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The role of women's empowerment and male engagement in pregnancy healthcare seeking behaviors in western Kenya

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Abstract

Background: We sought to understand whether women's empowerment and male partner engagement were associated with use of antenatal care (ANC).

Methods: Women presenting for ANC in Nyanza province of Kenya during June 2015-May 2016, were approached for participation. A total of 137 pregnant women and 96 male partners completed baseline assessments. Women's empowerment was measured using the modified Sexual Relationship Power Scale. ANC use measures included timing of the first ANC visit and number of visits. Male engagement was based on whether a husband reported accompanying his wife to one or more antenatal visits during the pregnancy. Multiple linear and logistic regression analyses were used to identify factors independently related to use and timing of ANC.

Results: Women with higher mean empowerment scores were likely to have more than one ANC visit in the index pregnancy (Adjusted Odds Ratio (AOR)=2.8, 95% Confidence Interval (CI): 1.1–7.3), but empowerment was not associated with early ANC use. Women who were more empowered were less likely to have a husband who reported attending an ANC visit with his wife (AOR=0.1, 95% CI: 0.03–0.8).

Conclusions: Women's empowerment is important and may be related to ANC use and engagement of male partners in complex ways.

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Keywords

Male engagement; women's empowerment; prevention of mother-to-child transmission; HIV; antenatal care

Background

The influence of male partner engagement on maternal and child health, and women's health in general, has been shown extensively in the literature. These relationships are particularly important in countries, such as Kenya, with cultural norms that may encourage male dominance or discourage women from taking an active part in decision-making processes (Kurniati et al. 2017, Yargawa and Leonardi-Bee 2015). Not only has positive male involvement been shown to enhance women's use of antenatal care (ANC) visits, male involvement aids in the prevention of mother-to-child transmission (PMTCT) of HIV and also has been related to improved child health (Aluisio et al. 2011, Katz et al. 2009, Amano and Musa 2016, Msuya et al. 2008). Male involvement in ANC services and PMTCT, however, remains low in most sub-Saharan African settings, with studies reporting between 0.6%- 31% of males engaging in ANC and PMTCT services in various parts of Africa (Sherr and Croome 2012).

Challenges to women's empowerment have long been pervasive in many low-resource settings, including Kenya. Despite significant efforts over the past few years, about 7% of women compared with 2.9% of men have no education (2014 Demographic and Health Survey (DHS) data). The same survey also showed that an estimated 1 in 5 women do not make decisions about their own health care, while approximately 42 % of women and 36 % of men justified wife beating. Other non-DHS studies have also found similar trends (Kenya National Bureau of Statistics et al. 2015). Despite over 75% of women being employed in the work force, only 1% of women in Kenya possess land titles in their names (Gaafar 2014, Kenya National Bureau of Statistics et al. 2015). Unfortunately, lack of women's empowerment has been postulated to be the crux of challenges to improved outcomes for women's health and general well-being (Ross et al. 2015, Mitroi et al. 2016). Empowered women are more likely to use ANC and postnatal care services (Sado, Spaho, and Hotchkiss 2014, Zaky, Armanious, and Hussein 2014, Hou and Ma 2013). However, it is a unclear whether women's empowerment (often defined as the ability of women to make independent decisions about their own health) is in conflict with male engagement approaches, which encourage male partners to be involved in the decision-making processes and encourage joint decision-making concerning maternal and child health (MCH) (Jennings et al. 2014, Conroy et al. 2016). The risk exists that males will tend to dominate pregnancy-related decision-making once they are more involved (Turan et al. 2001b).

Although pregnant women's contact with ANC services is relatively high in Kenya (96% of pregnant women have at least one ANC visit), ANC use continues to be sub-optimal, with many women presenting late for their first ANC visit and having fewer than four ANC visits throughout the course of pregnancy as suggested by the Kenyan national guidelines (Babalola 2014, International. 2015b). According to the 2014 Demographic and Health

Survey (DHS) for Kenya, only an estimated 58% of women attended at least four ANC visits (Babalola 2014, International. 2015a).

While the several studies noted above have elucidated the importance of women's empowerment and increased male involvement in ANC use in the reduction of maternal and infant mortality and morbidity, to the best of our knowledge, none of these studies have examined the relationship between these factors for both HIV-positive and HIV-negative pregnant women in the context of a high HIV prevalence setting. In addition, gaps remain in our knowledge of potential facilitators of pregnancy health care-seeking behaviors and male engagement in ANC care, which could inform efforts to promote PMTCT and improve overall ANC attendance. Although a study by Jennings et al in 2014 explored the relationship between women's empowerment and male involvement using DHS data from eight African countries, excluding Kenya, it had mixed findings in terms of the direction of the association between male involvement and women's empowerment (Jennings et al. 2014). Our analyses also bridge another gap in knowledge by using data collected directly from male partners of HIV-positive and HIV-negative pregnant women.

The aim of this paper was thus to explore the associations between women's empowerment and indicators of ANC use, including timing of the first visit, number of visits, and male engagement in ANC, as well as to examine other important factors related to these positive health-seeking behaviors during pregnancy, and to make relevant policy recommendations.

Methods

Study setting, population, design and sampling procedure

Data for this paper were obtained from baseline assessments conducted for the Jamii Bora Study: a home-based couple's intervention study conducted in Kenya (clinical trials number-NCT02403583). The Jamii Bora Study is a randomized controlled pilot intervention study of pregnant women and their partners with two arms: one arm was assigned to receive three couple home visits during pregnancy and postpartum to facilitate couple HIV testing and counseling (CHTC) as well as counseling on family health topics, and the other arm received standard care (invitation to return to the clinic with their male partner).

Women presenting for antenatal visits at five different rural health facilities in the former Nyanza Province of Kenya were approached for participation in the study during the period June 2015- May 2016. A total of 250 eligibility screening interviews were conducted. Pregnant women were eligible for inclusion in the study if they were at a gestational age less than or equal to 36 weeks at baseline, had a history of being offered HIV testing at an ANC visit, were 18 years of age or older, were currently living with a male partner with whom they had been in a stable relationship for at least six months, had not yet participated in CHTC with their male partner during the current pregnancy, and had not yet disclosed their current HIV status (positive or negative) to that partner. Women who were with a current male partner whom they already knew to be HIV-positive were ineligible for the study, as they did not have a need for CHTC and facilitated disclosure support.

Interested women who were found to be eligible signed an informed consent and then completed a baseline questionnaire. Women who had not experienced severe intimate partner violence (IPV) in the past six months (as assessed in the baseline questionnaire) were eligible for randomization after the baseline questionnaire. Women with a history of severe IPV (n=10) in the past six months were excluded from the randomized part of the study to avoid situations that might put women at further risk. In addition, 113 other women were excluded from the study for various reasons including; gestational age > 36 weeks, age <18 years, not being in a stable relationship for at least six months, male partner did not live in the same household for at least one night per week, had already had CHTC with male partner, had already disclosed HIV status to male partner, and knew for certain that male partner was HIV positive. The Study Coordinator (a trained counselor) provided counseling and linkage services to participants who reported recent severe IPV or depression, and they were referred to additional supportive resources at the local health facilities and in the nearest town. The present analyses used data from baseline questionnaires completed by 137 women (54.8% of those screened, approximately half HIV-positive and half HIV-negative) as well as 96 eligible male partners who could be contacted and agreed to participate in the study.

Data collection methods

Trained research assistants administered the baseline questionnaires, which were collected on tablet computers using the Open Datakit (ODK) platform. The research assistants, two males and two females, were all proficient speakers of the English language in addition to being native speakers of Dholuo and Kiswahili, the most frequently spoken languages in Nyanza province. The questionnaires were available on tablets in all three of these languages.

Dependent variables

Dependent variables considered in this study were indicators of use of health-seeking behavior during pregnancy, including early use of ANC (timing of first visit in the first trimester of pregnancy, a continuous variable as weeks of pregnancy, or dichotomized as less than 14 weeks--defined as first trimester--versus later), completion of only one versus more than one ANC visit during pregnancy, and male engagement in ANC. One versus more than one ANC visit was used as the outcome variable in these analyses, as well as controlling for current weeks of gestation in multivariate analyses, due to the fact that women completed baseline questionnaires at different stages in pregnancy, ranging from 4 to 36 weeks (mean 25 weeks). Male partner engagement in ANC was measured by the male partner's report on his baseline questionnaire of whether he accompanied his pregnant partner on any antenatal visits during the current pregnancy. At least one accompanying ANC visit by a male partner was categorized as a "yes" and coded as "1", while no accompanying ANC visit was categorized as a "no" and coded as "0".

Independent variables

As a measure of women's empowerment, the questionnaire for the Study used the modified Sexual Relationship Power Scale (SRPS) consisting of two subscales: the relationship control (RCS) and the decision-making dominance (DDS) subscales developed and

validated by Pulerwitz, Gortmaker and DeJong in 2000 (Pulerwitz, Gortmaker, and DeJong 2000). The decision to examine relationship control and decision-making dominance stemmed from evidence from previous studies, including those using data from 2003 and 2008–2009 DHSKenya that showed that these two dimensions were important in assessing women empowerment and power dynamics in HIV/AIDS research (Voronca, Walker, and Egede 2018, Ghose et al. 2017, Upadhyay and Karasek 2012, Hindin, Kishor, and Ansara 2008). Furthermore, the SRPS scale has been extensively used to assess relationship and empowerment dynamics, including in low resource settings, such as Kenya (Pulerwitz, Mathur, and Woznica 2018, McMahon et al. 2015, Stephenson, Bartel, and Rubardt 2012). In this scale, a total of 15 items were included in the RCS which was reverse coded, with a maximum sub-scale score of 60 and a minimum of 15. Seven items were included in the DDS with a maximum sub-scale score of 21 and a minimum of 7. Mean scores were calculated for each subscale and then rescaled to obtain a final SRPS score, with a higher score signifying higher relationship power (Pulerwitz, Gortmaker, and DeJong 2000).

Other variables selected due to their importance in the literature and/or in theory included woman's age, gravidity, education, polygynous relationship, occupation, women's empowerment, the woman's HIV status, household income, and male involvement.

Statistical analysis

Data analyses were conducted using SPSS version 23.0. Independent t-tests and bivariate logistic regression (unadjusted analyses) were initially used to assess the relationship between each dependent variable and individual independent variables. Multicollinearity and test assumptions were assessed. Statistically significant relationships, as well as additional variables that were deemed theoretically important mentioned above were included in multivariate linear and logistic regression analyses.

For multivariate analyses, we aimed for the best and most parsimonious models, given the findings from our review of literature and our preliminary correlational and bivariate analyses. We included education in our models because the literature has shown a strong association between level of education and pregnancy health care-seeking behaviors (Ahmed et al. 2010, Olayemi et al. 2009). Age was highly correlated with the number of pregnancies, and either age or gravidity was included in the models, based on theoretical considerations. Age (younger and older than 30 years) has been associated with increased risks for unhealthy pregnancy health care-seeking behaviors (Blanc, Winfrey, and Ross 2013), and lower parity has been associated with use of maternity services in Kenya (Turan et al. 2012). Weeks of pregnancy was included as a covariate to control for the differing timing during pregnancy when women entered the study for the male engagement in ANC and number of ANC visits outcomes. Polygynous relationship status (men having more than one wife) was also included because polygyny has been found to be associated with lower empowerment status and various situations that might contribute to adverse pregnancy health outcomes (Bove et al. 2015, Ditekemena et al. 2012). Household radio ownership and women's occupation were used as proxies for socio-economic status (Turan et al. 2012, Ditekemena et al. 2012).

HIV status was also included in the models due to findings in the literature suggesting that women's HIV status might affect pregnancy health care-seeking behaviors (Ditekemena et al. 2012, Turan et al. 2012). We decided to exclude marital status and ethnicity because almost all the women in our study were married and of the Luo ethnic group, respectively. Religion was also excluded as studies emanating from Sub-Saharan Africa have not consistently shown an association between religion and pregnancy health care-seeking behaviors (Ditekemena et al. 2012, Nwosu et al. 2012, Al-Mujtaba et al. 2016, Tarekegn, Lieberman, and Giedraitis 2014). We ran separate models examining the effects of the RCS, DDS, and the overall SRPS on our outcomes. Adjusted R-squared and the Hosmer-Lemeshow test were used to assess goodness of fit for the linear regression models and the logistic regression models, respectively.

Ethical Considerations

This study was conducted after obtaining ethical approval of the study protocol from the Kenya Medical Research Institute (KEMRI) Scientific and Ethical Review Unit (SERU) and the University of Alabama at Birmingham (UAB) Institutional Review Board (IRB). Signed informed consent was provided by all participants in the study. Data were de-linked from all personal identifiers, and data were stored in password protected/encrypted devices and servers, which were only accessible by IRB-approved personnel.

Results

Socio-demographic characteristics

A total of 223 participants, 137 women and 96 male partners, consented to take part in the study. The majority of participants were married and were of Luo ethnicity (Table 1). Most had primary school or less education, owned a radio and were in a monogamous marriage.

Men tended to be older and more educated than women and were more likely to own a mobile phone (Table 1). While 52.6% of the women were HIV-positive (by study design), only 8.3% of the men self-reported being HIV-positive at baseline. Mean number of pregnancies and mean weeks of pregnancy at first antenatal care (ANC) were 3.5 pregnancies and 22.1 weeks, respectively. Approximately two-thirds, 64%, of the pregnant women had presented for their first ANC visit in the second trimester.

Empowerment measures and women's characteristics

On a range of 1 (lowest) to 4 (highest), the mean RCS score for the overall sample was 2.7 ± 0.5; the mean DDS score was 1.7 ± 0.6, and the final weighted mean total SRPS score was 2.2 ± 0.5. Variables related to SRPS and subscale scores included women's occupation, radio ownership and gravidity (Table 2). Women who engaged in farming and or manual labor (as compared to other occupations) tended to have lower scores on the RCS and overall SRPS scale. Surprisingly, women who reported that their household owned a radio had significantly lower mean DDS and SRPS scores, as compared to women who did not report household ownership of a radio. Lastly, women who were carrying their first pregnancies had a statistically significant higher RCS, DDS and SRPS scores than women

who had been pregnant more than once. Age, education, polygynous relationship and HIV status were not significantly associated with the overall SPRS or subscale scores.

Antenatal Visits

Of the 136 women with non-missing data on ANC visits, 71.3% (n=97) had attended ANC only once, whereas only 28.7% (n=39) had attended more than one ANC visit. In bivariate analyses, radio ownership, HIV status, RCS and SRPS score were associated with having more than one ANC visit. Those with radios had a 0.3 decreased odds of having more than one ANC visit (p=0.01), while HIV-positive women had a 2.3-fold increased odds of multiple ANC visits (p=0.03). For every unit increase in RCS and SRPS, the odds of multiple ANC visits increased by 3.0 (p=0.01) and 2.3 (p=0.03), respectively.

The multivariate logistic regression analyses permitted examination of the association of SRPS with having more than one ANC visit, adjusted for other factors. In these adjusted analyses, low educational level (primary or less) was associated with a 0.3 decreased odds of attending more than one ANC visit (p=0.05) compared with women who had more than a primary education (Table 3.) HIV-positive women also had an increased odds (4.2, p=0.01) of having more than one visit. Every unit of increase in the SRPS score was associated with a 2.8 increase in the odds of more than one ANC visit (p= 0.04), adjusting for other factors. Repeating these analyses separately for the RCS and DDS revealed a similar significant association for the RCS (p=0.01) but not for the DDS (p=0.20). A sensitivity analysis was conducted excluding women in their first trimester, although the effect size was very similar (adjusted OR of 2.5 compared with an adjusted OR of 2.8) the significance level decreased to p=0.08, which may have been due to the reduced sample size.

Timing of the first antenatal care visit

A very low proportion of women in the study reported a first ANC visit in the first trimester of pregnancy, i.e., at less than 14 weeks (9.6%, n=13), with the mean timing of the first ANC visit being around 22 weeks. In bivariate analyses (data not shown), the only variables with significant associations with early ANC were those in polygamous relationships having a 3.2-fold increased odds of having their first ANC visit later (equal to or greater than 14 weeks) (p=0.05), and those experiencing their first pregnancy being more likely to access ANC early (mean weeks at first ANC visit was 19.3 weeks for primigravidas versus 22.6 weeks for multigravidas). After controlling for the other variables in the model, SPRS score was not significantly associated with timing of the first ANC visit (p=0.8) (Table 4). The only variable retaining significance in the final model was gravidity, with first pregnancies being significantly associated with earlier initiation of ANC (beta=0.2, p=0.04), although positive HIV status was also related (beta=0.18, p=0.05). Results were very similar for the RCS and DDS (data not shown).

Male Engagement in ANC

Overall, the male partners of 96 of the pregnant women were also enrolled in the study by the end of the recruitment period for pregnant women. Of these, only 12.5% (n=12) reported that they had ever accompanied their wives to at least one ANC visit in the index pregnancy. Although the factors were not significantly associated with male partner ANC attendance in

bivariate analyses (data not shown), multivariate analyses revealed a significant association of women's empowerment with male ANC attendance, after adjusting for other variables (Table 5). A statistically significant decreased odds of 0.14 was observed for male engagement in ANC associated with each unit increase in SRPS score (p=0.03). Repeating these analyses separately for the RCS and DDS revealed a similar significant association for the DDS sub-scale (p=0.03) but not for the RCS (p=0.07).

Discussion

The findings presented here suggest that women's empowerment was associated with pregnancy health care-seeking behaviors in the former Nyanza Province of Kenya, but in complex ways. More empowered women were more likely to have more than one ANC visit during the current pregnancy, but empowerment was not associated with early ANC use (with gravidity being the only significantly related factor). On the other hand, more empowered women were less likely to have a male partner who reported attending an ANC visit together with his wife.

In the current rural Kenyan sample, male partner accompaniment to ANC was very low at only 12.5%. This differs from the Jennings et al findings from the DHS from eight other African countries, which reported a range between 18.2% in Burundi to 86.8% in Rwanda (Msuya et al. 2008, Katz et al. 2009, Aluisio et al. 2016, Jennings et al. 2014, Aluisio et al. 2011). However, the current study included a select group of pregnant women who had not shared their HIV status (positive or negative) with their male partner. Thus, their reasons for not sharing their HIV test results might also be related to their lack of male partner accompaniment at ANC visits.

Our analyses revealed that women with higher DDS and SRPS scores were less likely to be accompanied to ANC by their male partner, even while controlling for other possible factors of male engagement in ANC. These findings are contrary to those observed in the Jennings et al. paper, although similar to those of studies conducted in Nepal, where increased women's autonomy measured by decision-making power was associated with lower likelihood of male partner ANC accompaniment (Thapa and Niehof 2013, Jennings et al. 2014). It is possible that more empowered women did not feel the need to involve their male partner in ANC visits, being comfortable with making health-related decisions and health care visits on their own.

Our findings also indicate that women with higher SRPS and RCS scores were more likely to have more than one ANC visit, after controlling for other possible ANC visit factors. These findings are similar to those observed elsewhere (Ahmed et al. 2010, Singh and Singh 2014) and provides additional evidence for the contention that women's empowerment can facilitate use of MCH services. Ahmed et al. found a 1.52 increased odds of attending four or more ANC visits in empowered women, using data from the DHS from 31 countries, including Kenya (Ahmed et al. 2010). Likewise, data from India have shown that low autonomy in women was associated with low levels of ANC use (Singh and Singh 2014).

In our sample, we did not find an association of empowerment measures with earlier use of ANC services during pregnancy. However, another recent Kenyan study did find a relationship between women's autonomy and trimester of initiating ANC. Women who were involved in decision-making regarding the use of ANC services in their last pregnancy had a 2.5 increased odds of early initiation of ANC (Asweto et al. 2014).

In addition, our study elucidated other key factors that have been related to pregnancy health care-seeking behaviors, including education and HIV status (Asweto et al. 2014, Turan et al. 2012, Olayemi et al. 2009). More educated women and HIV-positive women were more likely to have more than one ANC visit compared with less educated women and HIV-negative women, respectively, after adjusting for other factors. The finding regarding HIV status is contrary to findings from Lesotho, where researchers did not observe a statistically significant difference in ANC attendance between HIV-positive and HIV-negative women (Gill et al. 2015). Contrary to many other studies (Khanal et al. 2015, Tekelab and Berhanu 2014, Turan et al. 2012, Olayemi et al. 2009), we did not find an association between other indicators of socio-economic status and any of the pregnancy health care-seeking behaviors examined.

Our study adds to the literature that reveals the complexity of relationships between women's empowerment, male engagement, and health care use. As has been seen elsewhere, involving men in MCH in some cases may lead to more male domination and controlling behaviors in a sphere of life that has traditionally been under female control (Turan et al. 2001a). Thus, it appears that positive male engagement needs to be fostered, while at the same time encouraging women's empowerment and full participation in decision-making.

The results of this study should be viewed within the context of several limitations. The overall study was a small intervention development and pilot study. Thus, the sample size did limit the statistical power of the current study to detect modest but potentially meaningful relationships. Also, as discussed above, the parent study selected a more vulnerable group of pregnant women who, despite being in a stable partnership, had not disclosed the result of their recent HIV test to their male partners, and had not tested for HIV together. On the other hand, male partners who were eligible (not currently a perpetrator of IPV) and actually participated in the baseline questionnaires for the study may have been those who tended to be more supportive, as compared to those who declined or could not be located. Nevertheless, this population represents an important sub-group in need of support and services and understanding of the role of women's empowerment in their ANC use provides insights on methods to improve their service use and outcomes. In addition, 41 male partners of women in the sample were not able to be enrolled in the study (due to the woman's baseline report of recent severe domestic violence (n=10) or being unreachable/unavailable (n=31) and did not complete baseline questionnaires providing data on their attendance at ANC visits. Furthermore, we used non-validated, self-reported HIV test results of male partners in the analysis for this paper, which might not be completely accurate. In addition, other unmeasured variables may account for women's use of ANC services and male attendance at ANC. Finally, these analyses are based on cross-sectional data such that we examined the dependent and independent variables at the same point in time. This

prevents assessment of temporality, and causal inferences cannot be made based on the findings in this paper.

Conclusions

The findings from this study provide support for the contention that women's empowerment is an important construct related to use of antenatal care by vulnerable populations. However, the findings also suggest empowerment may be related to women's health care use and engagement of male partners in complex ways, different from the general notion that had previously been published in literature. Our findings suggest that women's empowerment may be associated with less male partner ANC attendance, which has been negatively associated with mother-to-child transmission of HIV, women's ANC attendance and overall child health. Our results suggest that programs and services for pregnant women and infants in low-resource settings, especially western Kenya, should support efforts to empower women, but in addition, should also look for other pathways—preferably strategies that directly address couples and men as expectant fathers--to promote positive male engagement in maternal and child health, with important potential benefits for maternal, infant, and family health.

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Table 1:

Socio-demographic and HIV-related characteristics by gender

Variables[a]	Female (n=137)	Male (n=96)
Age (years), mean (median, range)	25.3 (24, 18–42)	32.8 (31.5, 20–60)
	N (%)	N (%)
Marital Status		
Currently married	132 (96.4)	96 (100)
Not married	5 (3.6)	
Education		
Primary school or less	100 (73.0)	51 (53.1)
More than primary school	37 (27.0)	45 (46.9)
Religion		
Roman Catholic	18 (13.1)	14 (14.6)
Seventh Day Adventist	39 (28.5)	26 (27.1)
Others	80 (58.4)	56 (58.3)
Household goods ownership		
Mobile Phone	105 (76.6)	88 (91.7)
Electricity	28 (20.4)	15 (15.6)
Radio	114 (83.2)	82 (85.4)
Television	35 (25.5)	18 (22.5)
Occupation		
Housework	35 (25.5)	-
Selling/Fish monger	35 (25.5)	9 (9.4)
Farming/manual labor	21 (15.3)	30 (31.2)
Others	59 (43.1)	57 (59.4)
Polygynous relationship		
Yes	32 (23.4)	20 (20.8)
No	105 (76.6)	76 (79.2)
HIV status		
HIV-positive	72 (52.6)	8 (8.3)
HIV-negative	65 (47.4)	78 (81.3)
Unknown		10 (10.4)
Maternal Characteristics		
Weeks of pregnancy at first ANC, mean (median, range)	22.1 (24, 4–36)	
Weeks at first ANC by trimester[b]	13 (9.6)	
1st trimester	87 (64)	
2nd trimester	36 (26.5)	
3rd trimester	25.0 (26, 4–36)	
Current weeks of pregnancy by trimester		
Current weeks of pregnancy by trimester		
1st trimester	6 (4.4)	

Variables[a]	**Female (n=137)**	**Male (n=96)**
2nd trimester	66 (48.2)	
3rd trimester	65 (47.4)	
Number of pregnancies, mean (median, range)	3.5 (3, 1–10)	
Live births, mean (median, range)	2.3 (2, 0–9)	
Number of living children, mean (median, range)	2.1 (2, 0–6)	

[a] For categorical variables, n was reported followed by percentages in parentheses. For continuous variables, the mean followed by the median and the range, both in parentheses were reported.

[b] N is less than 137 because of a missing value

Table 2:

Women's sociodemographic and HIV-related characteristics by their empowerment scores (n=137)

Sociodemographic and HIV-related characteristics[a]	Mean Relationship Control Subscale Score (SD)	Mean Decision-Making Dominance Subscale Score (SD)	Mean Total Sexual Relationship Power Scale Score (SD)
Age, years			
Less than 30	2.7 (0.5)	1.7 (0.6)	2.2 (0.5)
Older than 30	2.6 (0.5 t=0.6, p= 0.6	1.7 (0.6) t=0.2, p= 0.8	2.1 (0.5) t=0., p= 0.7
Education			
Primary or less	2.7 (0.4)	1.7 (0.6)	2.2 (0.5)
More than primary	2.7 (0.5) t=−0.4, p= 0.7	1.7 (0.6) t=−0.1, p= 0.9	2.2 (0.5) t=−0.3, p= 0.8
Radio ownership			
Yes	2.8 (0.4)	1.6 (0.6)*	2.1 (0.5)*
No	2.6 (0.5) t=1.9, p= 0.06	2.0 (0.5) t=2.9, p= 0.004	2.4 (0.4) t=2.7, p= 0.01
Occupation			
Farming/Labor	2.5 (0.4)	1.5 (0.4)	2.0 (0.4)
Others	2.7 (0.5) t=−2.0, p= 0.05	1.7 (0.6) t=−1.8, p= 0.07	2.2 (0.5) t=−-2.1, p= 0.04
Polygynous relationship			
Yes	2.7 (0.5)	1.7 (0.6)	2.2 (0.5)
No	2.7 (0.5) t=−0.002, p= 1.0	1.7 (0.7) t=0.2, p= 0.8	2.2 (0.5) t=0.1, p= 0.9
HIV status			
HIV-positive	2.6 (0.5)	1.6 (0.6)	2.1 (0.5)
HIV-negative	2.7 (0.4) t=−0.9, p= 0.	1.8 (0.6) t=−1., p= 0.2	2.2 (0.5) t=−1.3, p= 0.2
Gravidity			
1st pregnancy	2.9 (0.4)*	2.0 (0.6)	2.4 (0.5)*
2nd or more	2.6 (0.4) t=2.8, p= 0.01	1.7 (0.6) t=2.1, p= 0.04	2.1 (0.5) t=2.6, p= 0.01

*Independent t-test significant at p <0.05.

[a]Mean followed by standard deviation (SD) reported.

Table 3:

Multivariate logistic regression of variables associated with having more than one ANC visit (N=136)> *

Variable	Number of Women included (n)	Adjusted Odds Ratio for More than one ANC visit	95% CI	p- Value
Empowerment				
Sexual Relationship Power Scale (Total)	136	2.8	1.1–7.3	0.04
Education				
Primary or less	99	0.3	0.1–0.99	0.05
More than a primary education[a]	37			
Age per year	136	1.0	1.0–1.1	0.3
Weeks of pregnancy (at time of interview)	136	1.1	1.1–1.3	0.000
Polygamous relationship				
Yes	32	1.2	0.4–3.4	0.8
No[a]	104			
Women's occupation				
Farming/Manual labor	21	1.5	0.5–6.3	0.4
Others[a]	115			
HIV status				
Positive	71	4.2	1.4–12	0.01
Negative[a]	65			
Radio ownership				
Yes	113	0.4	0.1–1.3	0.1
No[a]	23			

*N is less than 137 because of a missing value

[a]Reference category.

Table 4:

Multivariate linear regression of variables associated with weeks of pregnancy at first ANC visit (N=136)*

Variable	Number of Women included (n)	Beta- Coefficient	T-statistic	p- Value
Empowerment		−0.02	−0.2	0.8
Sexual Relationship Power scale (Total)	136			
Education		−0.0	−0.1	0.7
Primary or less	100			
More than a primary education[a]	36			
Gravidity		0.2	2.0	0.04
First pregnancy	19			
Second or greater pregnancy[a]	117			
Polygamous relationship		−0.09	−1.0	0.3
Yes	32			
No[a]	104			
Women's occupation		−0.01	−0.2	0.9
Farming/Manual labor	21			
Others[a]	115			
HIV status		0.18	2.0	0.05
Positive	72			
Negative[a]	6			
Radio ownership		−0.2	−1.9	0.06
Yes	113			
No[a]	23			

*N is less than 137 because of a missing value

[a]Reference category.

Table 5:

Multivariate logistic regression of variables associated with male partner attendance at ANC (N=96)

Variable	Number of Women included (n)	Odds Ratio for Male Engagement	95% CI	p- Value
Empowerment				
Sexual Relationship Power Scale (Total)	96	0.1	0.03–0.8	0.03*
Education				
Primary or less	67	0.6	0.1–2.7	0.5
More than a primary education[a]	29			
Age per year	96	0.9	0.8–1.1	0.2
Weeks of pregnancy (at time of interview)	96	1.0	0.9–1.1	0.7
Polygamous relationship				
Yes	20	2.6	0.5–14.7	0.3
No[a]	76			
Women's occupation				
Farming/Manual labor	12	0.5	0.0–6.1	0.6
Others[a]	84			
HIV status				
Yes	47	0.5	0.1–2.2	0.3
No[a]	49			
Radio ownership				
Yes	80	0.2	0.04–1.4	0.1
No[a]	16			

[a]Reference category.