

**PREDICTORS OF MALE INVOLVEMENT IN ANTENATAL CARE IN PALABEK REFUGEE
SETTLEMENT, LAMWO DISTRICT, NORTHERN UGANDA:**

A SOCIO ECOLOGICAL MODEL

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ABSTRACT

Background: Male involvement in Maternal and Child Health (MCH) remains low in developing countries with more involvement being realized in the developed nations. In Uganda, although the government launched the national male involvement strategy in 2014, male involvement in antenatal care (ANC) remains low.

Objective of the study: We investigated predictors of male involvement in antenatal care in Palabek refugee settlement.

Methodology: We conducted a community based cross sectional study with a mixed methods approach in Palabek refugee settlement among a proportionate sample of mothers. We also conducted focus group discussions and key informant interviews to collect qualitative data on male involvement in ANC. Data analysis was done using SPSS version 21. In order to ascertain the relation between the dependent and independent variables, Pearson Chi-Square test was conducted. Variables whose P-values were <0.05 at 95% confidence interval were considered significant. A logistic regression model was used to determine the relationship between the dependent and independent variables.

Results: High level of male involvement in ANC in Palabek refugee settlement was 38.77% while low level of involvement stood at 61.23%. Male involvement was positively associated with access to information to ANC (AOR=2.836;95%CI=1.558-5.161; $P<0.001$) and frequent couple discussion on ANC (AOR =10.780;95%CI=5.876-19.777; $P<0.001$)

Conclusions: The predictors of male involvement arise from different levels of the socio-ecological model therefore strategies to address gaps of low male involvement should be implemented at all these levels.

The government of Uganda and UNHCR should accelerate community sensitization on the importance of male involvement and the role of male partners during pregnancy. The government of Uganda and UNCHR should emphasize the implementation of the modeling approach where men with high involvement index are modeled to become change agents to their peers.

1.0 Introduction

Globally male involvement in Maternal and Child Health (MCH) remains low in both developed and developing countries (Joshua et al., 2017). Some studies have indicated that few men get involved in antenatal care activities with more involvement being realized in the developed nations (Weilin et al., 2018; Firouzan et al., 2018).

In a secondary analysis of data from two large pre-birth cohorts in the Boston area in the United States of America, only 6.4% of respondent from one study and 23% of respondents from another study reported low partner support. (Erika et al., 2016). However, in low and middle-income countries (LMIC) although men are decision-makers and control the household budgets, their involvement in different aspects of maternal care is limited. (Dedih, 2019; Vermeulen et al., 2016). An analysis of Demographic and Health Surveys (DHS) across eight African countries indicated very low levels of male participation in antenatal care with an average of less than half (45.7%) of men attending at least one ANC visit together with their partners with Burundi recording the lowest proportion at 18.2% (Jennings et al., 2014).

According to Tanzania one plan II 2016 Prevention of Mother to Child Transmission (PMTCT) of HIV program, the data indicates that only 30% of women come for couple counseling with their partners (United Republic of Tanzania, 2016). In a study conducted in Zambia military hospital on male involvement in various Maternal and Child Health centers, only 35% of men participated in antenatal care (Panyin et al, 2017). In study conducted in Ghana, although 71.9% of men accompanied their partners to the ANC clinics only 45.7% made at least four visits with their partners (Maxwell, 2019).

In Uganda, although the government launched the national male involvement strategy and guidelines in 2014, male involvement in antenatal remains low. In a study conducted in Ibanda district in 2016, 50% of the women attending ANC did not have an attendant and the few who had them rarely had attendants as their husbands. (Nasuna, 2017).

In another study conducted in Uganda, adequate male involvement in antenatal care was found to be only 6% and predictors of male involvement included: socio demographic factors such as low level of education, being unmarried, younger age, not living together and lower income earnings

which decreased levels of male involvement. Other factors suggested that contributed to low level of male involvement in this study included: family members living with male partners and their spouses, family members influencing male partners' decision to get involved in ANC, unplanned pregnancy, peer influence, attitude of health workers, waiting time and cost of antenatal care services. (Kariuki and Seruwagi, 2016).

2.0 Methods

2.1 Study design and setting

This was a mixed method community based cross-sectional which was conducted in Palabek refugee settlement. Palabek refugee settlement is located in Lamwo District. This district is bordered by South Sudan to the north, Kitgum district to the east and southeast, Pader District to the south, Gulu District to the southwest, and Amuru District to the west. The town of Lamwo is approximately 66 kilometers (41 mi), by road, northwest of Kitgum, the nearest large town. This is approximately 150 kilometers (93 mi), by road, northeast of Gulu, the largest city in the Acholi sub-region. Palabek refugee settlement currently hosts about 57,478,000 refugees, primarily from South Sudan. (Nations Development Program Human Development Report, 2020). This settlement has three health facilities; Paluda Health Center III, Awich Health Center II and Akworo Health Center II. Other facilities within the host community where refugees seek health services are: Apyeta Health Center II and Palabek Ogili Health Center III. All these health facilities offer routine antenatal care services from Monday to Friday with only emergency cases handled over the weekends.

Male involvement in Palabek refugee settlement is low. The 2020 Lamwo district Health Management Information system (HMIS) report indicated that 10% of women who attended antenatal care from July 2019 to June 2020 were accompanied by their partners for at least one antenatal care visit and less than 5% were accompanied by their spouses for four or more visits. (Lamwo district HMIS report, 2020).

Lutheran World Federation (LWF) Uganda's annual needs verification coordinated with the United Nations High Commission of Refugees (UNHCHR) report indicated that in Palabek settlement, male participation in antenatal care in 2019 was at 14% (LWF,2020).

2.2 Study population, sample size determination and sampling techniques

The study involved all female partners (18 years and above) who were either expectant or gave birth in the last one year. Male partners, mothers in law, members of Village Health Team (VHTs) and female partners formed the respondents for focus group discussions. The Assistant Inspector of Palabek Ogili sub-county, mid wives within the study area and zone leaders for refugee community formed the respondent for the key informant interviews

Sample size was estimated using the Kish Leslie's formula based on the following assumptions:), standard normal deviation set at 95% confidence interval set at 5% and corresponding to 1.96, 50% estimated prevalence (This was assumed since no current study was providing prevalence using the Byamugisha et al. (2010) index for ascertaining level of male involvement). The sample size was 384. This was further increased by 10% to account for contingencies such as non-response or recording error resulting to a total sample of 423.

Proportionate stratified sampling followed by convivence sampling was used to ascertain respondents for interviews. To ascertain the number of pregnancies, data from district HMIS report (2020) and data from village health teams registers for children 0-1 year in each of the nine zones in the settlement were used. The second step in the sampling procedure involved conducting a convenience sampling of households with either an expectant mother or child below 1 year. To determine the direction of the zone where the interviews started, the researcher/research assistant stood at the center of the zone and threw a pen to the ground. The direction pointed by the lid became the starting point for interviewing the respondents. Every expectant mother or mother who had a child below one year and gave consent was interviewed. When households in a particular direction got exhausted the researcher /research assistant got back to the center of the zone and cast the pen on the ground and the direction pointed by the pen lid was again used to determine which direction to be taken. This process went on until the desired sample size was achieved. For focus group discussions the zones randomly selected using lottery method followed by convenient selected of participants-based inclusion criteria. Lastly for purposive sampling technique was used to select key informants.

Data collection methods and tools including structured interviews which were conducted by 6 research assistants and the principal investigator for 10 days. This involved administering questionnaire which consisted of both open and close ended questions and it was divided into two

parts. The first part captured information on different variables of the social ecological model that affect male participation. The second part assessed the level of men's involvement in ANC. The sessions started with an introduction of the researcher/research assistant and a brief explanation of the study, its purpose and the rights of the participant. This was followed by the interview which should last not more than thirty minutes. After the session the participant were thanked for their participation. A total of 6 focus group discussions were conducted. (2) with expectant mothers or women with children below one year, (2) with expectant fathers or fathers with children below two years of age and (1) with mothers in law and (1) with Village health team members. Focus group discussion guides were used to gain in-depth knowledge regarding social ecological perspectives on predictors to male involvement in antenatal care. The guides comprised of not more than 15 questions which were first piloted, this was restructured after the pilot to ensure usefulness, clarity and simplicity among others. Simplicity of questions was ensured and questions were majorly unstructured and unbiased to allow for easy participation. Each session took an average of one hour with guidance by two people that is the researcher who moderated and guided the session and a research assistant who served as an observer and note taker. Lastly twelve key informant interviews five (5) midwives, one (1) Health inspector and six (6) Zone/ block leaders were interviewed were conducted using interview guides which included the general themes or topics that the researcher wants to cover in the actual interview. Flexibility was allowed to ensure adequate data collection. A total of twelve (12) participants including

Prior to data collection tools were pretested to ensure validity and necessary adjustments were done to enhance appropriateness of language and clear ambiguity of words. Test-retest method was used to test the internal consistency of the questionnaire in producing the same results. Correlation coefficient was determined using Cronbach correlation formula by Cronbach et al., (2004). A correlation coefficient of 0.70 and above was acceptable.

2.3 Study variables

For this study, the dependent variable was male involvement in antenatal care which was measured on a scale of six points with equal weights in the score adopted from Byamugisha et al. (2010) index. The activities assessed using this scale included; whether the man makes joint plans with partner for emergency situations during pregnancy, whether the man attends ANC with partner,

whether the man provides funding for ANC activities, whether the man helps in performing household chores, whether the man discusses with partner on issues occurring during ANC and whether the man discusses with partner's healthcare provider on partner's pregnancy. Each activity was given a score of one (1) if performed and zero (0) if not performed. A total score of 0-3 was considered low level of male involvement in antenatal care, while a score of 4-6 was considered a high level of male involvement in antenatal care. The independent variables on the other hand included: individual, relational, community and societal predictors of male participation in antenatal care.

2.4 Data analysis

Quantitative data was analyzed using Statistical Package for the Social Sciences (SPSS) version 21 at univariate bivariate and multivariate levels. At bivariate level, association between the dependent variable (male involvement in ANC) and the considered independent variables were determined using a Chi-Square test. The computed Chi-Square was compared to the critical value 0.05 level of significance at a 95% confidence interval. If $p > 0.05$, then there's was no significant relationship between the two variables and $p < 0.05$, we concluded that there is a positive significant relationship All the variables that were found to be significant at the bivariate level were included in a logistic regression model where crude odds ratios (ORs) and adjusted odds ratio for each variable were calculated. The level of significance was set at $P < 0.05$.

For qualitative data responses were analyzed qualitatively into themes based on several objectives. Verbatim audio recordings were translated to English. Transcripts were read and meaning assigned to each response which were later combined to form a code book. Analysis was carried out using directed content analysis as recommended by Assarroudi et al. (2018)

3.0 Results

The sample size was 423 however during data collection 413 data sets were complete so the researcher had to collect data from 10 more respondents to cover up for the non-response. Thus, a response rate of 100% was achieved.

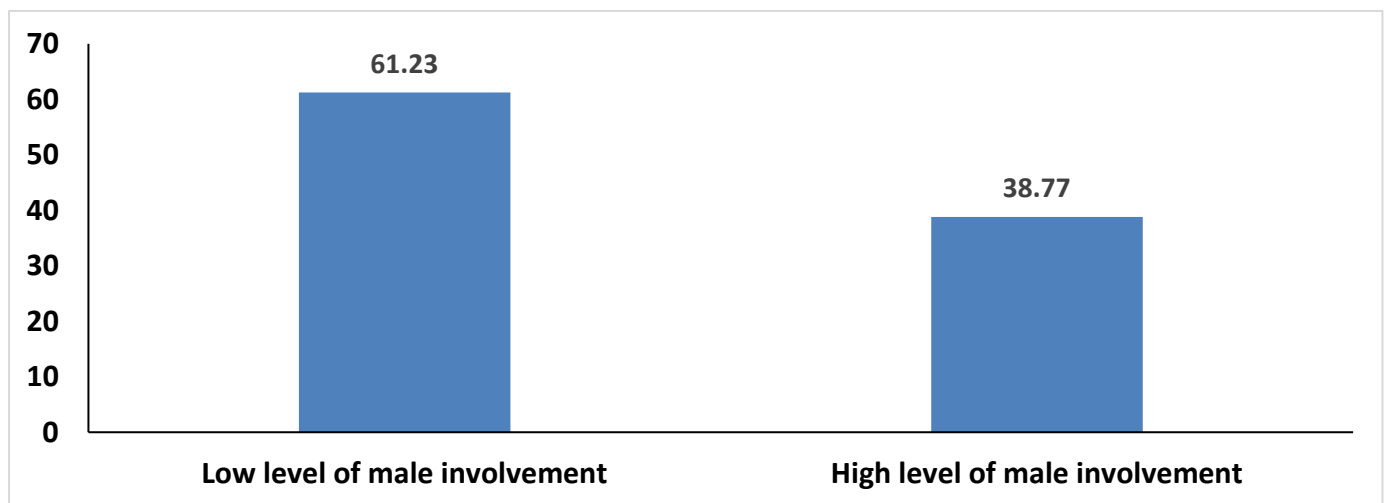
3.1 Level of male involvement in ANC

High level of male involvement in ANC at Palabek refugee settlement was 38.77% while low male involvement in ANC was 61.23%.

The level of male involvement was ascertained by a male partner's involvement in 6 activities during pregnancy that is making joint plans with partners on ANC, escorting spouse for ANC clinics, providing funds, supporting in household chores, having frequent discussions on ANC with spouse and having discussions on ANC with partner's service provider.

If a man participated in 0-3 of these activities, then his involvement index was considered low and if he participated in 4-6 activities, his involvement index was considered high.

Figure 1: Level of male involvement in Palabek Refugee settlement



3.2. Individual predictors of male involvement in ANC

In regard to marital status, 68.32% of respondents said that they were married to their partners while 31.68% are not married to their partner. In regard to level of education 81.09% of male partners attained had attained formal education while 18.01 had not attained any formal of education. Findings suggested that majority 45.86% of respondents had between 0-2 children with their partners, followed by 40.43% who had 3-5 children with their partners. Furthermore 13% of respondents reported that their partners had a source of income while 87% reported that their partners did not have any source of income. Of the partners who had a source of income, 60% earned between 101,000 Uganda shillings to 300,000 Uganda shillings every month followed. Only 1.82% who earn less than 100,000 Uganda shillings. In regard to information, 60.76% of

respondents reported that their partners accessed ANC information during their current /most recent pregnancy. Of the 257 respondents who reported that their partners had access to ANC information, 91.83% said that their partners received such information from health workers followed by 34.24% who said that their partners received information from radios/ televisions.

Table 1: Individual predictors of male involvement in ANC

Variable	Category	Frequency(n)	Percentage (%)
Male partner's age (n=423)	18-27	165	39.00
	28-37	198	46.81
	38-47	45	10.64
	48 and above	15	3.55
Marital status(n=423)	Married	289	68.32
	Un married	134	31.68
Partner's level of education(n=423)	No formal education	80	18.91
	Formal education	343	81.09
Number of children with partner (n=423)	0-2	194	45.86
	3-5	171	40.43
	6 and above	58	13.71
Source of income (n=423)	Yes	55	13.00
	No	368	87.00
Level of income(n=423)	Less than 100,000	9	16.36
	101,000-300,000	33	60.00

	301,000 and above	1	1.82
	I don't know	12	21.82
Whether partner accessed ANC information during most recent pregnancy (n=423)	Yes	257	60.76
	No	166	39.24

3.3 Relational predictors of male involvement in antenatal care

Majority of respondents 54.61% said that they had frequently discussions of at least three times a week on ANC while 45.39% reported that they did not have frequent discussions on ANC .Majority of respondents, 78.25% of the respondents reported that they lived with their partners during the current/most recent pregnancy while only 21.75 % reported that they did not live with their partners .findings also indicated that 78.49 % of respondents lived with other family members during their most recent pregnancy while 21.51% reported that they lived with other family members. Furthermore 48.80 %respondents reported that family members had an influence on male involvement in antenatal care. Of the respondents who said family members influenced male involvement in ANC ,24.84% suggested that the influence was positive while 75.16% reported that the influence was negative. In regard to peer influence, 60.28% of respondents suggested that peer influence affects male involvement in ANC while 39.72% of respondents suggested that peer influence does not affect male involvement in ANC The majority 60.24% of respondents reported that peer influence had a negatively affected male in

Table 2: Relational predictors of male involvement in ANC

Variable	Category	Frequency	Percentage
Whether there were frequent discussions on ANC (n=423)	Yes	231	54.61
	No	192	45.39
Whether respondent lived with partner during most recent pregnancy (n=423)	Yes	331	78.25
	No	92	21.75
Other respondent lived with other family members during most recent pregnancy(n=423)	Yes	332	78.49
	No	91	21.51
Did family members influence your partner's involvement in ANC (n=332)	Yes	162	48.80
	No	170	51.20
Nature of influence of family members(n=161)	Positive	40	24.84
	Negative	121	75.16
Whether peers influence affects male involvement in ANC	Yes	255	60.28
	No	168	39.72
Nature of peer influence	Positive	101	39.76
	Negative	317	60.24

3.4 Community related predictors of male involvement on ANC in Palabek refugee settlement

While 90.54% of respondents reported that the health facilities promote male involvement in ANC, only 9.46 % of respondents reported that the health facilities do not promote male involvement in ANC. Findings also indicated that 89.84% of respondents agreed that health facility related gaps affect male involvement in ANC followed by 8.98% who reported that male involvement in ANC is not affected by any health facility gaps .Further more results indicated that health facility related gaps that discourage male involvement in ANC are long waiting hours as mentioned by 82.89% of the respondents followed by fear of HIV test as mentioned by 57.11% of respondents. Lastly, 39.95% of respondents reported that the distance from their home to health facility was more than 5km, followed by 39.01% who reported that the distance from their homes to the health facility was less than 3km.

Table 3: Community related predictors of male involvement in ANC

Variable	Category	Frequency	Percentage
Whether health facilities promote male involvement (n=423)	Yes	383	90.54
	No	40	9.46
Whether there are health facility related gaps that affect male involvement in ANC (n=423)	Yes	380	89.84
	No	38	8.98
	I don't know	5	1.18
The health facility gaps that affect male involvement in ANC (n=423)	No male health workers	7	1.84
	No privacy	31	8.16
	Long waiting hours	315	82.89
	Fear of HIV test	217	57.11

	Attitude of health workers	56	14.74
Distance from partner's home to health facility	Less than 3Km	165	39.01
	3-5Km	89	21.04
	More than 5Km	169	39.95

3.5 Societal predictors of male involvement in ANC

In regard to cultural norms 56.50% of respondents suggested that cultural norms don't affect male involvement in ANC while 43.50% said that cultural norms affect male involvement in antenatal care. The cultural norms that were found to affect male involvement in ANC included the perception that ANC is a female issue as mentioned by (51.88%) of respondents followed by the perception that men who get involved in ANC are controlled by their partners as mentioned by (48.95%) of respondents. Majority of respondents 74.94% said that there are community structures that affect male involvement in ANC while 25.06% reported that such structures don't affect their partners involvement in ANC. The most frequently mentioned structures included village health teams by (38.49%) of respondents followed by NGOs as mentioned by (31.55%) respondents. Majority of respondents 54.61% reported that they had ever heard about policy that affect male involvement in ANC. Lastly, (70.56%) of respondents reported that they receive verbal appreciation from health workers followed by (37.66%) who said they receive incentives such as nets and mama kits.

Table 4: Societal predictors of male involvement in ANC

Whether cultural norms affect male involvement in ANC	Yes	239	56.50
	No	184	43.50
Cultural norms that affect male involvement in ANC	It's a female issue	124	51.88
	Men's role is only provision of money	71	29.71
	Such men are controlled by their spouses	117	48.95
	Such men are submissive to their spouses	75	31.38
	It is shameful for men to participate in ANC	59	24.69
Whether there are structures that promote male involvement in ANC	Yes	317	74.94
	No	106	25.06
Different structures that promote male involvement in ANC	Male model families	76	23.97
	Village health teams	122	38.49
	Father care groups	72	22.71
	Religious institutions	17	5.36
	NGOs	100	31.55
Whether respondent ever heard about policies/initiatives male involvement in ANC	Yes	231	54.61
	No	192	45.39
Different initiatives that promote male involvement in ANC	Women who go un accompanied are not given services	27	11.69

	Women who go accompanied are served first	53	22.94
	Women who go accompanied are given incentives	87	37.66
	Women who go accompanied are verbally appreciated	163	70.56

3.6 Bivariant analysis of level of male involvement in ANC and different predictors

3.6.1 Analysis of level of male involvement in ANC and individual predictors

The individual variables that had a significant association with male involvement at bivariant level included; marriage to partner ($P < 0.001$), education level ($P < 0.001$), whether partner had a source of income ($P < 0.001$) and access to information ($P < 0.001$).

During the qualitative data analysis participants, it was also noted that source of income was a predictor of male involvement in ANC.

One respondent mentioned that “*when a man earns some money, he is able to participate because he can afford to provide money for items required and he can also afford transport both his wife and himself to the health facility*”. (Respondent 5 in FGD for men)

Table 5: Bivariant analysis of male involvement and individual predictors 3

Variable	Category	Low	High	X2	P'value
Male partner's age (n=423)	18-27	59	106	8.606	0.266
	28-37	77	121		
	38-47	24	21		
	48-5 and above	4	11		
Marital status(n=423)	Married	131	158	16.528	<0.001
	Un married	31	101		
Partner's level of education(n=423)	No formal education	18	62	11.002	<0.001
	Formal education	146	197		
Number of children with partner (n=423)	0-2	71	123	5.741	0.189
	3-5	65	106		
	6 and above	28	30		
Source of income (n=423)	Yes	35	20	16.466	<0.001
	No	129	239		
Whether partner accessed ANC information during most recent pregnancy (n=423)	Yes	139	118	64.704	<0.001
	No	25	141		

3.6.2 Relational predictors of male involvement in antenatal care

During quantitative data analysis the relational predictors that had a significant association with male involvement in ANC included: - having frequent discussion with partner ($P < 0.001$), living with partner during pregnancy ($P = 0.004$) and living with family members ($P = 0.002$).

During the qualitative data analysis, it was also noted that discussion with partner/good couple communication improves male involvement in ANC and living with family members

One member noted that *“ Good communication triggers some men to change their negative attitude. For example, if a woman always updates a man about what transpires at the facility he can get encouraged to participate ”* (Respondent 5 in FGD for VHTs)

Another respondent said that *“ Communication brings about positive growth and promotes healthy growth of the fetus ”* (Respondent 2 in FGD for mothers in law)

Living with partner during pregnancy

During the focus group discussions living with partner during pregnancy was considered by majority of respondent to be predictor to male involvement in ANC. The benefits most mentioned by participants included when the man is present, he can assess the condition of partners and act accordingly, can help with household chores and take her to hospital. However, some few mentioned that it depends whether he is around or not he may support or not

“I can understand her needs and support accordingly and am also able share the joy of the new gift of a child together with her this can't happen when am far ”. (Respondent 4 in FGD for men)

On the other hand, some thought that living or not living with partner made no difference

“This depends for some men whether they are living with their partner or not, they don't render any type of support ”. (Respondent 6 in FGD for women)

Living with family members

This was also suggested as predictor during qualitative data analysis. Majority of the respondents thought that living with an extended family had a negative effect on male involvement.

One respondent mentioned that *“Some especially mothers in law may hate you and discourage their sons from offering support”* (Respondent 4 FGD with women)

Similarly, one key informant mentioned that *“Sometimes some relatives will discourage the man from such involvement”* (block leader zone 5B)

On the other hand, some thought that living or not living with partner made no difference

“This depends for some men whether they are living with their partner or not, they don’t render any type of support”. (Respondent 6 in FGD for women)

Table 6: Bivariant analysis of level of male involvement and relational predictors

Variable	Category	Low	High	X2	P’ value
Whether there were frequent discussions on ANC (n=423)	Yes	119	173	123.483	<0.001
	No	145	166		
Whether respondent lived with partner during most recent pregnancy (n=423)	Yes	48	44	8.897	0.004
	No	116	215		
Other respondent lived with other family members during most recent pregnancy(n=423)	Yes	65	123	9.541	0.002
	No	99	136		
Whether peers influence affects male involvement in ANC	Yes	97	158	0.145	0.760
	No	67	101		

3.6.3 Community -related predictors of male involvement on ANC in Palabek refugee settlement

The only community related predictor that had a significant relationship with male involvement in ANC was average distance from partners most frequented place to the health facility (PV =0.025). Similarly, during qualitative data analysis, this was still mentioned as a predictor to male involvement in ANC.

One key informant mentioned that “*From this zone to the health facility a man has to spend 16,000 Uganda shillings on a boda. This is too expensive for the men to afford.* (Youth leader zone 8)

Table 7: Bivariant analysis of level of male involvement and community related predictors

Variable	Category	Low	High	X2	P' value
Whether health facilities promote male involvement (n=423)	Yes	152	231	1.432	0.240
	No	12	28		
Whether there are health facility related gaps that affect male involvement in ANC (n=423)	Yes	147	233	1.010	0.615
	No	14	24		
	I don't know	3	2		
Distance from partner's home to health facility	Less than 3Km	51	114	7.338	0.025
		1	48		
	3-5Km	72	97		
	More than 5Km				

3.6.4 Societal predictors of male involvement in ANC

The only societal predictor that had a significant association with male involvement in antenatal care was the belief that cultural norms affect male involvement in ANC (0.035).

One key informant mentioned that, *“They say such a man is a woman since he is being controlled by his wife”* (Block leader zone 7).

Another respondent said; *“They say such man has eaten faces”* (Respondent 3 in FGD for women).

Table 8: Bivariant analysis of level of male and societal related predictors

Variable	Category	Low	High	X ²	P' value
Whether cultural norms affect male involvement in ANC	Yes	65	123	4.606	0.035
	No	99	136		
Whether peers influence affects male involvement in ANC	Yes	97	158	0.145	0.760
	No	67	101		
Whether structures that promote male involvement in ANC	Yes	130	187	2.671	0.108
	No	34	172		
Whether respondent ever heard about male involvement in ANC	Yes	96	135	0.166	0.229
	No	68	124		

3.7 Logistic regression of level of male involvement and predictors of male involvement in ANC

The married partners were 1.624 times more likely to achieve high level of male involvement than their un married counterparts.

Those that attained formal education had 1.760 greater odds of high level of male involvement compared to their counter parts who had no formal education.

The partners who had a source of income had 1.786 greater odds of high level of male involvement compared to their counter parts who had no source of income.

The respondents whose partners had a source of income had 1.786 greater odds of high level of male involvement than their counter parts who had no source of illness.

Male partners who accessed ANC information had 2.836 greater odds of high level of male involvement than their counter parts who did not have access to ANC information.

The male partners who had frequent discussions with their partners had 10.780 greater odds of high level of involvement than those that did not have frequent discussions on ANC

Respondents who lived together with their partners during pregnancy had 0.504 lesser odds of having their partners highly involved than those that were not married.

Partners who reported that they lived with other family members had 0.809 lesser odds of having their partners highly involved than those who did not live with other family members

The partners who lived less than 3km to the nearest health were 1.658 more likely to have their partners highly involved than those that lived more than 5km from the nearest health facility. On the other hand, the female partners who lived 3-5km from were 1.191 more likely to have their partners highly involved in ANC than those that lived more than 5km from the health facility.

Lastly the respondents who reported that cultural norms affect male involvement in ANC had 0.908 lesser odds of high male involvement index than their counter parts who did not think cultural norms affect male involvement in ANC.

Table 9: Logistic regression of level of male involvement and predictors that had significant association

Variable	Crude odds ratio (95% CI)	P'value	Adjusted odds ratio (95% CI)	P'value
Marriage to partner				
No	1.0		1.0	1.0
Yes	1.589(0.858-2.940)	0.141	1.624(0.857-3.076)	0.137
No formal education	1.0		1.0	
Formal education	1.689(0.837-3.442)	0.142	1.760(0.835-3.711)	0.137
Economic status				
Did not have a source of income	1.0		1.0	
Had a source of income	1.856 (0.933-3.692)	0.078	1.786 (0.879-3.631)	0.109
Access to information				
No	1.0		1.0	
Yes	2.881(1.623- 5.113)	<0.001	2.836 (1.558- 5.161)	<0.001
Discussion on ANC				
No	1.0		1.0	
Yes	10.626 (5.886 - 19.203)	<0.001	10.780(5.876- 19.777)	<0.001
Living with partner				

No	1.0		1.0	
Yes	0.562 (0.168-1.881)	0.350	0.504(0.144-1.760)	0.283
Living with other family members				
No	1.0			
Yes	0.771(0.231- 2.571)	0.672	0.809(0.231-2.840)	0.741
Average distance to health facility				
5 and above	1.0		1.0	0.058
Less than 1 km	1,756(0.989-3.119)	0.055	1.658(0.917-2.997)	0.094
3-5Km	1.249(0.635-2.458)	0.519	1.191(0.598-2.371)	0.620
Whether cultural norms affect male involvement in ANC				
No	1.0	1.0		0.010
Yes	0.923 (0.553-1.538)	0.757	0.908(0.539-1.531)	0.718

4.0 DISCUSSIONS

Individual predictors of male involvement in ANC

In this study marriage was significantly associated with male involvement in ANC. The married men had 1.624 greater odds of male involvement compared to their counter parts who were not married. This is probably because the married partners are likely to feel a sense of responsibility to participate in ANC than their unmarried counter parts. This study finding is similar to findings of a cross sectional study conducted in Sekondi region of Ghana to assess perception of pregnant women on barriers to male involvement in antenatal care where being married was a facilitator to high level of male involvement in antenatal care. (Yvonne,2020). The study findings were also in agreement with findings from a cross sectional study on male partner involvement in the prevention of mother to child transmission of HIV infection in Mwanza urban Tanzania where the married partners had two-fold more likelihood of involvement than the un married partners. (Mundu et al, 2017).

The male partners who attain formal education had 1.760 higher odds of high male involvement than those with no formal education. These findings agree with the findings of a community based cross-sectional study on involvement of men in antenatal care, birth preparedness and complication readiness and associated factors in Ambo town, Ethiopia where high level of male involvement increased with higher level of education (Dejere,2016). It also agrees with findings of a hospital based cross sectional study on factors influencing male involvement in antenatal care in Shai Osudoku district of the greater Accra region in Ghana in which men with higher level of education participated more (Dziekpor, 2018).

In this study findings suggested that the male partners who had a source of income were 1.786 more likely to be involved in ANC than their counter parts who had no source of income. This is probably because when a man has some money, he has the ability to get involved more than he's counter parts who have no source of income. He can for example provide the necessary financial support, he can afford transport to the health facility and he also has no shame to go to the health facility because he can afford requirements like maternity wear for his partner. On the other hand, his counter parts may not have the ability to participate in activities that require finances. These study findings are in line with findings of a of a cross sectional study on factors influencing male

involvement in antenatal care in the upper east region of Ghana (Maxwel,2019) where men who earned higher reported higher level male involvement than those who earned less. These findings also agree with the findings of a community based cross-sectional study on involvement of men in antenatal care, birth preparedness and complication readiness and associated factors in Ambo town, Ethiopia where high index of male involvement in ANC increased with higher level of income. (Dejeri ,2016).

In this study the level of knowledge was assessed by ascertaining male partners who had access to ANC information. Study findings were suggestive that men who accessed information on ANC had a 2.836 higher odds of high male involvement than those who did not have access to ANC information. This is because the men who have access to information are more likely to have knowledge on the importance of their involvement in ANC hence higher level of involvement among such men. These study findings are similar to study findings of a descriptive cross-sectional survey on determinants of men's involvement in maternity care in Dodoma region of central Tanzania where men who had no access to information thus low level of knowledge regarding the importance of their involvement in maternity care were 2 times less likely to participate in antenatal care (Nyasio et al,2019) .It also similar for findings of a community based cross-sectional study on involvement of men in antenatal care, birth preparedness and complication readiness and associated factors in Ambo town, Ethiopia where partners who had good knowledge towards general danger signs of pregnancy, labor and delivery were 5.74 times more likely to participate in ANC as compared to those had poor knowledge (Dejere 2016). The study findings are also similar to findings by (Elias et al ,2017) in a cross-sectional study conducted in Mwanza region Tanzania, on Male partner involvement in the prevention of mother to child transmission of HIV infection where knowledge on PMTCT had 2.46 increased odds of their male partners being involvement in PMTCT than those mothers whose partners had no such knowledge.

Relational predictors of male involvement in ANC

The study findings indicated that female partners who reported that they had frequent discussions on ANC with their spouses were up to 10.780 times more likely to participate in ANC than their counter parts who reported that they did not have such discussions on ANC. This is probably because when couples communicate on matters concerning ANC, they are likely to learn the needs

of the expectant partners and also agree on how the male partner can support during this period. These findings are in agreement with a number of study findings conducted in East Africa. For example, in a hospital based cross-sectional study undertaken in Kyela district, Mbeya Tanzania on prevalence of male partners involvement in antenatal care, the odds of male involvement increased with couple communication (Elizabeth et al, 2019). These findings also agree with findings of hospital based cross sectional study on male partner involvement in the prevention of mother to child transmission of HIV infection in Mwanza Region, Tanzania, women were likely to bring their partners to ANC services especially after bringing their feedback of the services they obtained during previous ANC visit (Elias et al, 2017). They are also in agreement with findings of a descriptive cross-sectional in Dodoma region of central Tanzania on male involvement in maternity care which suggested that men who had no communication with their partners on issues related to maternity care including antenatal care were less likely to have high men's involvement index than men who had communication with their partners (Nyasio et al, 2019)

In this study the men who were living together with their partners were 0.504 less likely to get involved in ANC than their counter parts who were not living with their partners. It disagrees with findings of a cross sectional community-based study on male involvement in the maternal health care in North West Ethiopia which suggested that mothers who lived together with their male partners were three times more likely to have their partners involved in PMTCT services than those who don't live together (Amanuel, 2018). These findings are also contrary to study findings of a qualitative case study conducted in a military hospital in Lusaka, Zambia on men's perspectives on male participation in antenatal care where most respondents thought that it was inevitable for them not to attend ANC with their partners because they had to respond to instructions and attend military operations even when their wives were pregnant (Hamalambo et al, 2019).

The contrast in the study findings is probably because of the study design. In this study male involvement was assessed by finding the average level of involvement in six different activities that is making joint plans, attending ANC with partner, providing funds, discussing ANC issues with partner, supporting with home chores and discussing pregnancy matters with partners provider. Therefore, male involvement was not only limited to attendance of ANC together with partner. However, in the comparison studies the measure of male involvement was attending ANC visits with partner so if a man was not around then he could not participate in ANC.

In this study, couples who lived with other family members were 0.809 times less likely to realize high level of male involvement. This is probably because when family members live together with a couple, female relatives offer to support with things like escorting the wife for ANC house hold chores. Sometimes they simply discourage the man because of their cultural norms. These findings are in line findings of a study in a descriptive cross-sectional community-based survey conducted in Wakiso district in Uganda where living with family members was associated with low level of male involvement (Kinuthia and Seruwagi ,2016).It also agrees with findings of a case study on men's participation in maternal and child health in western Uganda. These findings suggested that there were low levels of male involvement in maternal and child health and one of the reasons was the fact the communities in this area still live under communal settings whereby relatives live within the same area. (Florence & Said, 2019). These findings however disagree with findings of a cross sectional study on factors influencing male involvement in antenatal care in the Eastern Ghana which suggested that other family members living with partner during pregnancy did not influence their involvement in antenatal care (Maxwell et al,2019).

Community -related predictors of male involvement in ANC

This was the only Organizational factor that had an association with male involvement in ANC. In this study the men who lived less than 3km to the health facility had 1.658 greater odds of high involvement than their counter parts who lived more than 5km to the health facility. Those who lived 3-5km were had 1.191 higher odds of high involvement those who lived more than 5km from the health facility. This is because they are less likely to incur transport cost as a couple compared to those who reside more than 5km. One key informant mentioned that *“From this zone (home) to the health facility a man has to spend 16,000 Uganda shillings on a boda to and fro. This is too expensive for the men to afford”*. (Youth leader zone 8). These findings are in agreement to findings of a cross-sectional study to assess perception of pregnant women on barriers to male involvement in antenatal care in Sekondi region of Ghana, where respondents who agreed that distance to health facilities was a factor that influences male involvement in ANC were less likely to report high male involvement compared to those who disagreed (Yvonne,2020).It also agrees with findings of (Panyin ,2017) in a cross-sectional study on male involvement in maternal health care at Anomabo, central region of Ghana which indicted those men who lived more than 5km from the health facility were less likely to participate than those that lived less than 4km from the health facility. However,

these findings are centrally to findings of (Kebreab et al ,2020) in cross-sectional study on male involvement in birth preparedness and complication readiness for emergency referral at Sodo town which suggested that women who walked less than 5 km to the facility had lower odds of male partners involvement than their counter parts who walked more than 5 km.

Societal predictors of male involvement in ANC

In this study the respondents who thought that cultural norms affect male involvement in ANC had 0.908 less odds of their partners involvement compared to their counter parts. It is possible that such men could have succumbed to cultural norms about men who participate in ANC the most common ones including the belief that ANC is a female issue and that men who participate in ANC are controlled by their wives. It is also in agreement with findings of in a cross-sectional study to assess perception of pregnant women on barriers to male involvement in antenatal care in Sekondi region of Ghana which indicated that respondents who agreed that it is unacceptable for a man to carry out household chores for his wife when she is pregnant were less likely to report high male involvement in ANC compared to those who disagreed. Again, respondents who agreed that husbands will be seen as being controlled by their partners if they escort their wives to ANC were less likely to report high male involvement in ANC (Yvonne et al,2020). These findings also agree with findings of a cross sectional study on factors influencing male involvement in antenatal care in the Upper East region of Ghana where the odds of high male involvement in ANC activities in communities where it is considered unacceptable for men to accompany their partners to ANC clinics decreased by 0.55 (Maxwell,2019).

Conclusions

The study findings suggested that male involvement in Palabek refugee settlement was lower than average with high male involvement index at 38.77%. It is also interesting to note that the predictors of male involvement arise from different levels of the social ecological model.

A number of factors were significantly associated with level of male involvement at bivariant level including: -marital status, level of education, economic status, access to ANC information, couple communication, living with partner, living with other family members, distance to health facility and cultural norms had a significant association with high level of male involvement in ANC.

However only two predictors that is couple community and access to information on ANC remained significant at multivariate level.

Although some factors like health facility gaps did not show a significant relationship with high level of male involvement during analysis of quantitative data, during the qualitative data analysis the respondents suggested a very strong relationship between these variables and high level of male involvement. For example, it was suggested that younger men were more likely to get involved than their older counter parts. It was also highly agreed by most respondents that alcoholism was also a major barrier to high level of male involvement in ANC. Among the organizational predictors the respondents. suggested that there was a very strong correlation between high level male involvement and health facility gaps particularly long waiting time and fear of HIV test.

The study findings on the other hand did not find any relationship between high level of male involvement and female partners age of female partner, parity, although a higher percentage of those with fewer children participated more than their counter parts with more children.

There was also no associated between high level of male involvement and organization factors like attitude of health workers, lack of privacy, lack of male health workers.

Further still there was no associated between high level of male involvement and community related factors like peer influence and community structures that promote male involvement in ANC.

Lastly, there was no association between policy predictors and high level of male involvement.

6.2 Recommendations

The government and UNHCR should accelerate community sensitization on the importance of male involvement and the role of male partners during pregnancy. This can be done through different plat forms like mass media, through community structures and through community leaders.

The government of Uganda and UNCHR should emphasize the implementation of the modeling approach where men with high involvement index are modeled to become change agents to their peers.

6.3 Strengths and Limitations of the study

A holistic assessment using six variables was done to assess the level of male involvement. This makes it different from other studies that majorly employed one variable to measure the level of male involvement.

One limitation is that the study was conducted in the refugee settlement so it may be difficult to generalize findings for the stable host communities in Uganda since these contexts are completely different.

REFERENCES

- ALFRED, CHIBWAE, A., KAPESA, O., JAHANPOUR, J., SENI, NAMANYA, BASINDA., EMMANUEL, KADELVA, E. KONIE., E, C., NYANZA., S, NGALLABA AND D, DEWEY (2018). Attendance of male partners to different reproductive health services in Shinyanga District, north western Tanzania: *Tanzania Journal of Health Research*
- AMANUAL, GETNET., MERSHA (2018). Male involvement in the maternal health care system: implication towards decreasing the high burden of maternal mortality. *BMC Pregnancy and Childbirth*
- AMPT, F., MON, M., THAN, K., KHIN, M., AGIUS, P. A., MORGAN, C. AND LUCHTERS, S. (2015). Correlates of male involvement in maternal and newborn health: Across-sectional study of men in a peri-urban region of Myanmar. *BMC Pregnancy Childbirth*.
- ANA, BOROVECKI., ANA, MLINARIC., MARTINA, HORVAT AND VESNA, SUPAK., SMOLCIC. (2018). Informed consent and ethics committee approval in laboratory medicine; *Biochem Med*
- APOLLONIA, KASEGE., PENEZA AND STEPHEN, OSWALD., MALUKA (2018). Unless you come with your partner you will be sent back home': strategies used to promote male involvement in antenatal care in Southern. *Glob Health Action*
- ASSARROUDI, A., HESHMATI., NABAVI, F., ARMAT, M. R., EBADI, A. AND VAISMORADI, M. (2018). Directed qualitative content analysis: The description and elaboration of its underpinning methods and data analysis process. *Journal of Research in Nursing*, 23(1), pp 42–55; *American Psychological Association*
- BARNABAS, FRANK., ROTICH, RUTH., A. AURA-ODHIAMBO AND STELLAMARIS, MUTHOKA (2019). The influence of male spouse participation in maternal utilization of antenatal care in Njoro town, Nakuru county, Kenya. *International Journey for social science and information technology*

CAROLYN,M., AUDET ., YAZALDE, MANUAL., CHIRE., LARA ,VAZ., RUTH ,BECHTEL., DAPHNE, CARLSON-BREMER., C, WILLIAM., WESTER.,K, RIVET., AMICO,K., RIVETAND LAZARO, GONZALEZ-CALVO (2016). Barriers to male involvement in antenatal care in rural Mozambique.

CRAMER, DUNCAN AND DENNIS, HOWITT (2004). The SAGE Dictionary of Statistics. London: Sage

CRESWELL, J.,W.& MILLER, D.L. (2000). Determining validity in qualitative inquiry. *Theory into Practice*, 39(3)

CRESSWELL, J., W. (1998). Qualitative inquiry and research: Choosing among five traditions. London: Sage (P.15)

DEBORAH, SMITH (2003). Five principles for research ethics Cover your bases with these ethical strategies: *America psychological Association, Volume (34)*:

DEDIH, SUANDIA., PAULINE, WILLIAM. AND SOHINEE, BHATTA., CHARYA (2019). Does involving male partners in antenatal care improve healthcare utilization? *International Health, Volume (12)*

DEREJE, BAYISSA., DEMISSIE., GIZACHEW, ABDISSA., BULTO AND TEKA, GIRMA., TERFASSA (2016) Involvement of Male in Antenatal Care, Birth Preparedness and Complication Readiness and Associated Factors in Ambo Town, Ethiopia. *Journey of health medicine and nursing Volume (.27)*

DOREEN, SAKALA., MOSES, K., KUMWENDA, DONALDSON., F., CONSERVE, BASSEY& AUGUSTINE, T., CHOKO (2021). Socio-cultural and economic barriers, and facilitators influencing men's involvement in antenatal care including HIV testing: a qualitative study from urban Blantyre, Malawi: *BMC; Public Health*

DZIEKPOR, SAMPSON (2018). Factors influencing male involvement in antenatal care in Shai Osudoku district of the greater Accra Region, Ghana

ELIZABETH, KABANGA., ALFRED, CHIBWAE.,NAMANYA,BASINDA & DOMENICA, MORONA (2019). Prevalence of male partner's involvement in antenatal care visits in Kyela district, Tanzania. *BMC Pregnancy and Childbirth (volume 19)*

ERIKA, R., CHENG., SHERY ,L., RIFAS-SHIMAN., MEGHAN, E., PERKINS., JANET, WILSON., RICH-EDWARDS., MATTHEW, W., GILLMAN.,ROSALIND ,WRIGHT AND ELSIE M. TAVERAS (2016) The Influence of Antenatal Partner Support on Pregnancy Outcomes.*Journal for women's health*

E, VERMEULEN ., A, SOLNES., MILTENBURG., J, BARRAS ., N, MASELLE., M ,VAN .,ELTEREN AND J ,VAN., ROOSMALEN (2016) Opportunities for male involvement during pregnancy in Magu district, rural Tanzania. *BMC Pregnancy Childbirth. (Volume 16)*

FRANCIS, J.J., JOHNSTON, M., ROBERTSON, C., GLIDEWELL, L., ENTWISTLE, V., ECCLES, M.P., ET AL (2010) What Is an Adequate Sample Size? Operationalizing Data Saturation for Theory-Based Interview Studies. *Psychology and Health; open Access*

FERNADOS, FREDGIE., ONGOLLY (2019) Barriers of men involvement in antenatal care and postnatal care in Butala sub-county western Kenya: *African journal of Primary Health Care and Family*

GOODLUCK, WILLEY., LYATUU., HELGA, NABURI., ROSELINE, URRIO., SHALLY, ZUMBA., MWASHEMELE., SARAH, MDINGI., REHEMA, PANGA., HAPPINESS, KODA., YUSUPH, CHENDE., MARTHA, TSERE., AISA, MHALU., HELEN ,SIRIL., IRENE, ANDREW., LEMA., ERIC, ARIS AND ANNA, MIA .,EKSTRÖM (2018). Engaging community leaders to improve male partner participation in the prevention of mother-to-child transmission of HIV in Dar es Salaam, Tanzania

GREG, GUEST., EMILY, NAMEY., KEVIN, MCKENNA (2016). How Many Focus Groups Are Enough? Building an Evidence Base

GUEST, G., A, BUNCE AND L, JOHNSON (2006). How many interviews are enough? An experiment with data saturation and variability: *Field methods; Sage journals*

HAMALAMBO, MULOONGO.,DOREEN, SITALI., JOSEPH, MUMBA., ZULU., ALICE, NGOMA., HAZEMBA AND OLIVER, MWEEMBA (2017) Men's perspectives on male participation in antenatal care with their pregnant wives: a case of a military hospital in Lusaka, Zambia. *BMC Health Services Research; volume (19)*

HARRELL, FRANK., E. (2010). *Regression Modeling Strategies: With Applications to Linear Models, Logistic Regression, and Survival Analysis*. New York: Springer

JESSICA,DAVIS.,CATHY,VAUGHAN.,JUSTINE,NANKINGA.,LISA,DAVIDSON.,HELLEN,KIGODI.,EILEEN,ALALO.,LIZ,COMRRIE-THOMSON. AND STANLEY,LUCHTERS.(2016). Expectant father's participation in antenatal care services in Guinea; *A qualitative inquiry .Epidemiology and preventive medicine, Monash University*

JESSICA, DAVIS., JOSEPH.VYANKANDONDERA., STANLEY, LUCHTERS., DAVID SIMON & WENDY HOLMES. (2016) Male involvement in reproductive, maternal and child health: a qualitative study of policymaker and practitioner perspectives in the Pacific; (*Volume 13*). Reproductive Health Open Access

JOHN, KUUMUORI.,GANLE.,ISAAC,DERY.,ABUBAKARA,A.,MANU AND BERNARD ,OBENG(2016) f I go with him, I can't talk with other women': Understanding women's resistance to, and acceptance of, men's involvement in maternal and child healthcare in northern Ghana

JOSHUA, PANYIN., CRAYMAH., ROBERT,KWAME., OPONG AND DEREK, ANAMAALÉ., TUOYIRE. (2017). Male Involvement in Maternal Health Care at Anomabo, Central Region, Ghana. *International Journal of community health. (Volume 17)*

KATRINA ,A., KORB (2012). *Conducting Educational Research: Identifying the population. Accessed from Study Population (korbedpsych.com)*

KEBREAB PAULOS, NEFSU AWOKE, BAZIE MEKONNEN &ASEB ARBA (2020) Male involvement in birth preparedness and complication readiness for emergency referral at Sodo town of Wolaita zone, South Ethiopia: a cross sectional study

KHALIFA, ELMUSHARAF (2018). *Qualitative sampling techniques: Training course in research methodology and research protocol development Geneva: Limerick, Ireland*

KINUTHIA, FRANCIS., KARIUKI AND GLORIA, K., SERUWAGI (2016). Determinants of Male Partner Involvement in Antenatal Care in Wakiso District, Uganda; *British Journal of Medicine & Medical Research*

KYI, MAR., WAI., AKIRA, SHIBANUMA., NWE NWE OO., TOKI, JENNIFER., FILLMAN., YU, MON., SAW AND MASAMINE, JIMBA. (2015). Are Husbands Involving in Their Spouses' Utilization of Maternal Care Services? A Cross-Sectional Study in Yangon, Myanmar. *Open Access*.

LAMWO DISTRICT LOCAL GOVERNMENT (2020). Health information system report

LEMMA, E AND HUSEIN, G. (2015) Male Partner Involvement on Prevention of Mother to Child Transmission of HIV and Associated Factors among Pregnant Mothers Attending Antenatal at Fantale District, Ethiopia. *J Women's Health Care, an open access journal (Voluum 6)*

LEWIS, S., LEE, A AND SIMKHADA, P. (2015). The role of husbands in maternal health and safe childbirth in rural Nepal: A qualitative study. *BMC pregnancy and childbirth*

MARGARET, DUAH., ATUAHENE., SYLVIA, ARDE-ACQUAH., NANA, FREMA., ATUAHENE., MARTIN, ADJUIK AND JOHN, KUUMUORI., GANLE (2017). Inclusion of men in maternal and safe motherhood services in inner-city communities in Ghana: evidence from a descriptive cross-sectional survey. *BMC Pregnancy and Childbirth*

MARSHALL, E., & ROSSMAN, G. B. (1989). Designing qualitative research. Newbury Park, CA: Sage Publications, Inc. edition of Designing Qualitative Research (1989) *OPEN LIBRARY*

MAXWELL, TII., KUMBENI., FLORENCE, ASSIBI., ZIBA., JOHN, NDEBUGRI., ALEM (2019). Factors Influencing Male Involvement in Antenatal Care in the Kassena Nankana Municipal in the Upper East Region, Ghana. *European scientific journal. (Volume 15)*.

MELISSA, DEJONCKHEERE AND LISA, M., VAUGHN (2019) Semistructured interviewing in primary care research: a balance of relationship and rigour: *BMJ journals 2019; volume (7)*

MERRIAM, S.B. (1998) *Qualitative Research and Case Study Applications in Education. Jossey-Bass Publishers, San Francisco.; Open access*

MILES, M., B AND HUBERMAN, A., M. (1994). *Qualitative data analysis: An expanded sourcebook. Thousand Oaks, CA: Sage Publications, Inc.*

MISHLER, E., G. (1986). *Research interviewing: Context and narrative. Cambridge, MA: Harvard University PRESS.* MISHLER, E. (1986). *Research Interviewing: Context and Narrative. Cambridge, MA: Harvard University Press.*

MUNDA ,ELIAS., ELIA ,JOHN., MBAGA ., AHMED ,ABADE .,MOHAMED AND ROGATH, SAIKA., KISHIMBA (2017). Male partner involvement in the prevention of mother to child transmission of HIV infection in Mwanza region, Tanzania: *PMC article.*

NASUNA, ZAHARA. (2016) Factors influencing male participation in antenatal care at Uganda Martyrs' hospital – Ibanda district. *A research report submitted to Uganda nurses and midwives board in partial fulfillment of the requirements for the award of a diploma in midwifery*

NOEL, OTIENO.,ODHIAMBO., HARRISON, ATIEMI AND LOUISA ,NDUNYU (2018) .Factors associated with low male partners' involvement in maternal and child health services in Suba sub county, *Journal of Health, Medicine and Nursing (Vol.60)*

NYASIRO,

S.,GIBORE.,MANGI,J.,EZEKIEL.,ALFRED,MEREMO.,MARIAM,J.,MUNYOGWA AND STEPHEN M., KIBUSI (2019) .Determinants of Men's Involvement in Maternity Care in Dodoma Region, Central Tanzania. *Journey of pregnancy, Hindawi volume (2019)*

OLAYINKA,FALADE., FATILA.,AYODEJI, MATTHEW., ADEBAYO (2020). Male partners' involvement in pregnancy related care among married men in Ibadan, Nigeria. *National Library of medicine: Reproductive health; Open access*

PACT, INC. (2014). *Field Guide for Evaluation: How to Develop an Effective Terms of Reference. Washington.*

PRERNA, GOPAL1., DUNCAN, FISHER.,GLORIA ,SERUWAGI AND HENOCK, B.,TADDESE (2020). Male involvement in reproductive, maternal, newborn, and child health: evaluating gaps between policy and practice in Uganda. *Reproductive Health;Open Access*

RAYMOND,A., ABORIGO.,DANIEL, D., REIDPATH.,ABRAHAM ,R., ODURO AND PASCALE, ALLOTEY (2018). Male involvement in maternal health: perspectives of opinion leaders .BMC Pregnancy and Childbirth ;*open access*

ROBIN, LEVIN AND JOAN, P., PORTER. (2010) Institutional Review Board Guidebook: Introduction. Washington, DC: United States Department of Health and Human Services, 2010; "What are Dependent and Independent Variables?" *Graphic Tutorial*

RYERSON, UNIVERSITY (2015). guidelines on anonymity and confidentiality in research ethics board Development

STRAUSS, A., M AND CORBIN, J. (1998). Basics of Qualitative Research: (3rd Edition.). *Newbury Park, CA: Sage Publications, Inc.*

UNAIDS (2016). prevention gap report. (2016). Geneva

UNITED REPUBLIC OF TANZANIA (2016) .ONE PLAN II, the national road map strategic plan to improve reproductive, maternal, newborn, child and adolescent health; Ministry of Health, Communication Development, Gender, Elderly and Children

UNICEF (2021). Antenatal care

UNICEF (2016). Improving male involvement to support elimination of mother to-child transmission of HIV in Uganda: *A case study.*

VAHIDEH, FIROUZAN.,MAHNAZ, NOROOZI., MOJGAN, MIRGHAFOURVAND AND ZIBA, FARAJZADEGAN (2018). Participation of father in perinatal care: a qualitative study from the perspective of mothers, fathers, caregivers, managers and policymakers in Iran. *BMC Pregnancy and Childbirth, (Volume 18)*

WANYAMA, INVIOLATA., NAFULA (2018). Determinants and perceived benefits of male partner involvement in antenatal and postnatal care in Bumble sub-county, Kenya: *A thesis submitted in partial fulfillment of requirements for the degree of Master of Science in Public Health*

WEILIN, LYNN., SHOREY., WENRU, WANG AND HONG-GU, HE. (2018) Fathers' involvement during pregnancy and childbirth: *An integrative literature review. Volume 62,*

WORLD HEALTH ORGANIZATION (2015). Recommendations on health promotion interventions for maternal and newborn health. Geneva

YVONNE, ANNOON., THOMAS, HORMENU., BRIGHT, OPOKU., AHINKORAH., ABDUL-AZIZ, SEIDU., EDWARD.KWABENA.,AMEYAW .B. AND FRANCIS SAMBAH (2020) Perception of pregnant women on barriers to male involvement in antenatal care in Sekondi, Ghan : *Heliyon volume(6)*
