

ORIGINAL RESEARCH ARTICLE

Socio-Demographic and Structural Predictors of Involvement of the Male Partner in Maternal Health Care in Hohoe, Volta Region, Ghana

DOI: 10.29063/ajrh2019/v23i2.6

Anselm E. Quarcoo¹ and Elvis E. Tarkang^{2,3*}

Department of Epidemiology and Biostatistics, School of Public Health, University of Health and Allied Sciences, PMB 31 Ho, Ghana¹; Department of Population and Behavioural Sciences, School of Public Health, University of Health and Allied Sciences PMB 31 Ho Ghana²; HIV/AIDS Prevention Research Network Cameroon PO Box 36 Kumba, Southwest Region, Cameroon³

***For Correspondence:** Email: ebeyang1@yahoo.com; Phone: +233(0)505754478

Abstract

Maternal health can be improved if men give support to their partners. This study determined the socio-demographic and structural predictors of male partner involvement in maternal health in Hohoe, Ghana. A descriptive, cross-sectional design was adopted, collecting data through self-administered questionnaires from a multistage sample of 193 respondents and analysing using Stata version 14 at the 0.05 level. Age groups 31-40 years and 41-51 years were 6 times [AOR=6.28, p=0.04] and 4 times [AOR=4.32 (95%, p=0.08)] respectively more likely to get involved in maternal health issues compared to age group 20-30 years. Married men were 63% less likely to be involved in maternal issues compared to single men [AOR=0.37, p=0.08]. Men with tertiary and senior high school levels of education were 9 times [AOR=9.13, p=0.001] and 5 times [AOR=4.52, p=0.01] respectively more likely to be involved in maternal health than men with a basic level of education. Men with a high level of knowledge on maternal health were 4 times more likely to be involved in maternal health than men with a low level of knowledge [AOR=4.14, p=0.002]. Strategies to improve male partner involvement in maternal health should target the younger, the legally married, and male partners with a low level of education. (*Afr J Reprod Health* 2019; 23[2]: 56-64).

Keywords: Male partner involvement; maternal health; Hohoe; Ghana

Résumé

La santé maternelle peut être améliorée si les hommes apportent un soutien à leurs partenaires. Cette étude a déterminé les indices sociodémographiques et structurels de la participation des partenaires masculins à la santé maternelle à Hohoe. Une conception descriptive et transversale a été adoptée. Elle consiste à collecter des données au moyen des questionnaires auto-administrés auprès d'un échantillon à plusieurs niveaux de 193 répondants et à les analyser à l'aide de la version 14 de Stata au niveau 0,05. Les groupes d'âge 31-40 ans et 41-51 ans étaient 6 fois [AOR = 6,28, p = 0,04] et 4 fois [AOR = 4,32 (95%, p = 0,08)] respectivement plus susceptibles de s'impliquer dans des problèmes de santé maternelle que le groupe d'âge 20-30 ans: les hommes mariés avaient 63% moins de possibilité d'être impliqués dans des problèmes maternels que les célibataires [AOR = 0,37, p = 0,08]. Les hommes ayant un niveau d'enseignement supérieur étaient 9 fois [AOR = 9,13, p = 0,001] et cinq fois plus [AOR = 4,52, p = 0,01] respectivement plus susceptibles d'être impliqués dans la santé maternelle que les hommes ayant un niveau d'instruction de base. Les hommes ayant un niveau élevé de connaissances en matière de santé maternelle étaient 4 fois plus susceptibles d'être impliqués dans la santé maternelle par rapport aux hommes ayant un faible niveau de connaissances [AOR = 4,14, p = 0,002]. Les stratégies visant à améliorer la participation des partenaires masculins à la santé maternelle devraient cibler les partenaires les plus jeunes, les mariés et les hommes ayant l'éducation d'un niveau peu élevé. (*Afr J Reprod Health* 2019; 23[2]: 56-64).

Mots-clés: Implication du partenaire masculin; santé maternelle; Hohoe; Ghana

Introduction

Naturally, men in Africa are seen as the authoritative figure, therefore their decisions concerning health issues in the household play a key role in the promotion and improvement of the health status of the family^{1,2}. This proves how important the decisions of men can affect maternal health.

The World Health Organization (WHO) defines maternal health as health of women during pregnancy, childbirth and postpartum period³. Male involvement in maternal health includes men making informed decisions with their partners about family planning or seeking and sharing information about appropriate health behaviours and care during pregnancy, childbirth and postpartum⁴. Therefore, men can encourage and support antenatal care (ANC) attendance, ensure good nutrition, reduce the workload of their pregnant partners, assist them with birth preparations, and provide emotional support during pregnancy.

Research over the years has shown that male involvement in maternal health has shown incredible impacts on the health outcomes of women and new-borns⁵⁻⁷. Activities such as educating male partners about the human immunodeficiency virus (HIV) and engaging them in ANC is considered an important step in reducing the risk of mother-to-child transmission of HIV (MTCT), increasing contraceptive use and more especially reducing infant mortality⁵⁻⁸. Despite these benefits, most men are still not involved in maternal health^{6,7}. Therefore, maternal health can be greatly improved if men give support to their partners before, during and after the pregnancy period.

Since the mid-1990s, when the International Conference on Population and Development in Cairo⁹ and the international conference on women in Beijing¹ highlighted the importance of involving men in reproductive health programmes, there has been an increasing appreciation of the potentially significant benefits for the health of men, women and children⁴. The improvement of maternal health was the fifth

(5th) of the eight (8) Millennium Development Goals (MDG), which was adopted in 2000 at the United Nations (UN) millennium summit by the International Community and WHO partners. The maternal mortality ratio in developing countries as of 2015, was 239 per 100,000 live births compared to 12 per 100,000 live births in developed countries. This clearly proves that maternal deaths are more in developing countries of which most are in sub-Saharan Africa (SSA)³.

Even though Ghana did not meet her target of reducing maternal mortality by 75 percent by the end of 2015, maternal health care recorded an improvement over the years; institutional maternal mortality rate reduced from 216 per 100,000 live births in 1990 to 164 per 100,000 live births in 2010 then to 54 per 100,000 in 2015¹⁰. The maternal mortality ratio is 350/100,000 live births. However, this is still higher than the MDG 5 target of 190/100,000 live births by 2015¹¹.

In Ghana's socio-cultural setting, men possess a lot of power in decision-making in the home and they play a vital role in the health-seeking behaviour of women. Funding and permission to seek maternity care often come from the male partner. Male partner's involvement in maternal care is perceived to be low¹² and therefore, could contribute to the slow pace of the decline in maternal mortalities. Men have traditionally not been involved in the reproductive health care of their partners in Ghana. Therefore, there has been a low and declining rate of male involvement in the antenatal clinic in the whole country, which has been a worrying trend.

In a study conducted in the Ablekuma South District, Accra, Ghana, 42% of women delivered at home without skilled health professionals' supervision and 23% had no post-natal care. Of those who did not seek health care, 45% and 7% respectively, stated lack of money and not obtaining permission from the spouse as the reasons¹².

Male participation in reproductive health has proven to be challenging in countries like Ghana, where there are culturally defined gender roles and where manifestations of masculinity involve violence against women, alcohol

consumption and high-risk sexual behaviours among others¹³.

The level of male involvement in maternity health varies across communities and countries. There are various factors that could determine the level of male involvement. These could be socio-demographic (age, level of education, marital status, religion, employment status), structural (knowledge level regarding maternal health), cultural, or even inherent factors in the health delivery systems¹⁴⁻¹⁶.

The role of husbands in maternal health is often overlooked by health programmes in developing countries and is an under-researched area of study. Some studies have been conducted on male involvement in maternal health in the Central region¹⁷ and the Ashanti region of Ghana¹⁸. However, the level of male partner involvement in maternal health and the factors that determine this in Hohoe has not been clearly elucidated. Therefore, the study seeks to investigate the socio-demographic and structural predictors of male partner involvement in maternal health in Hohoe, Volta region of Ghana.

Methods

Study site description

Hohoe municipality is one of the 25 administrative assemblies in the Volta Region of Ghana. In the Hohoe Municipality, there are seven (7) Sub-Districts of which Hohoe is the Municipal capital. Hohoe is in the Centre of the Volta Region and about 77 kilometers from the Regional Capital, Ho and about 222 kilometers from the National Capital, Accra.

There are ten Community-based Health Planning and Services (CHPS) zones, one Reproductive and Child Health Centre (RCH), one Health Centre and one Government hospital which serve the communities in Hohoe. Based on the 2010 population and housing census, the population of the Hohoe Municipality is 167,016 representing 7.9 percent of the total population of the Volta Region comprising 52.1% females and 47.9% males¹⁹.

Study population

The study population included all men 18 years and above who have had a pregnant partner.

Inclusion criteria

Only men living in Hohoe and who gave consent to participate

Exclusion criteria

Other men who seek healthcare and other services at Hohoe but are not residing in Hohoe

Study design

A descriptive, cross-sectional design was used to determine the socio-demographic and structural predictors of male involvement in maternal health. A cross-sectional design was employed because the data were to be collected at one point in time. A descriptive research design was adopted because the study sought to obtain information that describes existing phenomena by asking men about their knowledge, perceptions and behaviours. The descriptive approach also allowed the findings of the study to be presented through simple statistics, tables, mean scores, percentages and frequency distributions. The study also adopted a correlational design because the relationships between independent and dependent variables were tested.

Sample size determination

The sample size was determined using the Kish formula (1965)²⁰:

$$N = \frac{Z^2 \times P(1 - P)}{D^2}$$

Where,

N=Sample size

Z= Confidence interval at 95% which is 1.96

P = Proportion of males involved in maternal health, 13%²¹.

D = Maximum error allowed (5 % = 0.05)

Substituting the figures above gives:

$$N = \frac{(1.96)^2 \times 0.13(1 - 0.13)}{(0.05)^2} = 174$$

However, taking the non-response rate into consideration, 10% of the calculated sample size was added to the sample size, which gave a minimum sample size of the study as 192 men.

Sampling method

The multi-stage sampling technique was used for this study. Firstly, 10 communities in Hohoe were randomly selected by balloting and the ten communities were randomly picked and labelled as clusters. From these clusters, 20 households were selected by the systematic sampling method using a sampling interval of 2. The sampling interval of 2 was obtained by dividing the number of households in the community by the number of households needed for the sample. The first household in each community was selected by randomly choosing an intersection on the map of the communities. From the first house, every 2nd house was selected until the number of houses corresponding to the required sample size for that community was obtained. The direction of movement was determined by random selection. For every household A selected, one man meeting the eligibility criteria was selected. Selected household that had more than one man meeting the eligibility criteria had one man selected by simple balloting, while a selected household having no man meeting the eligibility criteria was skipped and the next house contacted. The respondents involved in the study were selected from all walks of life in Hohoe without any form of discrimination.

Data collection procedure

Pretested questionnaires were administered one-on-one to 193 respondents. The questionnaire was pre-tested on a convenience sample of 10 men in Hohoe, who met the eligibility criteria but who were not part of the actual study to ensure its reliability. After pre-testing, the questionnaire was then revised before the main study. The principal investigator with two well-trained data collectors was available to help fill in the responses of the

respondents on the questionnaire. The questionnaire was designed in English, but data collectors were available to interpret and translate questions to suit respondents who were not familiar with the English language. Data were collected from January 2017 to March 2017.

Data analysis

The data collected were entered using the Epi data version 3.1 and analysed using the Stata version 14. The questionnaires were checked for completeness, accuracy and uniformity before being coded. The coding was done to quantify the data to make it easy to analyse. Descriptive analysis was done for categorical variables by using percentages and frequencies. Binomial logistic regressions were done with the confidence interval of 95% such that a p-value less than 0.05 were considered statistically significant.

Results

Socio-demographic characteristics of the respondents

As can be seen from Table 1, the majority (36.2%) were age more than 50 years, 66.3% were married, 64.8% were from the Ewe ethnic group, 75.1% were Christians, 49.2% had full time jobs and 40.9% had tertiary level of education.

Knowledge level of men on maternal health

The knowledge level of men on maternal health was assessed based on whether the men knew about antenatal care, the services offered at those clinics, whether they thought that antenatal clinics were important and whether they ever accompanied their partners to the antenatal clinics where they could be informed about maternal health issues. The knowledge level of men was assessed from 0 to 7 where 0 represents men with the least knowledge and 7 represents those with highest knowledge on maternal health.

Figure 1 presents the knowledge level of men in a grouped format such that knowledge

Table 1: Socio-demographic characteristics of men in Hohoe, Ghana (N=193)

Variables	Frequency	Percentage
Age		
20-30	17	8.8
31-40	53	27.5
41-50	53	27.5
51 and above	70	36.2
Marital Status		
Single	60	31.1
Married	128	66.3
Divorced	5	2.6
Religion		
Christianity	145	75.1
Islam	48	24.9
Ethnicity		
Akan	39	20.2
Ewe	125	64.8
Guan	19	9.8
Ga	10	5.2
Employment status		
Unemployed	20	10.4
Fully-Employed	95	49.2
Self-Employed	78	40.4
Educational level reached		
Basic school	55	28.5
SHS	59	30.6
Tertiary level	79	40.9

Table 2: Perception regarding male involvement in maternal health

Variables	Frequency	Percentage
Perception regarding male involvement in maternal health		
Important	162	83.9
Not important	31	16.1

level from 0 to 4 was considered as low and level of 5 to 6 was considered as moderate knowledge on maternal health. Men were considered to have a high knowledge level on maternal health issues if their knowledge level was 7. Only 24.8% of the men had high knowledge level on maternal health issues.

Perception regarding male involvement in maternity health

Table 2 illustrates the perception of men regarding male involvement in maternity health. The

majority, 162(83.9%) agreed it is important for males to be involved in maternity health.

Socio-demographic and structural predictors of male partner involvement in maternal health

From Table 3, age groups 31-40 years and 41-51 years were 6 times [AOR=6.28 (95% CI: 1.09, 36.32); $p=0.04$] and 4 times [AOR=4.32 (95% CI: 0.83, 22.46); $p=0.08$] respectively more likely to get involved in maternal health issues compared to age group 20-30. Married men were 63% less likely to be involved in maternal health issues compared to those who were single [AOR=0.37 (95% CI: 0.12, 1.11); $p=0.08$]. Men with a tertiary level and those with senior high school level of education were 9 times [AOR=9.13 (95% 2.51, 40.51); $p=0.001$] and 5 times [AOR=4.52 (1.59, 16.99); $p=0.01$] respectively more likely to be involved in issues of maternal health compared to men with basic level of education. Men with a high level of knowledge on maternal health were 4 times more likely to be involved in issues of maternal health as compared to men with a low level of knowledge [AOR=4.14 (95% 1.75, 12.30); $p=0.002$].

Discussion

This study has provided insights into the socio-demographic characteristics of the study population, knowledge on male involvement in maternal health and their influence on male involvement in maternal health. The perception of male involvement in maternal health was also provided.

Based on the age grouping, the modal age group was above 50 years represented by 36.3% of the respondents. This shows that majority of the respondents were well matured and may have gone through the process of experiencing and understanding maternal health. Most respondents had a tertiary level of education (40.9%), which indicated good understanding of issues regarding maternal health.

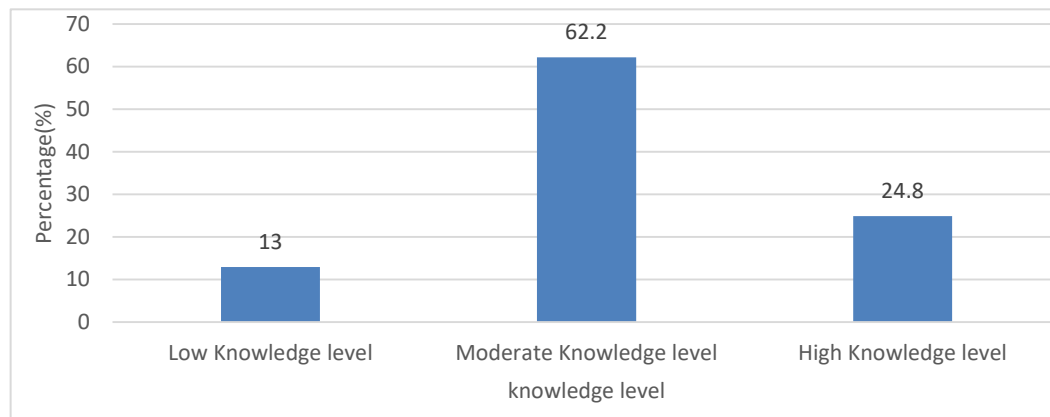


Figure 1: Knowledge level of men on maternal health

Table 3: Socio-demographic and structural predictors of male involvement in maternal health

Involvement of men in maternal health care					
Variable	No	Yes	AOR	95% CI	P-value
Age (years)					
20-30	5(16.1)	13(8.0)	Ref		
31-40	7(22.6)	46(28.4)	6.28	(1.09, 36.32)	0.04
41-51	10(32.3)	43(26.6)	4.32	(0.83, 22.46)	0.08
>50	9(29.0)	60(37.0)	3.59	(0.74, 17.34)	0.11
Marital Status					
Single	9(29.0)	51(31.5)	Ref		
Married	21(67.8)	107(66.0)	0.37	(0.12, 1.11)	0.08
Divorced	1(3.2)	4(2.5)	0.16	(0.01, 2.28)	0.17
Ethnicity					
Akan	8(25.8)	31(19.1)	Ref		
Ewe	17(54.8)	108(66.7)	1.09	(0.33, 3.54)	0.89
Guan	6(19.4)	23(14.2)	2.03	(0.35, 7.09)	0.56
Level of Education					
Basic level	18(58.1)	37(22.8)	Ref		
SHS level	7(22.6)	52(32.1)	4.52	(1.59, 16.99)	0.01
Tertiary level	6(19.3)	73(45.1)	9.13	(2.51, 40.51)	0.001
Employment Status					
Fully Employed	15(48.4)	80(49.4)	Ref		
Self Employed	12(38.7)	66(40.7)	1.95	(0.61, 4.66)	0.31
Unemployed	4(12.9)	16(9.9)	2.84	(0.68, 13.86)	0.15
Knowledge Level					
Low Knowledge	23(74.2)	56(34.6)	Ref		
High Knowledge	8(25.8)	106(65.4)	4.14	(1.75, 12.30)	0.002
Religion					
Christianity	24(77.4)	121(74.7)	Ref		
Islam	7(22.6)	41(25.3)	1.06	(0.31, 2.79)	0.9

AOR= adjusted odds ratio; CI= confidence interval; Ref= reference class

The majority (83.9%) perceived that it is important for men to get involved in maternal health issues. In the current study, only 24.8% of the males had high knowledge level on maternal health issues. This finding is in accordance with the finding of a

study conducted in Busia, Kenya¹⁵, where the knowledge level of men was found to be low (24.9%). There is the need to increase knowledge on maternal health among men, by continuously improving the knowledge and skills of the health

workers as well as health educators and promoters to ensure that the right information is passed on to men.

Results from the current study showed that age, level of education, marital status and knowledge level of the male partner regarding maternal health issues were significant predictors of male partner involvement in maternal health.

Male partners in the older age group (31-51 years) were more likely to get involved in maternal health issues compared to their counterparts in the younger age group (20-30 years). This finding agrees with those of studies conducted in the Central region of Ghana¹⁷, in Kathmandu, Nepal²², in Kenya¹⁵ and in Ethiopia²³, which report that older men were more likely to get involved in maternal health issues than younger men. This could result from the fact that middle-aged and older male partners understand the dynamics associated with pregnancy and child birth and could be more experienced in maternal health issues than their younger counterparts, hence they may likely get involved in maternal health issues. However, the current finding disagrees with the result of a study conducted in Kumasi, Ghana¹⁸, which reported that men older than 44 years were less likely to get involved in maternal health than those less than 25 years. This disparity could be explained by the traditional and cultural beliefs in Kumasi, Ghana which encourages much respect for older people in the family settings. This cultural beliefs and practices may negatively influence open communication between the wife and her older husband, which in turn may negatively impact on the male partner's involvement in maternal health.

In the current study, married men were less likely to be involved in maternal health compared to those who are single. This result disagrees with that of a study conducted in Kumasi, Ghana¹⁸, which reports that married men were more likely to be involved in maternal health than single men. This could be explained by the fact that in the Volta region of Ghana, single ladies are freer with their male partners in terms of open communication than married women, hence their partners could be more involved in maternal health

than the husbands of married women. Efforts should be made to enhance free and open spousal communication in a marriage relationship regarding maternal health.

In the current study, men with either senior high school or tertiary level of education were more likely to be involved in issues of maternal health compared to men with a basic level of education. This finding is in accordance with those of similar studies conducted in Nigeria²⁴, Tanzania²⁵ and in Eastern Uganda²⁶. This could be because educated men may have more access to information, possess a better understanding of maternal health and may be able to make positive decisions regarding their involvement in maternal health issues than their counterparts with little or no education. However, the finding of the current study disagrees with that of a study conducted in Kumasi, the Ashanti region of Ghana¹⁸, where men with a higher level of education are less likely to be involved in maternal health than those with little or no education. This could be due to the differences in the cultural and traditional beliefs the Volta and the Ashanti regions of Ghana, which may overshadow the practical application of the knowledge acquired by the more educated men.

Limitations

This study was not without limitations. Bias might have been encountered in this study in trying to explain the questions and items to the respondents, especially in the local dialect. The study included men who were at least 18 years who had had a pregnant partner; so, men above 18 years without a pregnant partner but having enough knowledge on maternal health issues were missed. Also, the sample size may not be large enough to be generalizable to the entire population. However, the purpose of the study was well explained to the respondents, hence these limitations should not undermine the validity and reliability of this study.

Conclusion

Based on the findings of this study, the knowledge level of men on male partner involvement in

maternal health is low. However, knowledge level can be improved if men get information from the right sources, which are the healthcare providers at the health facilities. Age, educational level, marital status and knowledge level were the socio-demographic and structural predictors of male partner involvement in maternal health in Hohoe, Volta region, Ghana. Intervention strategies to improve male partner involvement in maternal health in Hohoe should target the younger, the less educated and the single men and should also aim at increasing knowledge level on maternal health issues. Educating male partners in Hohoe on HIV and involving them in ANC could be crucial in reducing the risk of mother-to-child transmission of HIV, increasing contraceptive use and more especially reducing maternal and infant mortality. This will go a long way in achieving goal 3 of the UN sustainable development goals: to ensure healthy lives and promote well-being for all at all ages; going by the fact that almost 6 million children around the world die every year before their fifth birthday and the acquired immune-deficiency syndrome (AIDS) still remains the leading cause of death for adolescents in SSA including Ghana²⁷.

Acknowledgements

None.

Competing Interests

The authors declare that they have no competing interests

Authors Contributions

AEQ conceptualised the study, collected the data and wrote the first draft of the manuscript; EET reviewed and revised the manuscript, performed the data analysis and wrote the final manuscript. Both authors approved the final manuscript.

References

1. United Nations. Report of the Fourth World Conference on Women. Beijing, 4–15 September 1995. United Nations, New York; 1996. Report No.: A/CONF.177/20/Rev.1. Available: <http://www.un.org/womenwatch/daw/beijing/pdf/Beijing%20full%20report%20E.pdf>
2. UNFPA. ICPD and Human Rights: 20 years of advancing reproductive rights through UN treaty bodies and legal reform. 2013. Available: http://www.unfpa.org/webdav/site/global/shared/documents/publications/2013/icpd_and_human_rights_20_years.pdf
3. World Health Organization. Maternal Health. 2016. Retrieved from http://www.who.int/topics/maternal_health/en/
4. Davis J, Vyankandondera J, Lutchers S, Simon D and Holmes W. Male involvement in reproductive, maternal and child health: a qualitative study of policymaker and practitioner perspectives in the Pacific. *BMC Reproductive Health* 2016; 13: 81
5. Bawah AA. Spousal communication and family planning behavior in Navrongo: a longitudinal assessment. *Stud Fam Plan* 2002; 33: 185–94.
6. Theuring S, Nchimbi P, Jordan-Harder B and Harms G. Partner involvement in perinatal care and PMTCT services in Mbeya region, Tanzania: the providers' perspective. *AIDS Care* 2010; 22: 1562–8.
7. Natoli L, Holmes W, Chanlivong N, Chan G and Toole MJ. Promoting safer sexual practices among expectant fathers in the Lao People's Democratic Republic. *Glob Public Health* 2012; 7: 299–311.
8. Kiwanuka S. Male Involvement in Maternal health: Helpful or Harmful, Uganda. Maternal Health Task Force, Harvard Chan School. Center for excellence in maternal and child health 2015.
9. United Nations. International conference on population and development, Cairo, Egypt: United Nations. 1994.
10. UNDP. Improve Maternal Health: Goal 5, 2016. Retrieved from <http://www.gh.undp.org/content/ghana/en/home/pos t2015/mdgoverview/overview/mdg5.html> Nungari
11. WHO, UNICEF, UNFPA, World Bank and UN Population Division, Trends in maternal mortality: 1990 to 2013 estimates. United Nations, New York, 2014.
12. Doe DR. Male partner involvement in maternal care in Ablekuma south District, Accra Ghana. Unpublished Masters Dissertation, University of Ghana, 2013.
13. Onyango AM, Owoko S and Oguttu M. Factors that influence Male Involvement in Sexual and Reproductive Health in Western Kenya: A Qualitative Study, Kenya. *African Journal of Reproductive Health* 2010; 14(4): 32–24.
14. Byamugisha R, Strøm AN, Ndezi G, Karamagi CAS, Tylleskär T and Tumwine JK. "Male partner antenatal attendance and HIV testing in eastern Uganda: A randomized facility-based intervention trial," *Journal of the International AIDS Society* 2011; 14(1): 43.

15. Nanjala M and Wamalwa D. Determinants of male partner involvement in promoting deliveries by skilled attendants in Busia, Kenya. *Global journal of health science* 2012; 4(2): 60.
16. Mullany BC. "Barriers to and attitudes towards promoting husbands' involvement in maternal health in Katmandu, Nepal," *Social Science & Medicine* 2006; 62(11): 2798–2809.
17. Craymah JP, Oppong RK and Tuoyire DA. Male involvement in maternal health care at Anomabo, central Region, Ghana. *International Journal of Reproductive Medicine* 2017; 1-8.
18. Umar S. Factors influencing male participation in antenatal care in the Kumasi metropolis, Ghana. Unpublished Masters Thesis Kwame Nkrumah University of Sciences and Technology Kumasi, Ghana 2015.
19. Ghana Statistical Service. Ghana demographic and health survey, Accra Ghana 2014.
20. Kish, L. *Survey Sampling*. New York: John Wiley and Sons, Inc 1965; 78-94.
21. Ampt F, Mon MM, Than KK, Khin MM, Agius PA, Morgan C, Davis J and Luchters S. Correlates of male involvement in maternal and new-born health: a cross-sectional study of men in peri-urban region of Myanmar. *BMC Pregnancy Childbirth* 2015; 15: 122.
22. Bhatta DN. Involvement of males in antenatal care, birth preparedness, exclusive breast feeding and immunizations for children in Kathmandu, Nepal. *BMC Pregnancy and Childbirth* 2013; 13(1): 14.
23. Abuhay Y, Abebe L and Fentahun N. Male involvement in prevention of mother to child transmission of HIV and associated factors among males in Addis Ababa, Ethiopia. *American Journal of Health Research* 2014; 2(6): 338-343.
24. Olugbenga-Bello AI, Asekun-Olarinmoye EO, Adewole AO, Adeomi AA and Olarewaju SO. Perception, attitude and involvement of men in maternal health care in a Nigerian community. *Journal of Public Health and Epidemiology* 2013; 5(6): 262-270.
25. Vermeulen E, Miltenburg AS, Barras J, Maselle N, van Elteren M and van Roosmalen J. Opportunities for male involvement during pregnancy in Magu District, rural Tanzania. *BMC Pregnancy and Childbirth* 2016; 16(1): 66.
26. Byamugisha R, Tumwine JK, Semiyaga N and Tylleskär T. Determinants of male involvement in the prevention of mother-to-child transmission of HIV program in Eastern Uganda: a cross-sectional survey. *Reproductive Health* 2010; 7(1): 12.
27. UNDP. Sustainable development goals. UNDP, 2015.