I think the main reason is that I know much more about everything including infections like HIV than I did before…To be honest I felt little proud of myself since my husband had already heard from me everything she [counsellor] said to him."* (Female, COC, 26 years of age)

For others, the practical strategies provided in COC, in terms of how to begin a discussion about HIV testing with their partners, assisted others in improving their self-efficacy and persuading their partners to obtain HIV testing:

P4: *"I suggested HIV testing to him, and he also said that I will do it…Talking to the counsellor was beneficial because I could start the topic in a casual discussion. Because I was tested, so I could talk on the issue."* (Female, COC, 24 years of age)

However, these findings must be interpreted with caution, as it is not only women who received COC that were able to persuade their partners to obtain HIV testing, but also those who received SC. Furthermore, due to the lack of extensive data from women who were interviewed at T1 it is not clear from the qualitative results what the effect of COC was on women's self-efficacy, therefore not allowing us to fully explore and ground this data.
In order to know whether there is a difference in women's perceived self-efficacy to suggest HIV testing, between the SC and COC group, a comparison of women who actually suggested HIV testing to their partners at T1 between the two groups will be assessed in the quantitative analysis.

4.1.3. Persuasion through interpersonal communication and relationship dynamics

Persuasion is a central component of inter-personal and risk communication theory in which the affective states or overt behaviour of another person is created, changed or reinforced by another person (Miller & Levine, 2009). Section 2.1.1 deals with this in greater detail. In this research the behaviour attempting to be changed relates to HIV risk within heterosexual couples and, by women engaging in risk communication about HIV, persuading their partners to change health behaviour by obtaining HIV testing. Elements that affect this process of persuasion include level and extent of communication within a couple (Orne-Gliemann, 2013), as well as relationship dynamics, including trust (Berry, 2004). Couple communication and relationship dynamics of couples within the Prenahtest trial are assessed and the effect this has on the process of persuading male partners to obtain HIV testing is explored.

Couple communication

Many of the female participants in the Prenahtest trial who were successful in persuading their partners to obtain HIV testing engaged their partners in communication about the risks associated with HIV, especially in terms of mother-to-child transmission. However, many of these couples already possessed good couple communication and this element was found to play a role in the process of persuasion by which men agreed to obtain HIV testing:

P6: *"We always ask each other if anything bothers us, or what we have been doing all day. We ask each other everything: if we want anything and things like that."* (Female, COC, 26 years of age)

For some participants the Prenahtest intervention also provided a catalyst for risk communication on HIV and sexual issues, where such communication did not exist previously:

P8: *"Earlier he was afraid to talk with me on such topics. He did not know how to talk on it because he did not know whether I have heard of such things...I asked him, why didn't you give me the knowledge and condom is used this way and it prevents AIDS, so he replied that I never felt the need to talk about it...I feel that he is a bit shy but after this counseling he talks more openly."* (Female, SC, 24 years of age)

In Case Study 1 presented on page 31, the couple already had good couple communication before the counselling intervention, but in their case COC also assisted in increasing and changing communication in relation to sexual health and HIV.

However, not all couples in which the man agreed to obtain HIV testing had good couple communication in their relationship, suggesting good couple communication is not always needed for men to agree to HIV testing:

P2: *"But he does not show interest. Then what's the use? So even I don't talk then. Now if I talk, he too has to listen with interest or has to respond on it. But he never responds. Just keeps doing "hmm, hmm". Doesn't really listen. Then I also don't talk much."* (Female, COC, 22 years of age)

Once again for this couple, the man's desire to ensure the wellbeing of his unborn child is given as the reason to get HIV tested and the process of persuasion centred on the protection of the child from HIV infection. However, for other men who did not agree to HIV testing, the couple communication within the relationship was also poor and the impact this has on the process of persuasion still needs to be considered carefully:

Even cases in which the men were not persuaded to obtain HIV testing, the post-test HIV-counselling assisted the couple by increasing communication about sexual health within their relationship:

P13: *"Talked about household, family topics. Now we talk about sexual health and all...This change happened here, no such topics in the village. Yesterday we spoke about this issue and other regular household topics."* (Male, wife received COC, 37 years of age)

In such cases, where communication about HIV and sexual health increased and the counselling intervention was appreciated, but no male partner HIV testing was obtained, practical reasons such as men already having obtained a HIV test recently but at a different location was cited.

However, for other men who did not agree to HIV testing, the couple communication within the relationship was poor and the impact this has on the process of persuasion still needs to be considered carefully:

P17: *"I don't tell her much just what is essential. If something can happen by telling her then I do tell her...but if work is only going to increase by telling her, then I don't tell her anything. This is a fact…For example, there is no point telling her about any tension in my work or business. So I don't tell her. Things that concern her, things about her...those too are not told to her at times. If I tell her, I know that the first thing is that if she does not accept, then there will be more arguments."* (Male, wife received SC, 30 years of age)

For some participants, including the example given above, poor communication dynamics appear to be involved in women being unable to persuade their partner to obtain HIV testing. Even though several men who did not get HIV tested viewed it as important, they cited their inability to take time off work as a reason to not get HIV tested. But some of these same men also viewed their wife's involvement in the Prenahtest trial as their wife's affairs and did not feel the need to be involved:

P17: "*Honestly, I did not feel it is important to come here and get tested because my work is going on and I can't pay much attention to this. It is not as if testing is not important…I only said that ok, continue with what you are doing, I have to take care of my things."* (Male, wife received SC, 30 years of age)

This is a common issue faced in attempts to involve men in prenatal PMTCT services, as Huet et al. (2012) explain, matters related to birth, caring for children and the health of the family are traditionally responsibilities of women and mothers, men's roles in these situations are not well defined or developed. Therefore, the COC intervention directly addresses issues of involving men in prenatal HIV testing and counseling services, whereas the SC does not provide women with information pertaining to this.

Case Study 2
Women was unable to persuade partner to obtain HIV testing

Vikram, 27 years, and Sonali, 23 years, (not their real names) have been married for one year and a half. Both Vikram and Sonali studied at university, but Sonali currently does not work and Vikram works in a business establishment. Vikram explains that Sonali does not feel like he is her husband, but rather like a father or brother because he takes good care of her. Sonali and Vikram talk to each other about family planning and wanting to have a child this year. Previously Sonali had used the pill, but because family members had told them the pill can cause side effects, together Sonali and Vikram discussed this and decided to use condoms after Sonali became pregnant. Sonali received SC and after her counselling session returned home and suggested Vikram should come for couple counselling and get HIV tested. Vikram agreed to attend couple counselling because Sonali would say very often that they should go together as the counsellors are good people who talk a lot and teach good things. Vikram knows a little about HIV, but not in depth, he knows HIV infection can occur by having physical contacts with others [extra-marital sexual relations]: "*Men have more chances of it [contracting HIV], but it's not the case with me, I have guarantee, so it does not seem appropriate to talk about it."* During the couple counselling session, both Sonali and the counsellor encouraged Vikram to get a HIV test. As he was already at the clinic it would be easy to do and it was free. However, Vikram did not agree to HIV testing as he had been tested six years earlier, did not perceive himself at risk of HIV and as he had no doubt he was HIV negative, there was no need for him to check anything according to him.

Relationship dynamics

In the process of persuasion and communicating risk information to another individual, trust is crucial. If trust exists between the source and the recipient of the message, the message being given is deemed more credible and behaviour change is more likely to occur through the process of persuasion (Miller & Levine, 2009). Trust was discussed in section 2.1.1 of the theoretical framework chapter. Almost all participants in the Prenahtest trial said that they trusted their partner. In Case Study 1 on page 31 the couple describes their complete trust of one another and the example given here presents a similar situation:

P1: *"I know that he will never look at any other woman with that intention…So even if anyone tries to tell me anything about him, I don't believe it… so I trust him completely and he also trusts me completely."* (Female, COC, 19 years of age)

Trust in terms of their partners fidelity was discussed by participants, but also trust that developed over time in the relationship and was due to complete openness was also cited as how participants knew they could trust their partner:

P20: *"Trust developed because whatever we talk, we talk directly and don't keep things to ourselves. We don't keep any burden so we developed trust because of openness.''* (Male, wife received COC, 28 years of age)

In the examples given above, the male partners were persuaded to obtain HIV testing, but there are also examples of men and women discussing the trust they feel for their partners, but no HIV test was obtained in those situations. This may either point to a weakness in the theoretical understanding of trust in the process of persuasion, or how the participants interpreted this question during the in-depth interviews when asked of them. Participants where asked whether they trusted their partners and if they could give an example of why they did or did not trust their partner. However, in order to understand the role trust played in the process of persuasion, male participants needed to be asked questions pertaining to whether they trusted the information their wife was giving them about HIV risk and the source of the information. As this data is not available, it makes interpretation of the role of trust in the process of persuasion complicated and is a weakness of this research.

The relationship dynamics in a couple, in terms of satisfaction with the relationship and again the extent of communication, may also influence the process of persuasion. In those cases where the women were unable to persuade their partners to obtain HIV testing, relationship dynamics were often poor, especially in terms of satisfaction with the relationship:

P12: *"Even if this one is good, still the first partner is special. The pair in the first marriage is very special. However much I think about it, it's not like this partner troubles me or anything...but the first time is really different, it's special… I don't let her realize [my feelings] and I don't communicate them to her...it may affect her mind differently...so I don't talk...she is happy, but only my viewpoint differs..had I been married to her before, then I would have felt different."* (Male, wife received SC, 26 years of age)

Couples in which relationship satisfaction appears to be high, or where couple communication is good resulting in more positive relationship dynamics more often resulted in the man being persuaded to obtain HIV testing:

P6: *"We always ask each other if anything bothers us, or what we have been doing all day. We ask each other everything: if we want anything and things like that."* (Female, COC, 26 years of age)

However, Case Study 2 shown on page 35 presents an alternate situation in which caring behaviour and relationship satisfaction appears to be present, but the male partner still did not agree to HIV testing.

Another aspect of relationship dynamics that appear to influence the process of persuasion is the caring behaviour of men towards their wife after learning she is pregnant. Once again, the desire to ensure the wellbeing of the unborn child appears to be an important element in persuading men to obtain HIV testing. From the qualitative observations, women reported experiencing greater caring behaviour from their partner during their pregnancy, citing the care their husbands took to ensure their wellbeing, both physically and emotionally. Often when women attain the status of mother it gives them a new authority in their relationship

and during their pregnancies women are more supported by their husbands (Sandhya, 2009, Huet et al., 2010):

P8: *"Because I am pregnant, me and my husband talk on topics related to that (family planning) more…He takes care of me. He comes to hospital along with me, gives me medicines and visits me at least one day in a week."* (Female, SC, 24 years of age)

As a result men may more easily accept a request from their partner, such as HIV testing, with the wellbeing of the unborn child and mother in mind. For several female participants they cite their partners' willingness to get HIV tested once the danger HIV poses to the woman and the unborn child is explained and highlighted. For several participants, including those in which communication or caring behaviour within the couple was lacking or poor, once women were pregnant the husband's behaviour changed and they also agreed to HIV testing. For participant P2, her pregnancy altered her partner's behaviour towards her, as previously her partner's drinking problem sometimes resulted in aggressive behaviour towards her:

P2: *"He also gets angry sometimes after drinking. If things are not to his liking, sometimes if I don't cook etc. he gets angry, but only when he is drunk."* (Female, COC, 22 years of age)

However, once participant P2 became pregnant the behaviour of her husband towards her changed markedly:

P2:*" Earlier they [husband and mother-in-law] used to keep fighting with me, used to say things to me. And when they realised I was pregnant, they started behaving well with me. Earlier the environment in our house was not good."*

These experiences of participants show once again the importance of highlighting men's roles as fathers in persuading them to obtain HIV testing.

4.2. Qualitative to Quantitative

Based on the key findings of the qualitative results, the inclusion of certain predictor variables in the quantitative analysis to better understand the process of persuasion by which men agree to HIV testing is further supported. While the predictor variables in the quantitative analysis have been primarily developed through review of theory and the literature, the qualitative findings further support the inclusion of some of these variables.

From the qualitative findings the role HIV risk perception and HIV knowledge of both men and women have on the process of persuasion was highlighted. Evidence was presented that supported the claim that in order for behaviour change to occur, men obtain HIV test, the risk of HIV must be perceived by the individuals concerned. In the qualitative observations, for those men and women who perceived themselves at risk of HIV it appears to influence the process of persuasion. HIV related knowledge was also considered an important element in the process of persuasion, with many participants gaining new knowledge after receiving post-test HIV counselling, it appears that this occurred for participants who received COC but SC also. The results for self-efficacy were less clear-cut as the necessary data was not present in the qualitative interviews.

A link between couple communication and men obtaining HIV testing emerged from the qualitative data, with participants describing the counselling intervention as assisting some couples in beginning or improving communication about HIV related risk and precautions that should be taken for PMTCT. The relationship dynamics in the couple also appeared to be linked to the process of persuasion, especially couples with high relationship satisfaction.

Caring behaviour by husbands of their wives also appeared to increase during pregnancy, perhaps allowing women to more easily request their partners obtain HIV testing in some cases.

4.3. Quantitative

Based on the qualitative results, theoretical framework and literature review the explanatory variables that have been proposed to be influential in the process of persuasion have been developed. In presenting the quantitative results, descriptive statistics of the study population is presented first in section 4.3.1. This is followed by the results pertaining to the first quantitative research question in section 4.3.2. Finally the results of the second quantitative research question are presented in section 4.3.3.

4.3.1. Descriptive statistics of study population

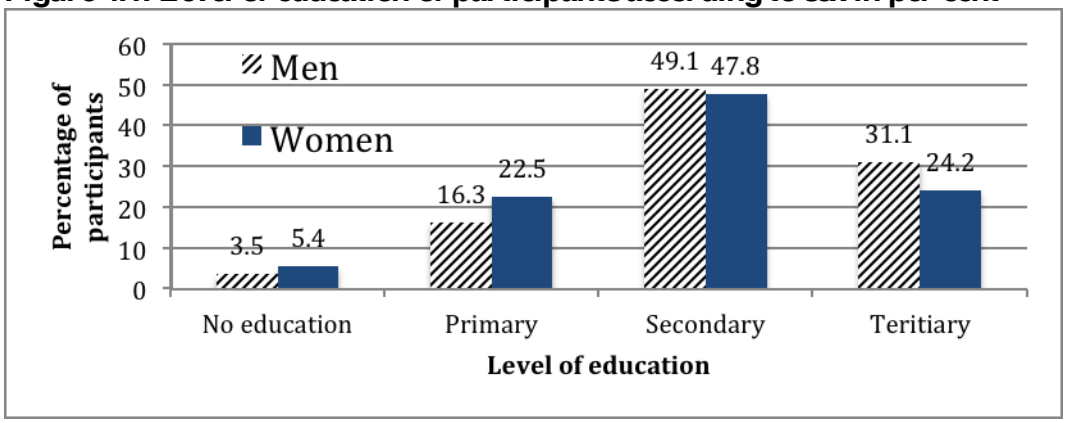
Before the quantitative research questions are addressed, it is important to explore the data to describe the population under study for this research. Table 4.1 displays information in relation to men and women's age, main remunerated or non-remunerated activity and religion. It is important to note that all of the data shown was provided by the female participants, including the data pertaining to the men.

Table 4.1. Descriptive statistics of women and men's profiles (N=479)

Characteristics		Frequency	Per cent
Age of women	***Average age= 22 years***		
Women engaged in Remunerated activity	Yes	109	***22.80%***
	No	370	***77.20%***
Women's MAIN remunerated activity	Public/govt employee	4	0.80%
	Private employee	28	5.80%
	Independent worker	77	***16.10%***
Women's current non-remunerated activity	Housewife	475	***99.20%***
	Student full-time	1	0.20%
	Student part-time	8	1.70%
	Community work	15	3.10%
	None	7	1.50%
Women's religion	Islam	23	4.80%
	Hinduism	416	***86.80%***
	Buddhism	29	6.10%
	Other	4	2.1%
Age of men	***Average age = 27 years***		
Men engaged in Remunerated activity	Yes	472	***98.50%***
	No	7	1.50%
Men's MAIN remunerated activity	Public/govt employee	22	4.60%
	Private employee	265	***55.30%***
	Independent worker	184	***38.40%***
Men's religion	Islam	22	4.60%
	Hinduism	399	***83.30%***
	Buddhism	31	6.50%
	Other	22	5.60%

Education was treated separately in order to be able to more closely compare the level of education attained by both men and women. As can be seen in Figure 4.1, men and women obtained similar levels, expect for tertiary education in which more men had reached this level of education and primary education, where more women had completed this level. In the bivariate analysis education of men and women was an independent variable tested in relation to the outcome variable, men obtaining a HIV test.

Figure 4.1. Level of education of participants according to sex in per cent



Several variables were used to understand the relationship dynamics between couples. Table 4.2 summarises these relationship characteristics.

Table 4.2. Relationship characteristics of participants (N=479)

Characteristics		Frequency	Per cent
Duration of relationship	<1 year	136	28.40%
	1-3 years	162	33.80%
	3-5 years	89	18.60%
	>5 years	92	19.20%
Emotional violence	Yes	56	11.70%
Verbal violence	Yes	72	15%
Physical violence	Yes	84	17.50%
Daily communication	Good communication	250	52.20%
	Poor communication	229	47.80%
Couple private time	Less than 1 hour	75	15.70%
	1-3 hours	252	52.60%
	More than 3 hours	152	31.70%

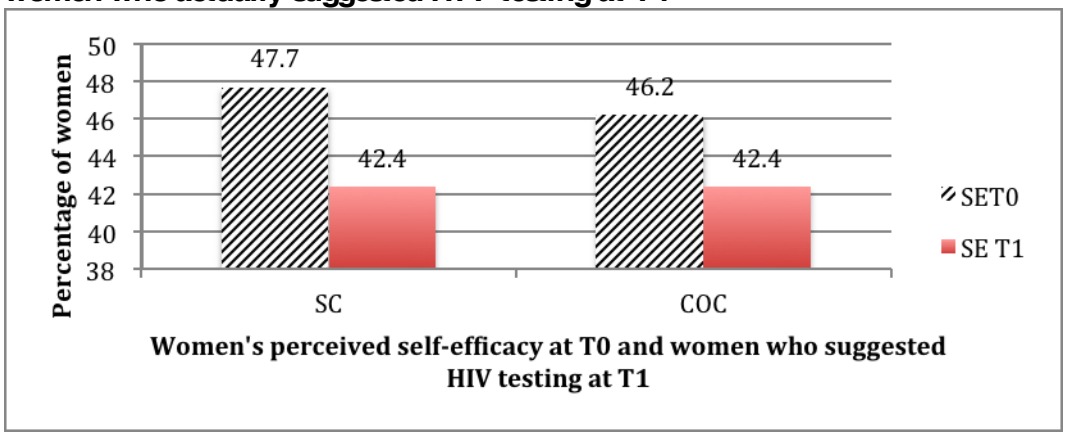
For the participants, the average **duration of their relationship** until time of interview was three years, the longest duration was 15 years and the shortest was one month. Whether women had ever experienced different **types of violence** by their husband was included as an independent variable in the analysis. As can be seen in Table 4.2, the type of violence most women ever experienced was physical violence committed by their husband, 17.5% of women. A lesser percentage of women had ever experienced emotional or verbal violence.

In order to better understand the **level of communication** already present within couples, daily communication was used. The variable measured whether women usually told their partner about their day and slightly more than half (52.2%) of women reported good communication and less than half (47.8%) of women reported poor communication. Regarding **couple daily private time**, the majority of women (52.6%) reported spending 1-3

hours of private time with their partner daily, followed by more than three hours (31.7%) and women who spent less than 1 hour per day with their partner (15.7%).

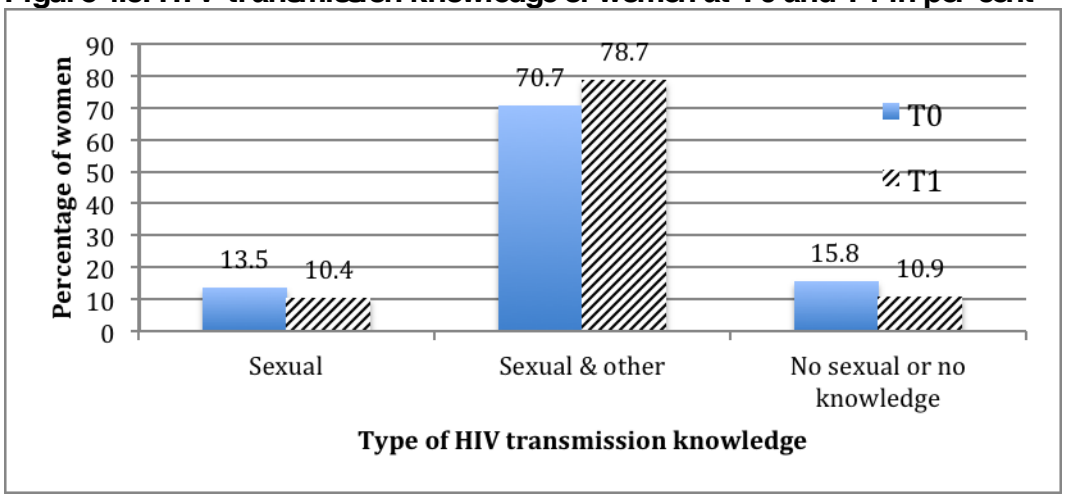
Women's **self-efficacy** was a key variable in the quantitative analysis tested. At T0 self-efficacy was conceptualised in terms of whether women perceived themselves able to suggest HIV testing to their partner, with almost all women (93.9%) perceiving themselves able to suggest HIV testing to their partners. This was divided approximately evenly between the SC and COC group, as can be seen in Figure 4.2. After receiving post-test HIV-counselling (T1), the majority of women (84.7%), divided exactly equally between the SC and COC group, then actually suggested HIV testing to their partner.

Figure 4.2. Women's perceived self-efficacy to suggest HIV testing to partner at T0 and women who actually suggested HIV testing at T1



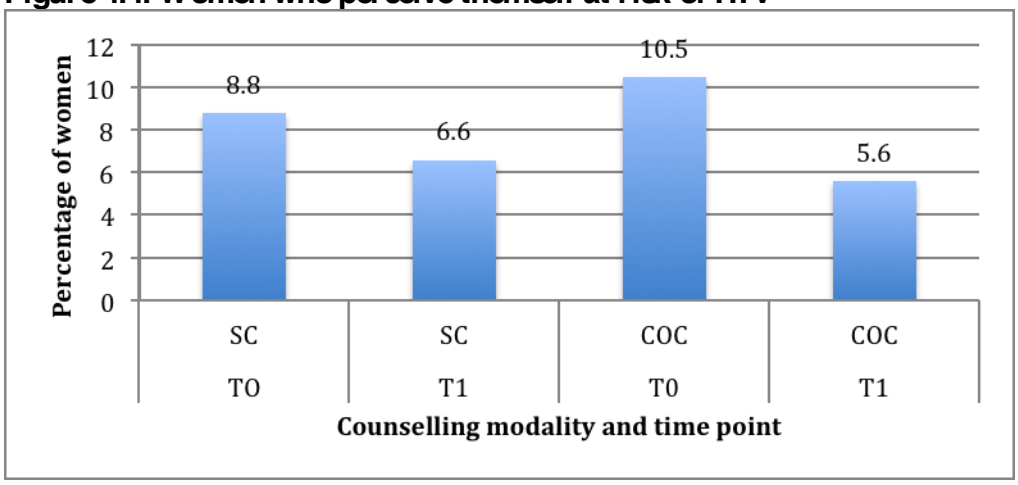
Another important variable tested was **HIV transmission knowledge**. Frequencies of women's HIV transmission knowledge at T0 and T1 were considered. Figure 4.3 shows that a large proportion of the women already had knowledge about sexual and other modes of HIV transmission before receiving post-test HIV counselling and this proportion increased only slightly at T1.

Figure 4.3. HIV transmission knowledge of women at T0 and T1 in per cent



The final variable to be considered here is women's **HIV risk perception**, described in Figure 4.4, from T0 to T1. As can be seen from Figure 4.4, for women who received SC their HIV risk perception decreased from 8.8% to 6.6% from T0 to T1. For women who received COC the proportion of women who perceived themselves at risk of HIV also reduced from 10.5% to 5.6% from T0 to T1.

Figure 4.4. Women who perceive themself at risk of HIV



4.3.2. HIV knowledge, HIV risk perception, self-efficacy and counselling modality

The first quantitative research question explored in order to gain better understanding of the process of persuasion was whether HIV knowledge, HIV risk perception and self-efficacy of women differed according to the modality of counselling they received. The women were individually randomised to either receive SC or COC and HIV knowledge, HIV risk perception and self-efficacy were analysed at T1, after the women had received the post-test HIV counselling, in order to observe difference in these factors between the SC and COC groups. The hypothesis developed for this research question was that the women who received COC would experience improved HIV knowledge, greater HIV risk perception and improved self-efficacy, in terms of their perceived ability to suggest HIV testing to their partner, compared to the SC group.

To answer this question bivariate analysis using cross tabulation and chi-square test statistics were used. Counselling modality was taken as the explanatory variable for any possible change in the outcome variables HIV knowledge, HIV risk perception and self-efficacy at T1.

Table 4.3. Effect of counselling modality on HIV knowledge, HIV risk perception and self-efficacy N (T1)= 413

	SC	COC	P value
HIV knowledge T1: transmission			0.285
Sexual Sexual & other No sexual & limited knowledge $\chi 2=2.514$, df =2	26 (6.3%) 160 (38.7%) 20 (4.8%)	17 (4.1%) 165 (40%) 25 (6.1%)	
Self-efficacy T1: suggest HIV test			0.417
Yes No $\chi 2=0.659$, df =1	175 (42.4%) 35 (8.5%)	175 (42.4%) 28 (6.8%)	
HIV risk T1			0.635
Yes No $\chi 2=0.225$, df =1 Missing system = 4	27 (6.6%) 181 (44.3%)	23 (5.6%) 178 (43.5%)	

As can be seen from Table 4.3 there is no significant difference between counselling modality received and HIV knowledge, HIV risk perception or self-efficacy. The null

hypothesis that the variables are independent of each other cannot be rejected as the p-value of the chi-square test is greater than 0.05. Therefore, based on these results, at T1 there was no difference in women's HIV knowledge, HIV risk perception or self-efficacy between the SC and COC group. The possible reasons for this will be assessed in the final conclusion chapter in section 5.1.

4.3.3. Contribution of HIV knowledge, HIV risk perception and self-efficacy, in addition to counselling modality, to persuasion effectiveness

In order to answer the second quantitative research question descriptive statistics were carried out to measure associations between persuasion and all selected predictor variables. Bivariate analysis using cross tabulations were used to observe any associations between the predictor and outcome variables. Once this was established, a multivariate model in which binary logistic regression was carried out to determine the association between the outcome variable and the predictor variables. Even predictor variables that were not significant above the 0.05 level, established during the descriptive analysis, were included in the multivariate analysis. As many of these were theoretically defined, from theory and the qualitative research, and our interest was also to examine the effect of these theoretically defined variables on the outcome variable, effective persuasion, they were included in the analysis.

The outcome variable, whether the man obtains HIV testing, is a binary variable with values 0=no (reference) and 1=yes. Estimated regression coefficients are in the form of exponential coefficients or odds ratio (OR). The odds ratio of the predictor variable highlights the relative amount by which the odds ratio of the outcome variable increase or decrease relative to the reference, when the predictor variables is increased by one unit. All groups are compared based on the reference category, which has an OR of one. An OR that is less than one signifies that the predictor variable has a lower probability than that of the reference category in predicting the dependent variable. Similarly, when the OR is greater than one it signifies a higher probability than that for the reference category (Norusis, 2008).

For the multivariate analysis, the regression model assessed the effect of theoretically defined variables after controlling for other important socio-demographic variables.

Persuasion effectiveness by selected theoretically defined and socio-demographic variables

Table 4.4 displayed below shows the results of the bivariate analysis using cross tabulation. Regarding the primary explanatory variables being tested, HIV risk perception, HIV transmission knowledge and self-efficacy, in terms of the women's perceived ability to suggest HIV testing to their partner, all of these variables have been taken from the baseline data set (T0). It is important to consider these factors at T0, before they have been influenced by the post-test HIV-counselling in order to understand the women's baseline characteristics and situation.

As has already been established by previous research related to the Prenahtest trial, COC was shown to increase the uptake of HIV testing among men (Orne-Gliemann et al. 2013). This is reflected in Table 4.4 and shows that effective persuasion, man obtains HIV test, was highest when the women received COC. The association between counselling modality and the outcome variable were statistically significant (p=0.000).

Table 4.4. Association between persuasion (man obtains HIV test) with selected variables
N (T1)= 413

Variables	Persuasion		
	Yes	No	P value
Theoretically defined variables			
Counselling modality			***0.000***
SC	26 (6.3%)	184 (44.6%)	
COC	61 (14.8%)	142 (34.4%)	
$\chi2$=19.378, df = 1			
HIV risk perception T0			***0.069***
Yes	11 (2.7%)	69 (16.8%)	
No	76 (18.5%)	254 (62%)	
$\chi2$=3.317, df = 1			
Missing system = 3			
HIV transmission knowledge T0			0.190
Sexual only	7 (1.7%)	49 (12%)	
Sexual & other	67 (16.4%)	221 (54%)	
No sexual or no knowledge	13 (3.2%)	52 (15.9%)	
$\chi2$=3.318, df = 2			
Missing system = 4			
Self-efficacy T0			0.536
Yes	80 (19.5%)	303 (73.9%)	
No	7 (1.7%)	20 (4.9%)	
$\chi2$=0.383, df = 1			
Missing system = 3			
Socio-demographic variables			
	Yes	No	P value
Couple private time daily			***0.025***
Less than 1 hour	6 (1.5%)	61 (14.8%)	
1-3 hours	52 (12.6%)	161 (39%)	
More than 3 hours	29 (7%)	104 (25.2%)	
$\chi2$=7.389, df = 2			
Age of women			0.139
<20	25 (6.1%)	64 (15.5%)	
20-24	48 (11.6%)	190 (46%)	
>=25	14 (3.4%)	72 (17.4%)	
$\chi2$=3.941, df =2			
Education of women			0.492
No or primary education	21(5.1%)	89 (21.5%)	
Secondary education	59 (14.3%)	200 (48.4%)	
Higher education	7 (1.7%)	37 (9%)	
$\chi2$=1.419, df =2			
Age of men			0.327
20-24	26 (6.3%)	85 (20.6%)	
25-29	34 (8.2%)	114 (27.6%)	
>=30	19 (4.6%)	104 (25.2%)	
Don't know	8 (1.9%)	23 (5.6%)	
$\chi2$=3.449, df =3			
Education of men			0.399
No or primary education	18 (4.4%)	63 (15.4%)	
Secondary education	59 (14.4%)	212 (51.8%)	
Higher education	8 (2%)	49 (12%)	
$\chi2$=1.839, df =2			
Violence			0.553
No violence	66 (16%)	237 (57.4%)	
Ever experience of emotional or physical violence	21 (5.1%)	89 (21.5%)	
$\chi2$=0.352, df = 1			
General communication*			0.239
Good communication	51 (12.3%)	168 (40.7%)	
Poor communication	36 (8.7%)	158 (38.3%)	
$\chi2$=1.385, df = 1			
Duration of relationship			0.541
< 1 year	29 (7%)	87 (21.2%)	
1-3 years	26 (6.3%	108 (26.2%)	
3-5 years	18 (4.4%)	63 (15.3%)	
>5 years	14 (3.4%)	68 (16.5%)	
$\chi2$=2.154, df =3			
*Refers to extent of daily communication in couple			

The women's perceived HIV risk at T0 was also shown to be significant (p=0.069) with 90% precision. Effective persuasion was highest when the women did not perceive themselves at risk of HIV. The amount of daily private time the couple had was statistically significant (p=0.025), with the most effective persuasion occurring when the couple had 1-3 hours of daily private time, followed by more than three hours. The rest of the variables tested in the bivariate analysis were not statistically significant, but showed interesting associations with the outcome variable and should be considered.

For the predictor variable, women's HIV transmission knowledge at T0, effective persuasion was highest when women had knowledge of sexual and other transmission modes of HIV (16.4%). When women's self-efficacy was positive, meaning they perceived themselves able to suggest HIV testing to their partner, effective persuasion was highest (19.5%). Effective persuasion was also highest when women's age was between 20-24 (11.6%), men's age was between 25-29 (8.2%) and when both men and women had achieved a secondary level of education (14.3% and 14.4% respectively). Regarding variables dealing with relationship dynamics of the couples, effective persuasion was highest when women had no experience of emotional or physical violence by their partners (16%), when good daily communication existed in the couple (12.3%) and the couple had been in a relationship for less than one year at the time of the Prenahtest trial (7%).

Binary logistic (multivariate) analysis

The purpose of running a multivariate logistic regression model was to determine what theoretically defined and socio-demographic variables proved significant in determining effective persuasion. A binary logistic model was run using the Enter method in SPSS. Table 4.5 below shows the results of the binary logistic regression model.

In the logistic regression model theoretically defined variables were tested and other important socio-demographic variables were controlled for as well. As expected, counselling modality remained statistically significant (p=0.000) and the odds ratio that effective persuasion would occur for women who received COC was 3.462 times that of women who received SC, the reference category. Regarding women's perception of their HIV risk, contrary to the hypothesis formulated in this thesis, the odds ratio that effective persuasion would occur for women who did *not* perceive themselves at risk of HIV was 2.073 times that of women who did perceive themselves at risk. Interestingly this suggests that when women have a lower perception of their HIV risk, effective persuasion, in terms of men obtaining HIV testing, is more likely to occur. The association between HIV risk perception and persuasion proved statistically significant (p=0.045). This is an important finding as it may suggest that only men and women who were confident they were not HIV positive were willing to come to the clinic. This is a limitation of approaches such as COC, especially in low prevalence countries, as those individuals who are actually HIV infected are not coming to the clinic. This will be discussed in greater detail in section 5.1 in the conclusion chapter. In Table 4.5, results show that women's HIV transmission knowledge and self-efficacy, after controlling for the effect of other variables, were not significantly associated to effective persuasion.

The socio-demographic control variables from the logistic regression analysis will now be considered. From the results in Table 4.5 couple private time was significantly associated with effective persuasion. Couples that had 1-3 hours of daily private time had the highest likelihood for effective persuasion to occur compared to couples with less than 1 hour of daily private time, which was the reference category. The odds ratio was 2.914 times that of the reference category, with a p-value of 0.031. The odds ratio of a couple with more than

Table 4.5. Multivariate logistic regression model with theoretically defined and socio-demographic variables

	Final Model			
Theoretically defined variables	B	Exp(b)	P value	95% CI
				Lower – Upper
Counseling modality				
SC ®				
COC	1.242	3.462	***0.000***	2.005-5.980
HIV risk perception				
Yes ®				
No	0.788	2.199	***0.037***	1.048-4.615
HIV transmission knowledge				
Sexual only	-0.806	0.447	0.149	0.149-1.1336
Sexual & other	-0.124	0.884	0.744	0.421-1.854
No sexual or no knowledge ®				
Self-efficacy				
Yes	-0.139	0.870	0.790	0.313-2.418
No ®				
Socio-demographic variables				
Couple private time daily				
Less 1 hour ®				
1-3 hours	1.070	2.914	***0.031***	1.106-7.679
More 3 hours	0.948	2.581	***0.065***	0.941-7.078
Age of women				
<20 ®				
20-24	-0.412	0.663	0.249	0.329-1.334
>=25	-0.281	0.755	0.607	0.259-2.200
Education of women				
No or primary education ®				
Secondary education	0.128	1.136	0.710	0.579-2.228
Higher education	-0.079	0.924	0.890	0.303-2.819
Age of men				
20-24 ®				
25-29	0.144	1.154	0.678	0.587-2.271
>=30	-0.408	0.665	0.375	0.270-1.638
Don't know	0.548	1.73	0.303	0.610-4.907
Education of men				
No or primary education ®				
Secondary education	-0.290	0.748	0.423	0.368-1.522
Higher education	-0.963	0.382	0.078	0.131-1.115
Violence				
No violence ®				
Ever experience of emotional or physical violence	-0.065	0.937	0.837	0.503-1.747
General communication*				
Good communication	0.563	1.756	***0.042***	1.020-3.021
Poor communication ®				
Duration of relationship				
< 1 year ®				
1-3 years	-0.244	0.784	0.481	0.398-1.545
3-5 years	0.117	1.124	0.777	0.499-2.535
>5 years	-0.124	0.883	0.799	0.339-2.299
Constant	-2.949	0.052		
-2 Log likelihood	368.319			
Chi-square/df	46.434/2			
	1	0.001		
Nagelkerke R^2	0.169			
Hosmer & Lemeshow Test (sig)	0.420			

® = reference category

three hours of daily private time having effective persuasion was 2.581 times that of couples with less than one hour of daily private time (reference category). However, this category was statistically significant at the 10% level only (p=0.065). Nevertheless at this significance it can still be said to influence the outcome variable, effective persuasion, and therefore will be considered in this analysis. One other socio-demographic variable, general communication, proved to be significantly associated (p=0.042) with the outcome variable, effective persuasion. For couples with good communication the odds ratio for effective persuasion to occur was 1.756 times that of the reference category, poor communication.

The other six socio-demographic variables tested in the regression model were not significantly associated with the outcome variable, however they will all be individually examined here.

From the results, women in the age groups 20-24 and greater than 25 have a lower likelihood for effective persuasion than the reference category, the less than 20 age group. Regarding education level of women, women who completed secondary and higher levels of education had higher odds ratio for effective persuasion relative to the reference category, no education. Men aged 25-29 and those who did not know their age had higher odds ratio for effective persuasion and those aged greater than 30 had a lower likelihood compared to the reference category, men aged 20-24 years. As men's level of education increased, the likelihood of effective persuasion occurring decreased, according to the results. Women who had ever experienced emotional or physical violence by their partners had less likelihood for effective persuasion to occur compared to the reference category, women who had experienced no such violence. Finally, those couples who had been in a relationship for 1-3 years or more than five years had a lower likelihood for effective persuasion to occur and those couples who had a relationship for 3-5 years had a higher odds ratio compared to the reference category, less than one year.

In order to measure how well the estimated model fits the data and the overall test that in the population all of the logistic regression coefficients, except the constant, are zero several statistical tests were used. The likelihood-ratio test is one such statistic used that tests the null hypothesis that the coefficients of the terms that are excluded from the full model are zero. In order to do this the difference between -2LL for the complete model and -2LL for the constant-only model must be known (Norusis, 2008). For the final model, the difference was 46.434 and the observed significance level was 0.001, meaning the null hypothesis that all the coefficients in the model are zero can be rejected. In order to measure how well the model predicts the value of the dependent variable, the Nagelkerke R^2 was used. For the final model, about 17% of the variation in the outcome variable is explained by the logistic regression model, which is not very high, however the values of logistic summary measures are typically much smaller than linear regression models. Regarding the Hosmer-Lemeshow goodness-of-fit chi-square, the observed significance level for the chi-square value was 0.42, meaning the null hypothesis that there is no difference between the observed and predicted values is not rejected. Considering all these test statistics, the model does appear to fit the data reasonably well.

Chapter 5- CONCLUSIONS and RECOMMENDATIONS

This final chapter of the thesis discusses the main findings and conclusions of this research. Based on the results presented in the previous chapter, the sub-research questions are first answered, followed by overall conclusions. Recommendations for further research are then presented based on those conclusions.

5.1. Main results and conclusions

What are the different elements involved in the processes of persuasion women employ to encourage uptake of HIV testing to their partner?

In order to begin to understand the process of persuasion that leads men to obtain HIV testing, qualitative research was used to identify and clarify the elements involved in this process. Based on the qualitative findings and supported by the theoretical framework the following elements were identified as some of the most important.

Based on deductive reasoning developed from the theoretical framework, the elements explored in the qualitative research that appeared to influence the processes of persuading men to obtain HIV testing included men and women's HIV risk perception, HIV knowledge, couple communication, some relationship dynamics and to a lesser extent women's self-efficacy. Inductive findings included the importance of male roles as fathers in protecting the wellbeing of their unborn child in persuading them to obtain HIV testing as well as the tendency of individuals to distance themselves from the possibility of sexual transmission of HIV. Rather, non-sexual modes of HIV transmission were seen as more acceptable possible perceived risks to participants in the Prenahtest trial.

The different processes of persuasion and the elements involved will now be clarified. For those women who were able to persuade their partner to obtain HIV testing and received COC or SC, one of the elements that influenced the process of persuasion was increased HIV knowledge. The increased HIV knowledge introduced information regarding modes of HIV transmission to participants that changed both men and women's perception of their HIV risk. The identification of non-sexual modes of HIV transmission appeared to allow participants to distance themselves from any negative association with sexual HIV transmission and lead to uptake of male partner HIV testing. Another way in which participants from both the COC and SC distanced themselves from this stigma and motivated men to obtain HIV testing was identification of their role as fathers in protecting their unborn child from HIV risk. In this way, it was not the man that was at risk of HIV, but the child, therefore allowing the man to obtain HIV testing without any social stigma attached.

Relationship dynamics also influenced the ability of women to persuade their partners, with couple communication regarding HIV and sexual issues often improving or changing after women received post-test HIV-counselling. While this may have occurred more frequently for those women who received COC, considering the focus of COC on improving couple communication, women who received SC also reported improved communication. Where good couple communication or relationship dynamics were reported, women were able to more often persuade their partners to obtain HIV testing. Interestingly, during women's pregnancy it was frequently presented as a period in which women were more easily able to make requests of men, such as obtain HIV testing. Often when women attain the status of mother it gives them a new authority in their relationship and during their pregnancies women are supported more by their husbands (Sandhya, 2009, Huet et al., 2010). The results pertaining to self-efficacy were less conclusive due to the lack of extensive qualitative data available at T1. However, it was noted that some women already possessed the necessary

perceived self-efficacy to suggest HIV testing to their partner, whereas other women appreciated the COC in providing them with information and strategies that prepared them to communicate about HIV testing with their partner.

For those women who were unable to persuade their partner to obtain HIV testing, the process that lead to this and the elements involved will now be clarified. For some participants the post-test HIV-counselling proved useful in improving communication with couples regarding sexual health and HIV. Despite this, some men did not obtain HIV testing as they had already obtained HIV testing at a different location and did not feel it was necessary to be tested again so soon. However, for other participants, low or non-existent HIV risk perception proved to be an important step in the process that led to no persuasion occurring. Some men cited having no risk of HIV, as they did not engage in extra-marital sexual relations. Once again linked to the low perception of HIV risk through sexual transmission most participants had and is linked to the low HIV risk perception and HIV related knowledge present in India among the general population (Saggurti & Malviya, 2009, Santhya & Jejeeboy, 2007).

Furthermore, the unclear role men have in ANC also affected the process of persuasion. Some men associated matters relating to reproductive health affairs as their wife's affairs. In India matters related to birth, caring for children and the health of the family are traditionally responsibilities of women and mothers, men's roles in these situations are not well defined or developed (Huet et al., 2012). Finally couples in which poor communication or relationship dynamics existed appeared to affect women's ability to persuade men to obtain HIV testing.

Based on the qualitative findings and the theoretical framework, a possible process of persuasion was formulated to be tested in the quantitative analysis. HIV risk perception, HIV knowledge and self-efficacy were identified as the key factors to be tested in this possible process. Other factors that needed to be controlled for included: couple communication; relationship dynamics; and various socio-demographic variables.

Does HIV knowledge, HIV risk perception and self-efficacy differ according to the modality of counselling received by the women?

Considering this quantitative research question, the hypothesis formulated stated that the women who received COC would experience improved HIV knowledge, greater HIV risk perception and improved self-efficacy, in terms of their perceived ability to suggest HIV testing to their partner, compared to the SC group. Based on the quantitative results, no statistically significant difference between the COC and SC group for any of these outcome variables was observed.

Taking HIV transmission knowledge first, no difference between the SC and COC groups knowledge could signify that the women from both groups already possessed reasonable HIV knowledge at T0 and the counselling, either SC or COC, did not change this significantly, only slight increases were noted. In section 4.3.1 frequencies of women's HIV transmission knowledge at T0 and T1 showed only a slight increase in knowledge about sexual and other modes of HIV transmission after receiving post-test HIV-counselling, suggesting the counselling intervention did not dramatically increase HIV transmission knowledge.

Furthermore, the decision was taken to measure HIV knowledge in relation to knowledge about HIV transmission, in particular sexual transmission of HIV. However, if other forms of HIV knowledge had been tested perhaps a different result between the SC and COC group would have been found. This is a limitation of the study, in that measuring only HIV transmission knowledge does not encompass all the possible HIV related knowledge women

may have gained. For example testing the women's knowledge in relation to PMTCT specifically may have produced different results.

If the qualitative findings are taken into account, participants from both the SC and COC reported improvements in their HIV related knowledge after the counselling intervention, which also reflects the quantitative results. SC and COC actually provided women with similar information about HIV transmission, prevention and PMTCT. They differed in that COC aimed to develop women's communication skills and self-efficacy.

Regarding the women's self-efficacy, in terms of suggesting HIV testing to their partner, there was no significant difference between the SC and COC group. This may be due to the situation at baseline (T0), in which almost all women perceived themselves as able to suggest HIV testing to their partners. After receiving post-test HIV-counselling, the majority of women, divided exactly equally between the SC and COC group, then actually suggested HIV testing to their partner. This would imply that the women's self-efficacy was already sufficiently high at baseline and there would be no difference between the SC and COC group as not much improvement was necessary or possible. COC has the objective of empowering women to, among other things, encourage their partner to obtain a HIV test. However, if the women already possess the necessary perceived ability to suggest HIV testing, then COC may not be able to improve this further. From the qualitative findings, many women felt themselves able to suggest HIV to their partner and did not expect any difficulties in communicating this to their partner. However, some women who received COC did discuss a greater feeling of confidence and understanding of how to discuss issues related to HIV with their partners, including suggesting HIV testing.

The final outcome variable investigated was HIV risk perception. Firstly there was no difference between the SC and COC group in terms of changed HIV risk perception, and there was actually a decrease in HIV risk perception after women received post-test HIV-counselling. The counselling had the opposite effect than expected. In fact, it appears that for both the SC and COC groups, after they received counselling, and in principle greater HIV related knowledge, the women's HIV risk perception, which was already low at T0, is even further reduced. However, based on the qualitative findings many women and men discussed feeling less at risk of HIV after receiving the post-test HIV-counselling as it provided them with information and strategies they could employ to reduce their potential HIV risk. Considering this the quantitative results are more understandable as they reflect the qualitative observations shared by participants; the more HIV related knowledge and practical information people receive, the more their perceived risk of HIV reduces as they are better informed and prepared.

What is the contribution of HIV knowledge, HIV risk perception and self-efficacy, in addition to counselling modality, to persuasion effectiveness?

The results pertaining to the second quantitative research question showed that the hypothesis developed in this thesis, and the possible process of persuasion expounded based on theory and the qualitative evidence, was in fact not the process of persuasion that is occurring here. It appears that women's HIV transmission knowledge and self-efficacy do not contribute to the process of persuasion in addition to counselling modality. Women's HIV risk perception appears to contribute, but not to the extent of COC and in a contrary manner than expected. The amount of couple daily private time and general communication in the couple also contributes to the process of effective persuasion. This could suggest that besides the importance of counselling modality in determining effective persuasion, women having no HIV risk perception and increased private daily couple time are factors in the process of persuasion.

Counselling modality appears to have the greatest explicative power in determining effective persuasion (p=0.000), with those women who received COC having increased odds ratio of persuading their partner to obtain HIV testing. The more daily private time the couples had the greater the odds ratio that effective persuasion would occur (p=0.031). For couples with good general communication, the odds of effective persuasion occurring were also higher (p=0.042). Furthermore, women who did not perceive themselves at risk of HIV also had a greater odds ratio of effective persuasion occurring (p=0.037). This was an unexpected result, which showed that while HIV risk perception is an important factor in the process of persuasion, the women who do perceive themselves at risk had a lower likelihood of effective persuasion occurring.

The results in relation to HIV risk perception are important and suggest that those women who perceive themselves at risk of HIV might actually be exposed to HIV risk factors such as an alcoholic husband or a husband who is engaging in extra-marital sexual relations. In this situation it is difficult for those women to talk to and persuade their partner to come to the clinic for HIV testing. From these results, it appears that only participants who were confident they were not HIV positive were willing to come to the clinic and get tested. This signifies a limitation of approaches such as COC, especially in low prevalence HIV settings, as the number of men coming to the clinic may increase but those who are potentially HIV infected are not actually being reached. A recommendation to avoid this is to make such approaches comprehensive. By not only focusing on HIV, but also on improving couple communication about reproductive health and contraception. This can still lead to improvements in maternal and child health care aspects.

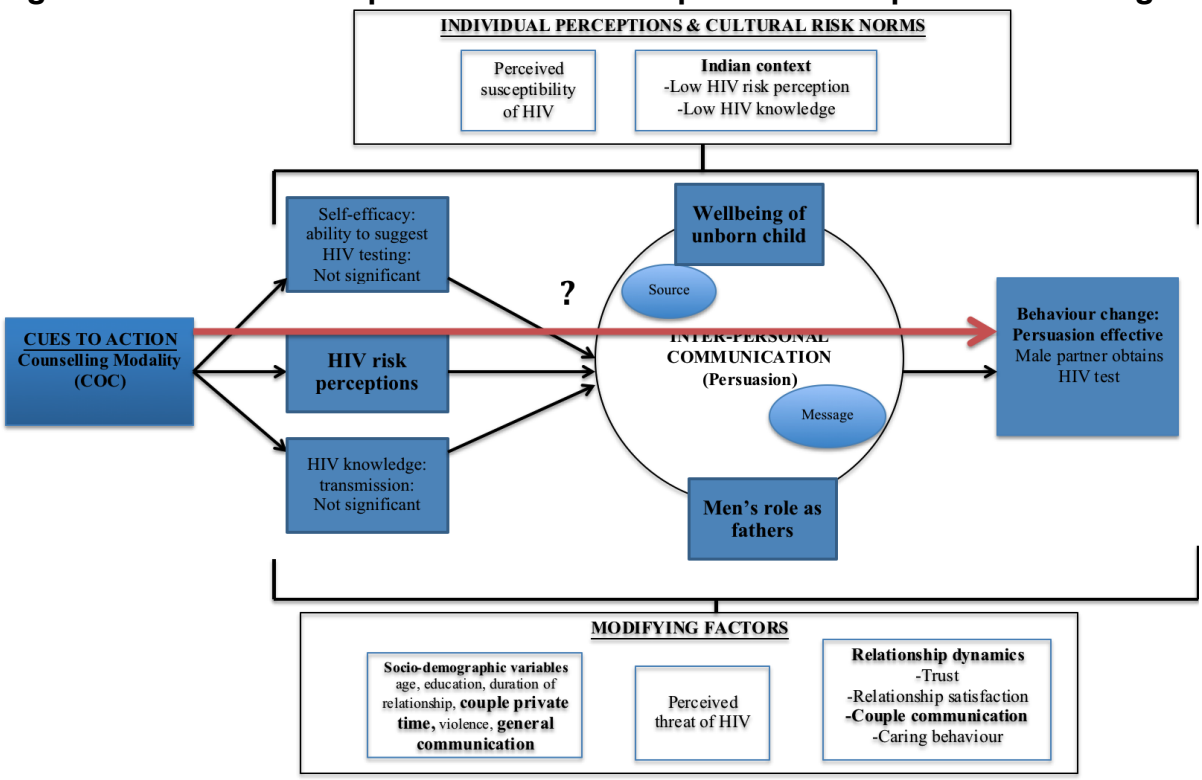
The divergent results from the mixed methods approach suggest possible shortcomings in the theoretical framework developed and conceptualization of variables in the quantitative analysis. The qualitative findings, especially concerning HIV risk perception and HIV knowledge that was linked to the Health Belief Model and interpersonal communication concerned with persuasion, proved to be reasonably well supported by the qualitative observations. However, the theoretical understanding of HIV risk perception proved to be reversed in the quantitative results. Other results in the quantitative analysis, such as HIV knowledge and self-efficacy, proved to be insignificant in explaining the process of effective persuasion. This may be due to the fact that the theoretical framework developed did not capture the truth in this scenario or some of the quantitative variables may not have been ideally operationalized. The inductive conceptual model developed based on the research findings will now be presented.

5.2. Inductive conceptual model

Based on the qualitative and quantitative findings, an inductive conceptual model has been developed, Figure 5.1. The deductive conceptual model discussed and shown in section 2.2 was used in interpreting the findings of this research and the deductive model proposed a possible process of persuasion that would lead men to obtain HIV testing. This process was shown to not be entirely correct and Figure 5.1 below highlights factors that proved insignificant and those that were significant. Based on the social cognitive model of health behaviour discussed in section 2.1.2, individuals perceived threat or risk of a health condition or illness can motivate people to take action. The inductive model shows that individuals HIV risk perception played an important role in the process of persuasion. From the qualitative findings, men who felt themselves at risk of HIV appeared to agree to HIV testing more readily. However, the quantitative results showed a lack of HIV risk perception increased the odds ratio of effective persuasion occurring. This is a contrary result to the qualitative findings and theoretical understanding, this has been addressed above in section 5.1 in

answering the second quantitative research question. Figure 5.1 below shows that women's self-efficacy was not a significant factor in the process of persuasion and this is contrary to the theoretical understanding of the HBM (section 2.1.2).

Figure 5.1. Inductive conceptual model based on qualitative and quantitative findings



HIV knowledge was also not a significant factor in the process of persuasion quantitatively, but qualitatively several women especially discussed the HIV knowledge they gained from the counselling session as assisting them in persuading their partners to obtain HIV testing. Qualitative findings that had not been considered in the deductive conceptual model, but were considered as important, include the importance of men's roles as fathers and ensuring the wellbeing of the unborn child in persuading men to obtain HIV testing. Other factors that were shown to have a significant role in the process of persuasion from the quantitative analysis include couples private time and general communication. However, these were expected results as it had already been shown from previous research the importance of couple communication on male partner uptake of HIV testing. The red line in Figure 5.1 implies that based on this research it is clear that COC is still important in male partner uptake of HIV testing, but the exact process by which this occurs is still unclear.

5.2. Recommendations

While the findings of this research proved contrary to the hypotheses developed, a negative result is still a result. For this research, based on the qualitative findings and theoretical underpinnings a possible process of persuasion was developed and tested. In this process COC was thought to increase HIV knowledge, change HIV risk perception and improve women's self-efficacy, compared to SC and then these same variables were expected to be significant explanatory factors in effective persuasion, proved not be the case. However, COC remained a significant explanatory variable in persuading men to obtain HIV testing, HIV risk perception proved significantly associated and factors related to couple communication and relationship dynamics were shown to be involved in the process of persuasion, as they were also significantly associated to the outcome variable.

Recommendations by which future research could be structured to identify the correct process of persuasion are as follows.

Addressing qualitative research first, further in-depth study could be undertaken in which women's self-efficacy after the Prenahtest intervention is assessed to understand whether improvement in this was due to COC or other elements. An individual's self-efficacy is not easily changed, but over time more changes may become apparent and the role this plays in the process of persuasion may become more pronounced. The findings from the qualitative data in relation to the importance of men's identities as fathers and their willingness to obtain HIV testing in order to protect their unborn children were interesting. Further research into the effect this has on the process of persuasion, the consequences of this and opportunities for greater inclusion of men in PMCTCT services due to this would be a valuable addition to the current research in this field.

Regarding quantitative research, firstly, improvement could be made to the design model particularly regarding the operationalization of certain variables. HIV knowledge should be tested again but focusing on different HIV related knowledge aspects, such as women's understanding of PMTCT. HIV knowledge may still prove to be an important explanatory variable in the process of persuasion. Testing men's HIV related knowledge would also be a useful contribution to the understanding of this phenomenon. As mentioned above, it is unclear why women who have lower HIV risk perception had a higher odds ratio of effective persuasion occurring, this would be a potential research direction to take as well. Finally, focussing on the quantitative data available for men and developing a more robust measurement of persuasion effectiveness through the use of this data could provide greater understanding of the process of persuasion that leads men to obtain HIV testing.

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Appendix I. Code list: Deductive, inductive and in vivo codes

Deductive Codes

Beh-caring
Beh-caring/inv-pregnancy
Beh-neg
Beh-trial-neut
Beh-trial-pos
Comm-daily
Comm-HIV status
Comm-HIV/ STDs-neg
Comm-HIV/ STDs-neut
Comm-HIV/ STDs-pos
Comm-personal-neg
Comm-personal-neut
Comm-personal-pos
Comm-pregnancy-neg
Comm-pregnancy-pos
Comm-topics
Comm-trial-neut
Comm-trial- pos
Condom-usage/comm
Contraceptives-usage
HIV-risk-behaviour
HIV-risk/comm
HIV test-neg
HIV test/trial-husband-willing
HIV/ STDs-know
HIV/ STDs-personal
HIV/ STDs-prevent/comm
Persuasion-message
Persuasion-source
Rel-fight-neg
Rel-fight-neut
Rel.-neut
Rel.-pos
Rel-power-neg
Rel-power-neut
Self efficacy-neut
Self efficacy-pos
Sexual relations-couple/comm
Sexual relations-knowledge
Trial-info-gained
Trial-info-pos
Trust-couple
Trust-husband-neut

Inductive Codes

Comm-limited-alcohol
Comm-limited-normal
Husband-alcohol
Marriage-love
Persuasion-other
Persuasion-preg
Persuasion-unborn child

In vivo Codes

HIV/STDs-'garmi'
HIV/STDs-'heat'
Sexual relations-'love marriages'
Pregnancy-'eat pills'

54 codes listed in this document
Deductive codes: 43
Inductive codes: 7
Invivo codes: 4