Male Involvement in Antenatal Care: Does Socio-demographic and Background Characteristics Matter in Zimbabwe?

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Abstract

Globally, male presence in Antenatal care (ANC) and delivery remains an obstacle challenge to safe motherhood. Male involvement in maternal and child health care can help lower maternal morbidity and mortality. This study sought to determine the prevalence of male involvement in ANC and assess factors influencing male partners' involvement in ANC visits in Zimbabwe. The study used secondary data extracted from the 2015 Zimbabwe Demographic and Health Survey. A sample of 2072 men were selected from the men's file who reported to have had a child in two years preceding the Survey. Univariate and bivariate (chi-square test) analysis of independence was employed to show the relationship between male involvement and background variables. The findings showed that the prevalence of male involvement in ANC was high (92%). Male involvement was high among those with secondary education (58%). (P<002). Males who resided in rural areas (57%) were involved in ANC more than their urban counterparts (P<005). The findings showed that husbands with more than three children were more involved in ANC than those with less than three children. Lastly, men from the higher wealth quintile (45%) participated more in ANC compared to those from the middle quintile. Partners who belonged to the Apostolic Sect (29%) (P<000) participated more than other religions. In as much as the prevalence of male involvement in antenatal care was significantly higher, it is recommended that men's involvement in ANC should be a continuous process from the first trimester to childbirth as well as throughout post postpartum period.

Keywords: Male involvement, antenatal Care, Zimbabwe.

Introduction

Antenatal care (ANC) is one of the pillars of safe maternal health and an important factor for safe child delivery globally. It significantly reduces maternal and perinatal mortality by detecting early labour and complications during childbirth (WHO, 2018). ANC refers to the care that pregnant women receive in primary healthcare facilities with the overall goal of ensuring the good health of both the mother and fetus (Berhan & Berhan, 2014). WHO recommends a minimum of four visits as part of the global agenda (WHO, 2018). Most developing countries in Asia and Sub-Sahara Africa including Zimbabwe use the four-visit model of Focused Antenatal Care (FANC) for women with fewer complications and living in low-income regions as recommended by the WHO (Ali et al., 2020). The four visits ensure the realization of SDGs 3.1 and 3.2, aiming at decreasing the maternal mortality ratio to less than 70 per 100 000 live births globally, neonatal mortality to less than 12 per 1000 live births, and under 5 mortality to less than 25 per 1000 live births respectively (Ali et al., 2020).

Male involvement in ANC remained a critical issue over the years. Male involvement in maternal and child health entails fathers and community members being actively involved in caring for pregnant women and supporting families to access better health services (Gopal et al., 2020). Male participation in ANC services is crucial for pregnant women to fully utilize

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and benefit from the services offered in primary healthcare facilities where they can be attended by skilled birth attendants (Kaye et al., 2014). The practice of men accompanying their spouses to ANC visits, especially in low and middle–income countries is positively associated with improved maternal and child health outcomes (Gopal et al., 2020). Previous studies show that male involvement in ANC reduces the likelihood of women delaying in decision to use ANC health services (Gibore et al., 2019), and promotes the utilization of maternal health services in Africa, (Wai et al., 2015). However, there is dearth of literature concerning global, regional as well as Zimbabwe's prevalence on male involvement in ANC.

Reproductive health programs focused on women's health and viewed men as role-irrelevant non-actors in reproductive health issues including ANC, before the 1994 International Conference in Cairo (ICPD) (Zureick-Brown et al., 2013). Nevertheless, previous studies point to the effect of the role of men's attitudes, knowledge, and behavior having a significant impact on women's reproductive health decision-making (Bloom et al., 2000). Despite calls for male; participation in maternal care, several studies have shown that the prevalence is still below 60% in most African countries for instance, 54 % in Tanzania (Nansubuga & Ayiga, 2015) 29,8% in Ethiopia (Ayalew & Nigatu, 2018), 26% Kenya, (Aluisio et al., 2016). The lack of male involvement delays maternal health care (Sumankuuro et al., 2019). Data on the global and regional prevalence of ANC utilization among males is missing. The differences observed in these findings might be due to study settings, sample size, and geographic location among others. In Zimbabwe, most studies have focused on women's utilization of ANC services (Musizvingoza & Wekwete, 2011; Tessema et al., 2021) and few studies have been done to explore male involvement in ANC. The ANC utilization prevalence rate in Zimbabwe is 76%, (ZIMSTAT & ICF, 2016), which is lower than the 79% reported in the Southern region of Africa (Tessema et al., 2021), and the 85% global utilization rate (Dansereau et al., 2016). Socio-demographic determinants are correlated with men's involvement in ANC. Previous studies found men's level of education to be highly associated with ANC involvement (Ongeso & Okoth, 2018). In addition, husbands who live in urban areas are more likely to be involved in ANC visits than their rural counterparts (Laksono et al., 2022).

The Maternal Mortality Rate (MMR) per 100 0000 live births in Zimbabwe has significantly dropped from 651deaths (ZIMSTAT & ICF, 2016) , to 462 deaths and then to 363 deaths (Murewanhema et al., 2020). Although it is significant, Zimbabwe has previously failed to achieve the Millennium Development Goal (MDG) that aspires to improve maternal health and reduce maternal mortality by 75% between 2000 and 2015 ((United Nations, 2015). It is questionable whether Zimbabwe would achieve the global target set to reduce the global maternal mortality ratio to less than 70 per 100 000 live births by 2030. Men's involvement in ANC is likely to significantly encourage their partners to utilize antenatal care services. Therefore, the study aimed to examining the level of male's participation in ANC services and the associated factors in Zimbabwe.

Methods

Study Design

The study used data drawn from the 2015 Zimbabwe Demographic Health Survey, after seeking permission from the ICF website. The 2012 Zimbabwe Population Census data was used as the sampling frame for the 2015 ZDHS. The sample drawn was a national representative and covered household-level socio-demographic characteristics, health, and sexual activity, maternal and child health, gender-based violence, mortality, fertility, family planning as well as the nutritional status of the respondents. According to the administrative

structure of Zimbabwe, each province is divided into districts, and districts into wards. Each ward was subdivided into census enumeration areas (EAs) during the 2012 Zimbabwe Population Census. The 2015 ZDHS sample was selected with a stratified, two-stage cluster design, with EAs as the sampling units for the first stage. The second stage of sampling included the listing exercises for all households in the survey sample. A complete listing of households was conducted for each of the 400 selected EAs in March 2015. A representative sample of 11,196 households were selected and men aged 15-54 years were selected for the interviews. In the present study, a total of 2072 men, who reported to have had a child in the two years preceding the survey were selected from the 8 396 men aged 15-54 years sampled for the 2015 ZDHS.

Outcome Variable

The dependent variable was created based on the responder's ANC involvement status. The dependent variable in this study was male involvement in ANC which was assessed using a closed-ended question. The related survey question was "Were you ever present during any ANC check-ups? For analysis purposes a binary outcome was created with present equal to one and not present equal to two.

Covariates

The study considered socio-economic variables, demographic and environmental determinants of male involvement in antenatal care. Socioeconomic variables included level of education, religion, and wealth status. Demographic variables included age, parity, and marital status. Lastly, environmental variables encompass place of residence. Age was measured as a nominal-level variable as follows: 15-24, 25-34, 35-44, and 45-54 years old. Marital status is a categorical variable that was measured as those in unions and not in unions. Education was measured as no education, primary, secondary, and higher. Wealth status was also measured as poor, middle, and rich. Religion is regarded as a nominal variable, which was divided into nine groups which are: Traditionalist, Roman Catholic, Protestant, Pentecostal, Apostolic Sect, Other Christians, Muslims, None, and others. For the easy study, these groups were transformed into four which are Traditional, Main Line Churches, Pentecostal, and Apostolic Sector. The place of residence was categorized into rural and urban. Lastly, in this study parity was categorized as 1- 2 children and 3+ children.

Statistical Analysis

Data were statistically analyzed using SPSS version 21. Data were weighted to account for the effect of sampling imbalances, complex survey design, and non-response. Frequency distributions were computed to describe and summarize the characteristics of men considered in the sample. The relationship between the dependent variable as to whether the male respondent was present or not present and the independent variables was established at the bivariate level and tested using the chi-square test, set at $p<0.05$. The univariate analysis involved examining the distribution of mainly the study sample characteristics such as age, religion, place of residence, education, wealth status, marital status, and parity as well as the prevalence of male involvement in ANC. The results were presented in the form of a frequency distribution table. The bivariate relationship between the background characteristics and male involvement in ANC was examined using the Chi-square test of independence. It was interpreted as a measure of the relative (strength) association between two variables, in this case, the background variable and the dependent variable.

Results

Table 1 presents the frequency distribution of background characteristics of males aged 15-54 years in Zimbabwe. The majority of males were involved in ANC during the time their partners were pregnant (96%). The majority of the respondents were found to be between 25-34 years (48%). About 33% of the respondents reported that they were aged 34- 44, 11% were aged 15-24, and 9% were aged 44-54 years.

Table 1: Distribution of Respondents by Sociodemographic Characteristics

Characteristics	Frequency	Percentage
Age		
15-24	222	10.7
25-34	988	47.7
34-44	681	32.9
45-54	181	8.7
Education Level		
No education	19	0.9
Primary	489	23.6
Secondary	1312	63.3
Higher	252	12.2
Marital Status		
Not in union	111	5.4
In union	1961	94.6
Type of Place of Residence		
Urban	774	37.4
Rural	1298	62.6
Wealth Quintile		
Poor	755	36.4
Middle	338	16.3
Rich	979	47.2
Religion		
Traditional	522	25.1
Main Line Churches	410	19.8
Pentecostal	440	21.2
Apostolic Sect	720	33.9
Parity		
1-2 Children	955	46.1
3+ children	1117	53.9
Male Involvement in ANC		
Yes	1901	92.0
No	171	8.0
Total	**2072**	**100**

Source: ZIMSTAT & ICF, 2016

The majority of the respondents, 63%, had attained secondary education. About 12% of the respondents reported that they had higher education (tertiary). Only 24% of the respondents reported having primary education. A significant proportion of the respondents 95%, reported that they were in union and 5% of the male were not in union. The majority of the respondents (63%) were from rural areas. Concerning wealth status, 47% of the respondents reported that they belonged to the rich wealth quantile. A sizeable proportion of the respondents 36% reported that they were poor and about 16% of the population reported that they belonged to the middle wealth quantile. More than a third (34%) of the respondents belonged to the Apostolic Sect and an equal number (21 %) belonged to mainline churches and Pentecostals. A larger proportion of the population (54%), reported that they had 3+ children and 46% reported that they had 1-2 children.

Bivariate Analysis: Background Characteristics by Male Involvement in ANC

Table 2 shows the bivariate relationship between the background variables and the male involvement in ANC. The analysis revealed that education level, type of residence, wealth quintile, religion, and parity were associated with male involvement in ANC. Again the study revealed that there was a significant association between education and male involvement in ANC. A higher percentage of respondents who had attained secondary education were more involved in ANC with 58%, compared to those who had accomplished only primary and higher education (21% and 12%, respectively), ($p<0.002$). Concerning place of residence, a higher proportion of respondents were obtained from rural areas (57%) compared to their urban counterparts (35%). The analysis showed that the place of residence is significant ($p<0.005$). A statistically significant association was observed between the wealth quintile and male involvement in ANC. Those respondents who belonged to the rich quintile reported having the highest involvement in ANC (45%) than those who belonged to the poor and middle quintile groups 33% and 15%, respectively), ($p<0.000$). The prevalence of male involvement in ANC varied by religious affiliation, for instance, men who belong to the Apostolic sect had the highest involvement (29%) compared to other religions ($p<0.000$). Lastly, the results showed that men with three or more children (49%) were involved in ANC more than men with 1-2 children (43%). ($p<0.002$).

Discussion

The study aimed at addressing two objectives: the prevalence of male involvement in ANC and the socio-demographic factors associated with male involvement in ANC. The study found that the prevalence of male involvement in antenatal care in Zimbabwe was 92%. This implies that men had a high level of involvement in the ANC in Zimbabwe. These findings show a higher ANC prevalence of male involvement compared to 42.2% in Indonesia, (Guspianto et al., 2022), 39.2% in the Pwani Region of Tanzania (August et al., 2016), and 53.9% in Central Tanzania (Gibore et al., 2019). The first reason for a high prevalence rate of male involvement could be attributed to the question used in the ZDHS. The question was 'Were you ever present during any ANC check-ups?', which did not specify the stage at which men were involved in ANC. A minimum of four ANC visits were initially required if the pregnancy did not pose any risk to the woman under the Focused Antenatal Care (FANC) Framework especially in low-income countries with healthcare resources which are strained (McHenga et al., 2019). However, WHO 2016 revised the minimum number of visits to eight to adequately prepare for smooth delivery and avoid complications (Benova et al., 2018). Secondly, the increase of male involvement in ANC could be the deliberate attempt by the Zimbabwean government to involve men in reproductive health issues through PMTCT programs. These interventions place a high premium on HIV testing for pregnant

mothers and their partners to prevent high transmission. Taken together, such initiatives retain male agency and involvement in all processes of ANC.

Table 2: Bivariate Relationship Between Background Characteristics and Male Involvement in ANC

Variable	Present % Yes	Not Present % No	P-value	Total
Age				
15-24	9.7	1.1	0.840	222
25-34	44.1	3.6		988
35-44	30.4	2.5		681
45-54	7.6	1.1		181
Education Level				
No education	0.8	0.1	0.002	19
Primary	21.2	2.4		489
Secondary	57.9	5.5		1312
Higher	11.9	0.3		252
Marital Status				
In union	87.1	7.5	0.380	1961
Not union	4.6	0.7		111
Type of Residence				
Urban	35.1	2.3	0.005	774
Rural	56.7	6.0		1298
Wealth				
Poor	32.6	3.9	0.000	755
Middle	14.6	1.7		338
Rich	44.5	2.7		979
Religion				
Traditional	23.6	1.5	0.000	520
Mainline Churches	19.3	0.5		410
Pentecostal	19.9	1.4		440
Apostolic Sect	29.0	4.9		702
Parity				
1-2 Children	43.2	2.8	0.002	955
3+ children	48.5	5.4		1117

Source: ZIMSTAT & ICF, 2016)

In addition, the study also aimed at examining the socio-demographic and socio-economic factors influencing male involvement in ANC, which were education level, type of residence, wealth quantile, religion, and parity. The study revealed that these factors were associated with male involvement in ANC. The current study showed that educational level was associated with male involvement in ANC. Males with secondary education were more likely to be involved in ANC as compared to men who had primary and higher education. The current study showed high contrary results to Lao PDR, and Pakistan (Laksono et al., 2022; Sumankuuro et al., 2019). The findings showed that men with higher education levels were involved in antenatal care compared to those with primary and secondary. Also, studies done in Ghana and Debre Berham town of Ethiopia found that men with primary and secondary

education were most likely not involved in ANC visits with their partners (Quarcoo & Tarkang, 2019; Shine et al., 2020).

Apart from the above results, the current study revealed that partners who resided in rural areas were more likely to participate in ANC than their urban counterparts. The finding concurs with Kibusi who argued that men who reside in rural areas were more involved in ANC compared to urban men (Gibore et al., 2019). The reasons may be due to the long distances traveled to get to the clinics hence forcing husbands to accompany their expectant wives for antenatal checkups. Another plausible reason could be most urban men had occasional jobs and therefore are less likely to get involved in ANC when their partners are pregnant.

Wealth was another variable and an important economic factor of male involvement in antenatal care according to this study. Males' wealth status determined their involvement in ANC. Wealthier partners were found to be more involved in ANC than the poor and middle-level quintiles. This might be because rich partners prioritize good health outcomes and also have the necessary resources.

This study also found that religion as a variable played a significant role in male involvement in antenatal care, men belonging to the Apostolic Sect were more likely to participate in antenatal care services compared to those who belonged to mainline churches and Pentecostal churches. Studies conducted in Nigeria and Cameroon ascertained that religion influenced male involvement (Ampt et al., 2015; Bamidele et al., 2022). In the Zimbabwean context, high involvement in ANC among males who belong to Apostolic sects could be explained by the government initiative of engaging the Apostolic sect leaders to embrace modern medicines in promoting and educating the members about the importance of ANC. Strict adherence to church beliefs and practices undermines the modern uptake of medication by some Apostolic sect congregants.

The study also indicated that men were more likely to be involved in ANC when the partner had three or more children. However, these results were not similar to other studies. For instance, (Laksono et al., 2022; Shahjahan et al., 2013), revealed that a partner was motivated to participate when his wife had two or fewer children, and husbands participated less in antenatal care when their wives had more births. Another study revealed that parity was not associated with male involvement in ANC (Kumbeni et al., 2019).

Limitations

The dependent variable in this study was male involvement in ANC, which was assessed using a close-ended question. The related survey question was 'Were you ever present during any ANC checkups? The question does not specify when exactly the male accompanied their partner. Timing of antenatal care attendance is crucial for the male to accompany their pregnant partners to the ANC clinic/hospital. This would improve the maternal outcome since the partner is aware of any complications that may arise during the pregnancy. In addition, the Prevention of Parent to Child Transmission (PPTCT) of HIV is easily managed during the first trimester.

Conclusion

The prevalence of male involvement in antenatal care involvement was 92% in Zimbabwe. Education level, type of place and residence, wealth quintile, religion, and parity were significant socio-economic and socio-demographic factors influencing men's participation in ANC services in this study. Involvement is high among men with secondary education, rich

men, those belonging to Apostolic Sect, men with high parity, and also, men residing in rural areas. The study could be showing a major shift in the culture of paternalism which discourages women from making decisions regarding their reproductive rights.

References

Ali, S. A., Ali, S. A., Feroz, A., Saleem, S., Fatmai, Z. & Kadir, M.M. (2020). *Factors affecting the utilization of antenatal care among married women of reproductive age in the rural Thatta, Pakistan : Findings from a community-based case-control study*. 4: 1–12.

Aluisio, A.R., Bosire, R., Bourke, B., Gatuguta, A., Kiarie, J.N., Nduati, R., John-Stewart, G. & Farquhar, C. (2016). Male partner participation in antenatal clinic services is associated with improved HIV-free survival among infants in Nairobi, Kenya: A prospective cohort study. *Journal of Acquired Immune Deficiency Syndromes*, 73(2): 169–176. https://doi.org/10.1097/QAI.0000000000001038.

Ampt, F., Mon, M.M., Than, K.K., Khin, M.M., Agius, P.A., Morgan, C., Davis, J. & Luchters, S. (2015). Correlates of male involvement in maternal and newborn health: A cross-sectional study of men in a peri-urban region of Myanmar. *BMC Pregnancy and Childbirth*, 15(1), 1–11. https://doi.org/10.1186/s12884-015-0561-9.

August, F., Pembe, A.B., Mpembeni, R., Axemo, P. & Darj, E. (2016). Community health workers can improve male involvement in maternal health: Evidence from rural Tanzania. *Global Health Action*, *9*(1). https://doi.org/10.3402/gha.v9.30064.

Ayalew, T.W. & Nigatu, A.M. (2018). Focused antenatal care utilization and associated factors in Debre Tabor Town, northwest Ethiopia. *BMC Research Notes*, 1–6. https://doi.org/10.1186/s13104-018-3928-y.

Bamidele, J., Odeyemi, K. & Sodeinde, K. (2022). Male involvement in antenatal care in Agege local government area, Lagos state, Nigeria. *Research Journal of Health Sciences*, 10(2): 121–130. https://doi.org/10.4314/rejhs.v10i2.6.

Benova, L., Tunçalp, Ö., Moran, A.C., & Campbell, O.M.R. (2018). Not just a number: Examining coverage and content of antenatal care in low-income and middle-income countries. *BMJ Global Health*, 3(2), 1–11. https://doi.org/10.1136/bmjgh-2018-000779.

Berhan, Y. & Berhan, A. (2014). Antenatal care as a means of increasing birth in the health facility and reducing maternal mortality: A systematic review. *Ethiopian Journal of Health Sciences*, 24(6): 93–104. https://doi.org/10.4314/ejhs.v24i0.9S.

Bloom, S.S., Tsui, A.O., Plotkin, M. & Bassett, S. (2000). What husbands in Northern India know about reproductive health: Correlates of knowledge about pregnancy and maternal and sexual health. *Journal of Biosocial Science*, 32(2): 237–251. https://doi.org/10.1017/S0021932000002376.

Dansereau, E., Mcnellan, C.R., Gagnier, M.C., Desai, S.S., Haakenstad, A., Johanns, C.K., Palmisano, E.B., Ríos-zertuche, D., Schaefer, A., Zúñiga-brenes, P., Hernandez, B., Iriarte, E. & Mokdad, A.H. (2016). Coverage and timing of antenatal care among poor women in 6 Mesoamerican countries. *BMC Pregnancy and Childbirth*, 1–11. https://doi.org/10.1186/s12884-016-1018-5.

Gibore, N.S., Bali, T.A.L. & Kibusi, S.M. (2019). Factors influencing men's involvement in antenatal care services: A cross-sectional study in a low resource setting, Central

Tanzania. *Reproductive Health,* 52. https://doi.org/10.1186/s12978-019-0721-x.

Gopal, P., Fisher, D., Seruwagi, G. & Taddese, H. B. (2020). Male involvement in reproductive, maternal, newborn, and child health: Evaluating gaps between policy and practice in Uganda. *Reproductive Health*, *17*(1): 1–9. https://doi.org/10.1186/s12978-020-00961-4

Guspianto, I.N. & Asyary, A. (2022). Associated Factors of Male Participation in Antenatal Care in Muaro Jambi District, Indonesia. *Journal of Pregnancy,* 10(1155). https://doi.org/10.1155/2022/6842278.

Kaye, D.K., Kakaire, O., Nakimuli, A., Osinde, M.O., Mbalinda, S.N. & Kakande, N. (2014). Male involvement during pregnancy and childbirth: Men's perceptions, practices and experiences during the care for women who developed childbirth complications in Mulago Hospital, Uganda. *BMC Pregnancy and Childbirth*, 14(1): 1–8. https://doi.org/10.1186/1471-2393-14-54.

Kumbeni, M.T., Assibi Ziba, F., Ndebugri, A.J. & Apana, N.S. (2019). Factors influencing male involvement in antenatal care in the Kassena Nankana Municipal in the Upper East Region, Ghana. *European Scientific Journal*, 15(21). https://doi.org/10.19044/esj.2019.v15n21p1.

Laksono, A.D., Wulandari, R.D., Widya, S.N.E. & Suharmiati, S. (2022). Husband's involvement in wife's antenatal care visits in Indonesia: What factors are related? *Journal of Public Health Research*, 11(2). https://doi.org/10.1177/22799036221104156.

McHenga, M., Burger, R. & Von Fintel, D. (2019). Examining the impact of WHO's focused antenatal care policy on early access, underutilisation and quality of antenatal care services in Malawi: A retrospective study. *BMC Health Services Research*, 19(1): 1–14. https://doi.org/10.1186/s12913-019-4130-1.

Murewanhema, G., Nyakanda, M.I. & Madziyire, M.G. (2020). Perspectives Restoring and maintaining robust maternity services in the COVID-19 era: A public health dilemma. *Pan African Medical Journal*, 37(Supp 1): 1–6.

Musizvingoza, R. & Wekwete, N.N. (2011). Exposure to Mass Media and Maternal Healthcare Utilization in Zimbabwe. *Ethiopian Journal of Health Development*, 36(4). https://www.ajol.info/index.php/ejhd/article/view/245173.

Nansubuga, E. & Ayiga, N. (2015). Male involvement in utilization of emergency obstetric care and averting of deaths for maternal near misses in Rakai district in Central Uganda. *African Population Studies*, 29(2): 1810–1819. https://doi.org/10.11564/29-2-741.

Ongeso, A., & Okoth, B. (2018). Factors Influencing Male Involvement in Antenatal Care Among Clients Attending Antenatal Clinic: a Case of Kenyatta National Hospital, Kenya. *International Journal of Advanced Research*, 6(5): 72–82. https://doi.org/10.21474/ijar01/7009.

Quarcoo, A.E. & Tarkang, E.E. (2019). Socio-demographic and structural predictors of involvement of the male partner in maternal health care in Hohoe, Volta region, Ghana. *African Journal of Reproductive Health*, 23(2): 56–64. https://doi.org/10.29063/ajrh2019/v23i2.6.

Shahjahan, M., Mumu, S.J., Afroz, A., Chowdhury, H.A., Kabir, R. & Ahmed, K. (2013). Determinants of male participation in reproductive healthcare services: A cross-sectional

study. *Reproductive Health*, 10(1): 1. https://doi.org/10.1186/1742-4755-10-27

Shine, S., Derseh, B., Alemayehu, B., Hailu, G., Endris, H., Desta, S. & Birhane, Y. (2020). Magnitude and associated factors of husband involvement on antenatal care follow up in Debre Berhan town, Ethiopia: A cross sectional study. *BMC Pregnancy and Childbirth*, 20(1). https://doi.org/10.1186/s12884-020-03264-5.

Sumankuuro, J., Mahama, M.Y., Crockett, J., Wang, S. & Young, J. (2019). Narratives on why pregnant women delay seeking maternal health care during delivery and obstetric complications in rural Ghana. *BMC Pregnancy and Childbirth*, 19(1): 1–13. https://doi.org/10.1186/s12884-019-2414-4.

Tessema, Z.T., Teshale, A.B. & Tesema, G.A. (2021). Determinants of completing recommended antenatal care utilization in sub-Saharan Africa from 2006 to 2018: Evidence from 36 countries using Demographic and Health Surveys. *BMC Pregnancy and Childbirth*, 21(192): 1–12.

United Nations. (2015). Zimbabwe Millennium Development Goals. *Millenium Development Goals and Beyond 2015*. http://www.un.org/millenniumgoals/.

Wai, K.M., Shibanuma, A., Oo, N.N., Fillman, T.J. & Saw, Y.M. (2015). Are husbands involving in their spouses' utilization of maternal care services?: A cross-sectional study in Yangon, Myanmar. *PLoS ONE*, 10(1371): 1–13. https://doi.org/10.1371/journal.pone.0144135.

WHO. (2018). WHO Antenatal Care Guidelines: Malaria in Pregnancy Frequently Asked Questions (FAQ. *WHO Press*, *March*, 1–6.

Zimbabwe National Statistics Agency (ZIMSTAT) & ICF International. (2016). Zimbabwe Demographic and Health Survey 2015. Calverton, Maryland: ZIMSTAT and ICF International Inc.

Zureick-Brown, S., Newby, H., Chou, D., Mizoguchi, N., Say, L., Suzuki, E., & Wilmoth, J. (2013). Understanding global trends in maternal mortality. *International Perspectives on Sexual and Reproductive Health*, 39(1): 32–41. https://doi.org/10.1363/3903213.