



**HAL**  
open science

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

Pauliina Aarnio, Pia Olsson, A Chimbiri, Teija Kulmala

► **To cite this version:**

Pauliina Aarnio, Pia Olsson, A Chimbiri, Teija Kulmala. Male involvement in antenatal HIV counseling and testing: Exploring men's perceptions in rural Malawi. *AIDS Care*, 2009, 21 (12), pp.1537-1546. 10.1080/09540120902903719 . hal-00545380

**HAL Id: hal-00545380**

**<https://hal.science/hal-00545380>**

Submitted on 10 Dec 2010

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



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

Journal:	<i>AIDS Care - Psychology, Health &amp; Medicine - Vulnerable Children and Youth Studies</i>
Manuscript ID:	AC-2008-09-0443.R1
Journal Selection:	AIDS Care
Keywords:	prenatal care, HIV, pregnancy, voluntary counseling, men



**RESEARCH ARTICLE**

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

*Running head:* Men's views on HIV testing in pregnancy

For Peer Review Only

**Abstract**

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

**Key words**

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

## Introduction

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

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

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

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

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

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

## **Methods**

### *Setting*

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

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

### *Design*

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

#### ***Data collection and analysis***

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

The 81 FGD participants were sampled purposively by one local research assistant aided by chiefs' counselors, anticipating demographic variability (Kitzinger & Barbour, 1999), though with modification based on convenience. Two local research assistants moderated the FGDs in Chiyao or Chichewa language in the participants' home villages. Six FGDs were held separately for young (15-19 years), adult (20-35 years), and old men (36-50 years), and five were mixed. The question guide covered perceptions of HIV in pregnancy, antenatal VCT, and male involvement. The principal investigator observed half of the discussions for evaluation of an influence of her presence. FGDs were tape-recorded, transcribed, and translated into English. All tapes were checked for incongruence with translated text, and 15% were double transcribed and translated. No major discrepancies



were identified. Data were analyzed by qualitative content analysis (Graneheim & Lundman, 2004) using Open Code software (Umeå University), considering young and old men's responses separately. Analyses and themes were discussed with co-researchers for credibility (Graneheim & Lundman, 2004).

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

## **Results**

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

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

TABLE 1

### ***Perceptions of HIV in pregnancy***

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

### *Three death sentences*

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

*P5: If she comes from a poor background she has poor support. They treat her like an animal (...)*

*P1: She lacks clothes since she has no means of getting them. P4: A man can't propose to her [for marriage or girlfriend] to support her, because he knows she has HIV. (FGD 6, adult/old)*

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

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

### *Disease of promiscuity*

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

### *Vulnerable women fighting a strange enemy*

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

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

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

### ***Perceptions of husbands' involvement in antenatal VCT***

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

TABLE 2  
FIGURE 1

### ***Means of male involvement***

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

Men underlined husbands' responsibility to prevent HIV during pregnancy by means of faithfulness and advising the wife on the same (A1, Figure 1), while condoms were barely mentioned. Husbands' responsibility and right to advise were ascribed to his status as the clever family head but also to his promiscuity. Both spouses could also give advice out of love.

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

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

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

Lastly, the husband was involved if the pregnant wife was found HIV-positive (A4). For most survey participants, involvement meant being openly informed and taking the HIV-test (Table 3). FGD participants focused on how the husband gives material support, love, and comfort to his wife. Despite family pressure he should continue the marriage, stop

having children to protect her health, and accept condom use or abstinence. Having another sex partner could help the marriage last.

### TABLE 3

#### *Barriers to male involvement*

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

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

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

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

### *Support to male involvement*

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

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

### **Discussion**

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

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

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

However, truly acceptable services for couples require a comprehensive reorientation of services towards both sexes. Currently, midwives in Malawi are not prepared to involve men (Misiri, Tadesse & Muula, 2004), and reproductive health services beyond VCT are



claimed to exclude men (Greene & Biddlecom, 2000; Mbizvo & Bassett, 1996; Obermeyer, 1999; WHO, 2002).

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

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

A third consideration concerns the recent policy developments towards mandatory antenatal HIV-testing in Malawi (Plusnews article on December 24, 2007). While the need to increase VCT in Africa is obvious, our findings, in line with others (Csete, Schleifer & Cohen, 2004), raise the concern that pregnant women, when learning their HIV-status in presence of stigma and absence of treatment or husband's approval, may face stress or violence. While some suggest that women should be empowered to decide on antenatal VCT alone (Semrau et al., 2005), others argue that approaches that bypass the women's social context, can lead to not truly voluntary consent (Fylkesnes, Haworth, Orne-Glieman and Desgrées-Du-Loû, 2008; Rosensvärd & Kwapa, 1999). Our findings suggest that mandatory testing might lead to negative social outcomes, like divorces, unless male involvement and community sensitization is given priority. For achieving truly voluntary consent, adherence to therapies and sexual behavior change, we recommend comprehensive approaches, like routine antenatal consultations for couples. This approach would also help men to attend health care without being stigmatized. Another way forward could be strengthening couple counseling services outside ANC (Msuya et al., 2008).

## **Conclusion**

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

## References

Antelman, G., Smith Fawzi, M.C., Kaaya, S., Mbwambo, J., Msamanga, G.I., Hunter, D.J., et al. (2001). Predictors of HIV-1 serostatus disclosure: a prospective study among HIV-infected pregnant women in Dar es Salaam, Tanzania. *AIDS*, *15*, 1865-1874.

Ashorn U. Child Health Seeking in Lungwena, Malawi. [PhD Dissertation] Tampere: Tampere University Press; 2003.

Askew, I., & Berer, M. (2003). The contribution of sexual and reproductive health services to the fight against HIV/AIDS: A review. *Reproductive Health Matters*, *11*(22), 51-73.

Baiden, F., Remes, P., Baiden, R., Williams, J., Hodgson, A., Boelaert, M., et al. (2005). Voluntary counseling and HIV testing for pregnant women in the Kassena-Nankana district of northern Ghana: is couple counseling the way forward? *AIDS Care*, *17*, 648-657.

Benson, T.D. (2002). *Malawi - an Atlas of Social Statistics*. Zomba, Malawi: National Statistics Office, Government of Malawi and International Food Policy Research Institute.

Bond, V., Chase, E., & Aggleton, P. (2002). Stigma, HIV/AIDS and prevention of mother-to-child transmission in Zambia. *Evaluation and Program Planning*, *25*, 347-356.

Csete, J., Schleifer, R., & Cohen, J. (2004). "Opt-out" testing for HIV in Africa: a caution. [letter] *Lancet*, 363, 493-494.

deGraft-Johnson, J., Paz-Soldan, V., Kasote, A., & Tsui, A. (2005). HIV voluntary counseling and testing service preferences in a rural Malawi population. *AIDS and Behavior*, 9, 475-484.

dePaoli, MM., Manongi, R., & Klepp, K-I. (2004). Factors influencing acceptability of voluntary counselling and HIV-testing among pregnant women in Northern Tanzania. *AIDS Care*, 16, 411-425.

Farquhar, C., Kiarie, J.N., Richardson, B.A., Kabura, M.N., John, F.N., Nduati, R.W., et al. (2004). Antenatal couple counseling increases uptake of interventions to prevent HIV-1 transmission. *Journal of Acquired Immune Deficiency Syndromes*, 37, 1620-1626.

Fylkesnes, K., Haworth, A., Rosensvärd, C., & Kwapa, P.M. (1999). HIV counselling and testing: overemphasizing high acceptance rates a threat to confidentiality and the right to know. *AIDS*, 13, 2469-2474.

Gaillard, P., Melis, R., Mwanyumba, F., Claeys, P., Muigai, E., Mandaliya, K., et al. (2002). Vulnerability of women in an African setting: lessons for mother-to-child HIV transmission prevention programmes. *AIDS*, 16, 937-939.

Graneheim, U.H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24, 105-112.

Greene, M., & Biddlecom, A. (2000). Absent and problematic men: demographic accounts of male reproductive roles. *Demography*, 26, 81-115.

Heyward, W.L., Batter, V.L., Malulu, M., Mbuyi, N., Mbu, L., St.Louis, M., et al. (1993) Impact of HIV counseling and testing among child-bearing women in Kinshasa, Zaire. *AIDS*, 7, 1633-1637.

Homsy, J., Kalamya, J.N., Obonyo, J., Ojwang, J., Mugumya, R., Opio, C., et al. (2006). Routine intrapartum HIV counseling and testing for prevention of mother-to-child transmission of HIV in a rural Ugandan hospital. *Journal of Acquired Immune Deficiency Syndromes*, 42, 149-154.

Issiaka, S., Cartoux, M., Ky-Zerbo, O., Tiendrebéogo, S., Meda, N., Dabis, F., et al. (2001). Living with HIV: women's experience in Burkina Faso, West Africa. *AIDS Care*, 13, 123-128.

Kiarie, J.N., Kreiss, J.K., Richardson, B.A., & John-Stewart, G.C. (2003). Compliance with antiretroviral regimens to prevent perinatal HIV-1 transmission in Kenya. *AIDS*, *17*, 65-71.

Kilewo, C., Massawe, A., Lyamuya, E., Semali, I., Kalokola, F., Urassa, E., et al. (2001). HIV counseling and testing of pregnant women in sub-Saharan Africa: experiences from a study on prevention of mother-to-child HIV-1 transmission in Dar es Salaam, Tanzania. *Journal of Acquired Immune Deficiency Syndromes*, *28*, 458-462.

Kitzinger, J., & Barbour, R.S. (1999). Introduction: the challenge and promise of focus groups. In Kitzinger J, Barbour RS (Eds.), *Developing Focus Group Research : politics, theory, and practice*. London: Sage Publications.

Kowalczyk, J., Jolly, P., Karita, E., Joseph-Arden, N., Joseph, V., & Hamisu, S. (2002). Voluntary counseling and testing for HIV among pregnant women presenting in labor in Kigali, Rwanda. *Journal of Acquired Immune Deficiency Syndromes*, *31*, 408-415.

Lemeshow, S., Hosmer, Jr. D.W., Klar, J., & Lwanga, S.K. (1990). *Adequacy of Sample Size in Health Studies*. Chichester: John Wiley & Sons Ltd. on behalf of the World Health Organization.

Manzi, M., Zachariah, R., Teck, R., Buhendwa, L., Kazima, J., Bakali, E., et al. (2005). High acceptability of voluntary counselling and HIV-testing but unacceptable loss to follow up in a prevention of mother-to-child HIV transmission programme in rural Malawi: scaling-up requires a different way of acting. *Tropical Medicine and International Health*, *10*, 1242-50.

Marshall, C., & Rossman, G.B. (1995). *Designing Qualitative Research*. 2<sup>nd</sup> ed. Thousand Oaks (CA): Sage Publications.

Mbizvo, M.T., & Bassett, M.T. (1996). Reproductive health and AIDS prevention in sub-Saharan Africa: the case for increased male participation. *Health Policy*, *11*, 84-92.

Miller, K., Zulu, E.M., & Watkins, S.C. (2001). Husband-wife survey responses in Malawi. *Studies in Family Planning*, *32*, 161-174.

Misiri, H.E., Tadesse, E., & Muula, A.S. (2004). Are public antenatal clinics in Blantyre, Malawi, ready to offer services for the prevention of vertical transmission of HIV? *African Journal of Reproductive Health*, *8*(2), 64-70.

Mlay, R., Lugina, H., Becker, S. (2008). Couple counselling and testing for HIV at antenatal clinics: views from men, women and counsellors. *AIDS Care*, *20*(3), 356-60.

Morin, S.F., Khumalo-Sakutukwa, G., Charlebois, E.D., Routh, J., Fritz, K., Lane, T., et al. (2006). Removing barriers to knowing HIV-status. *Journal of Acquired Immune Deficiency Syndromes*, 41, 218-224.

Moyo, W., Chirenje, Z.M., Mandel, J., Schwarcz, S.K., Klausner, J., Rutherford, K., et al. (2002). Impact of a single session of counseling on partner referral for sexually transmitted disease treatment, Harare, Zimbabwe. *AIDS and Behavior*, 6, 237-43.

Msuya, S.E., Mbizvo, E.M., Hussain, A., Uriyo, J., Sam, N.E., Stray-Pedersen, B. (2008). Low male partner participation in antenatal HIV counselling and testing in northern Tanzania: implications for preventive programs. *AIDS Care*, 20(6), 700-9.

NAC (2003). National AIDS Commission of Malawi (NAC), Government of Malawi. *National HIV/AIDS Policy - A Call for Renewed Action [E-report]*. Retrieved December 1, 2007, from [http://hivaidsclearinghouse.unesco.org/ev\\_en.php?ID=3350\\_201&ID2=DO\\_TOPIC](http://hivaidsclearinghouse.unesco.org/ev_en.php?ID=3350_201&ID2=DO_TOPIC).

Nebie, Y., Meda, N., Leroy, V., Mandelbrot, L., Yaro, S., Sombié, I., et al. (2001). Sexual and reproductive life of women informed of their HIV seropositivity: a prospective cohort study in Burkina Faso. *Journal of Acquired Immune Deficiency Syndromes*, 28, 367-372.



NSO (2005) National Statistical Office (NSO) Malawi and ORC Macro. *Malawi Demographic and Health Survey 2004*. Calverton, Maryland: NSO and ORC Macro.

Nuwaha, F., Kambugu, F., Nsubuga, P.S., Hojer, B., & Fanelid, E. (2001). Efficacy of patient-delivered partner medication in the treatment of sexual partners in Uganda. *Sexually Transmitted Diseases*, 28, 105–110.

Obermeyer, C.M. (1999). The cultural context of reproductive health: Implications for monitoring the Cairo Agenda. *International Family Planning Perspectives*, 25, 50-55.

Obermeyer, C.M., & Osborn, M. (2007). The utilization of testing and counseling for HIV: A review of the social and behavioral evidence. *American Journal of Public Health*, 97, 1762-74.

Orne-Gliemann, J., Desgrées-Du-Loû, A. (2008). The involvement of men within prenatal HIV counselling and testing. Facts, constraints and hopes. *AIDS*, 22(18), 2555-7.

Plusnews newspaper article. *Malawi: Government proposes mandatory HIV test for pregnant women*. (December 24, 2007). Retrieved January 8, 2008 from <http://www.plusnews.org/Report.aspx?ReportId=75984>

Policy Project (2004). *Coverage of Selected Services for HIV/AIDS Prevention, Care and Treatment in Low- and Middle-Income Countries in 2003*. Washington, DC: Futures Group, Policy Project.

Pronyk, P.M., Kim, J.C., Makhubele, M.B., Hargreaves, J.R., Mohlala, R., & Hausler, H.P. (2002). Introduction of voluntary counselling and rapid testing for HIV in rural South Africa: from theory to practice. *AIDS Care, 14*, 859-865.

Sandelowski, M. (2000). Focus on Research Methods. Combining qualitative and quantitative sampling, data collection and analysis techniques in mixed-method studies. *Research in Nursing and Health, 23*, 246-255.

Schatz, E. (2005). 'Take your mat and go!': rural Malawian women's strategies in the HIV/AIDS era. *Culture, Health & Sexuality, 7*, 479-492.

Semrau, K., Kuhn, L., Vwalika, C., Kasonde, P., Sinkala, M., Kankasa, C., et al. (2005). Women in couples antenatal HIV counseling and testing are not more likely to report adverse social events. *AIDS, 19*, 603-609.

Stover, J., & Fahnstock, M. (2006). *Coverage of Selected Services for HIV/AIDS Prevention, Care and Treatment in Low- and Middle-Income Countries in 2005*. Washington, DC: Constella Futures, POLICY Project.

Stringer, E.M., Sinkala, M., Kumwenda, R., Chapman, V., Mwale, A., Vermund, S.H., et al. (2004). Personal risk perception, HIV knowledge and risk avoidance behavior, and their relationships to actual HIV serostatus in an urban African obstetric population. *Journal of Acquired Immune Deficiency Syndromes*, 35, 60-66.

Tadesse, E., & Muula, A.S. (2004). Knowledge and perceptions of antenatal women towards prevention of mother to child transmission of HIV/AIDS in Blantyre, Malawi. *Central African Journal of Medicine*, 50(3-4), 29-32.

Tadesse, E., Muula, A.S., & Misiri, H. (2004). Likely stakeholders in the prevention of mother to child transmission of HIV/AIDS in Blantyre, Malawi. *African Health Sciences*, 4, 155-9.

Temmerman, M., Ndinya-Achola, J., Ambani, J., & Piot, P. (1995). The right not to know HIV-test results. *Lancet*, 345, 969-970.

UNAIDS. (2001). *Counseling and Voluntary HIV Testing for Pregnant Women in High HIV Prevalence Countries. Elements and Issues*. Geneva: UNAIDS.

World Health Organisation (WHO). (2002). *Programming for Male Involvement in Reproductive Health: Report of the Meeting of WHO Regional Advisers in Reproductive Health WHO/PAHO, Washington DC, USA 5-7 September 2001*. Geneva: WHO.

WHO and UNICEF. (2003). *Antenatal Care in Developing Countries : Promises, Achievements and Missed Opportunities : An Analysis of Trends, Levels and Differentials, 1990-2001*. Geneva: WHO.

For Peer Review Only

For Peer Review Only

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

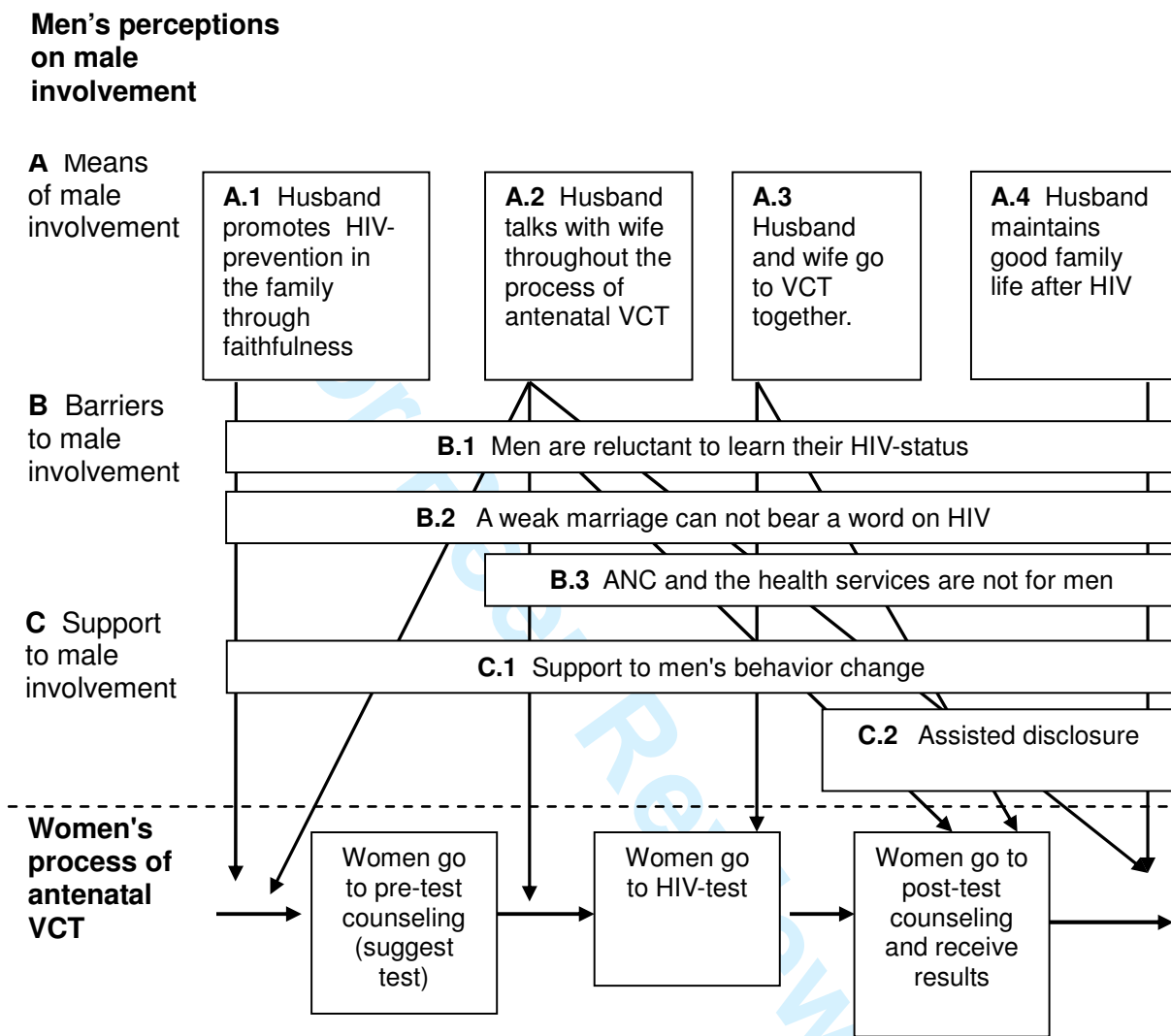


Table 1. Socio-economic background characteristics and knowledge related to antenatal HIV-testing among married men in Southern Malawi participating in survey (n=388) and focus group discussions (n=81).

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

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

<sup>a</sup> Other tribes: Nyanja, Chewa, Ngoni, Tumbuka, Lomwe.

<sup>b</sup> Other religions: Roman Catholic, Anglican, Pentecostal, small Christian denominations, Rastafarian

<sup>c</sup> Literacy was tested by letting the participant read a piece of text in his mother tongue

<sup>d</sup> Not included in the analysis: 2 unclear answers (n total 386)

<sup>e</sup> Not included in the analysis: 1 missing answer (n total 387)

<sup>f</sup> Not included in the analysis: 3 unclear or missing answers (n total 385)

<sup>g</sup> Not included in the analysis: 17 men, whose wife had never been pregnant (n total 371)

<sup>h</sup> HIV-related services include HIV-education, VCT, PMTCT, condom delivery and ART to mother at ANC

<sup>i</sup> Not included in the analysis: 35 men, whose wife had not attended ANC in latest pregnancy and 2 unclear answers (n total 351)



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

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

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

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

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

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