Original Article

Exposure to Mass Media and Maternal Healthcare Utilization in Zimbabwe

Ronald Musizvingoza[1*] and Naomi. N. Wekwete[2]

Abstract

Background: Maternal mortality remains a public health challenge in most developing countries. Adequate utilisation of maternal health care services could be an effective means of reducing maternal mortality and morbidity. Mass media has the potential to promote maternal healthcare utilisation because it has been used successfully in several health programs.

Objective: This study is aimed at exploring associations between exposure to different types of mass media and maternal healthcare utilisation among women in Zimbabwe.

Methods: The study used a -cross-sectional study design to conduct a secondary analysis of data collected in the 2015 Zimbabwe Demographic and Health Survey (ZDHS). Women who had given birth in the last 5 years preceding the survey were included in this study. Women with missing information about their maternal healthcare and media exposure were excluded, leaving 4988 women in the final analytical sample. Multivariable logistic regression was used to determine the association between exposure to different types of mass media and maternal healthcare utilisation.

Result: Overall, our study showed that exposure to any type of mass media was positively associated with making at least four ANC visits and PNC in two days. Women who listened to the radio at least once a week had higher odds of 4+ ANC visits (AOR 1.26, 95% CI: (1.07-1.49)), and receiving PNC in 48 hours (AOR 1.26, 95% CI: (1.01-1.57) than women who did not.

Conclusion: Exposure to mass media is associated with maternal healthcare use in Zimbabwe. Mass media can potentially reach women in low-resource settings and encourage them to utilise maternal health services. The study recommends the development of mass media interventions and programs to increase awareness of maternal healthcare services. [*Ethiop. J. Health Dev*. 2022; 36(4):000-000]

Keywords: Mass media, maternal health, women, utilisation, Zimbabwe**.**

Introduction

Worldwide, maternal health remains a challenge, especially among low- and middle-income countries (LMICs). Despite, several initiatives and efforts aimed at reducing maternal mortality, the world is currently off-track to meeting Sustainable Development Goal (SDG) 3.1 for reducing maternal deaths (1). Estimates show that nearly 800 women die each day from preventable maternal causes and 99% of these deaths occur in developing countries (2). Maternal deaths have been linked to low utilisation of maternal healthcare services and other social, economic, and cultural factors as well as issues of healthcare access and availability (3–6). Inequalities in healthcare access including wealth, geographical disparities, insufficient health education, and lack of information result in women from limited-resource settings failing to fully benefit from maternal health services(7–10). Addressing health inequalities is a key recommendation of the World Health Organization (WHO) to ensure all women have access to maternal healthcare services (1). Mass media can potentially bridge the inequality gap by creating awareness about the benefits of using maternal healthcare services and support interventions aimed at increasing their utilisation to improve health outcomes, especially among disadvantaged groups (11).

Mass media plays a critical role in spreading information and raising awareness about maternal health services, particularly among women with limited education (12). Studies have shown that mass media's widespread penetration promotes broad reach to key audiences across boundaries while exposure to specific messages in the media is known to shape public knowledge, attitudes, beliefs, and behaviours (13). Mass media has proven effective in promoting healthcare services utilisation (14,15) and behavioural change and awareness (16). Media campaigns have been extensively used over the past few decades to induce behavioural changes in populations, especially in the context of malaria prevention, HIV Testing, and family planning (17–19). With respect to maternal health, mass media campaigns may be effective means of generating knowledge and disseminating information (20,21). Previous studies have examined the effect of mass media on maternal healthcare (11,20,22–25). For instance, one study in South Asia revealed that maternal health service utilisation was higher among women exposed to mass media across countries(20). In Nepal, mass media was associated with increased antenatal care (ANC) visits (22) while, media exposure was positively associated with birth preparedness in rural Uganda (23).

Maternal healthcare services utilisation has increased in Zimbabwe over the years, but the reduction in maternal mortality has not been commensurate. For, instance, at 614 deaths per 100,000 live births, the maternal mortality ratio (MMR) is still unacceptably high (26). However, there has been an increase in deliveries in health facilities from 65% in 2011 to 86%

[1] Institute of Social Sciences Bursa Uludağ University 6059 Görükle / Nilüfer Bursa Turkiye
[2] Department of Demography Settlement and Development University of Zimbabwe P.O.Box MP167 Mt Pleasant Harare, Zimbabwe
*Corresponding Author Email: ronaldmusi@gmail.com

in 2019 (26,27). Additionally, while 89% of pregnant women in Zimbabwe attended ANC services at least 4 times, less than fifty per cent (39%) had their first ANC visit in the first trimester (27). Regular and appropriate utilisation of maternal health care services reduces maternal morbidity and mortality and improves child health and wellbeing(28). For example, early ANC services are crucial to detect early warning signs and informing pregnant women about appropriate healthcare and possible complications while post-natal care (PNC) can promote and support early and exclusive breastfeeding (29). When provided with the right information, women may be able to make the right decisions and seek maternal health services early. Consequently, the impact of mass media cannot be ignored in this regard. Since the literature has demonstrated that exposure to mass media positively influences the utilisation of maternal healthcare services, it is critical to examine this relationship among women in Zimbabwe. Understanding the association between maternal healthcare utilisation and exposure to mass media is crucial since access varies across regions, wealth quintiles, and age groups. Additionally, different types of mass media appeal to different segments of the population based on several factors such as age and level of education. Therefore, this study explores the association between mass media exposure and maternal health service utilisation while considering the potential socio-demographic and economic factors that might mediate and moderate the relationship.

Methods

Study design

This study was a nationally representative cross-sectional design. We conducted a secondary data analysis of the 2015 Zimbabwe Demographic and Health Survey (ZDHS) datasets. The ZDHS collected data on women's sociodemographic characteristics, reproductive health and nutrition indicators(27). The 2015 ZDHS is the sixth such survey to be implemented by the Zimbabwe National Statistics Agency (ZIMSTAT), in conjunction with the Ministry of Health and Child Care (MoHCC) and the United Nations Population Fund (UNFPA). The survey was conducted from July through December 2015. The 2015 ZDHS sample was selected with a stratified, two-stage cluster design, with Enumeration Areas (EAs) as the sampling units for the first stage. The sample included 400 EAs -166 in urban areas and 234 in rural areas. A representative sample of 11,196 households was selected for the 2015 ZDHS. Women aged 15-49 and men aged 15-54 who were, either permanent residents of the selected households or visitors who stayed in the household the night before the survey were eligible for interview. In this study, we included women aged 15–49 years who had a live birth within five years preceding the survey, had complete information on maternal healthcare services and had given informed consent. The study population of 4,988 women, who had a live birth in the past five years preceding the survey, was selected from the 9,995 women aged 15-49 interviewed in the ZDHS.

Outcome variable

The primary outcome was maternal health care utilisation, measured by three variables: adequate ANC visits during pregnancy (≥4 ANC visits); facility-based delivery (delivery in a government hospital, primary health centre, and private clinic); and postnatal care (PNC) within 2 days of delivery. The outcome variable was selected to reflect the WHO Recommended Interventions for Improving Maternal and New-born Health during the time of the survey (29).

Exposure Variable

Women were asked whether they read a newspaper or magazine, listen to the radio or watch TV almost every day, at least once a week, less than once a week, or not at all(27). These variables were recorded as dichotomous variables with response options ‘No access (0)’ (for women who responded less than once a week or not at all) and ‘access (1)’ (for women who responded at least once a week). The mass media exposure variable (ie access to at least one type of media) was created by, summing the three mass media variables, and then coding all non-zero values as exposed to mass media.

Covariates

We included determinants of maternal healthcare utilisation based on the available literature and data(4,30,31). The selected control variables included in the analysis are residence (urban and rural), women's age (15–24, 25–34, and 35–49 years), parity, religion, educational level (no education, primary, secondary, and higher), marital status, women’s working status and wealth quintiles (poorest, poorer, middle, richer and richest). Wealth quintiles were calculated from household assets and amenities using principal components analysis (32).

Statistical analysis

Frequencies of key outcome and exposure variables as well as the covariates were obtained to describe the study sample. Two logistic regression models were run for each of the three measures of maternal healthcare utilisation. First, bi-variable logistic regression was done to assess the association of exposure variables with maternal healthcare utilisation, separately for the three measures (e.g., antenatal care, facility-based delivery, and postnatal care) and crude odds ratio (COR), 95% confidence interval (CI) and p-values ($p < 0.05$) were calculated (Model 1). The second model determined whether the association between mass media and maternal healthcare utilisation remains statistically significant while controlling for other sociodemographic independent variables that were found significant at the bivariable level (p-value < 0.05) (Model 2). Adjusted odds ratios (AORs), 95% Confidence Intervals (CI) and p-values were calculated with a statistical significance level set at p-value < 0.05. Survey weights and clustering within primary sampling units (PSUs) were included in the analysis, and survey-weighted logistic regression was carried out with the Stata software V.14.0.

Results

Table 1 shows the descriptive characteristics of the study participants. Almost half of the respondents (49%) were aged between 25-34 years. Similar to the population distributions in Zimbabwe, most participants (67%) were living in rural areas. Concerning marital status, an overwhelming majority of women (84%) were currently in a union and 88% of the respondents were Christians. In terms of household wealth, almost a quarter of women (24%) belonged to richer households while 22% were from the poorest households. More than half of women had attained secondary education and were not working.

Table 1: Background characteristics of Zimbabwean women aged 15 to 49 years who had at Least One Live Birth in Zimbabwe, ZDHS 2015

Variable	Frequency(N=4998)	Percentage, %
Age		
15-24	1506	30.2
25-34	2443	49.0
35-49	1039	20.8
Parity		
0-1	1194	23.9
2–4	3012	60.4
5 and above	781	15.7
Place of Residence		
Urban	1637	32.8
Rural	3351	67.2
Household wealth		
Poorest	1082	21.7
Poorer	956	19.2
Middle	860	17.2
Richer	1183	23.7
Richest	907	18.2
Level of Education		
No Education	58	1.1
Primary	1530	30.7
Secondary	3,125	62.7
Higher	275	5.5
Marital status		
Never in Union	229	4.6
Currently in Union	4219	84.6
Formerly in Union	540	10.8
Working status		
Not working	2871	57.6
Working	2117	42.4
Religion		
Catholic	251	5.0
Protestant	640	12.8
Pentecostal	1125	22.6
Apostolic	2408	48.3
Other Religion	259	5.2
No Religion	305	6.1

Table 2 presents media exposure among the participants. Regarding exposure to mass media, listening to the radio had the highest prevalence at 64 % followed by watching TV at 28% and the least prevalence was observed with reading newspapers at 12%. Exposure to at least one type of mass media was 52% among the participants.

Table 2: Media Exposure among Women aged 15 –49 Years who had at Least One Live Birth in Zimbabwe, ZDHS 2015

Type of Mass Media	Frequency(N=4998)	Percentage, %
Reading newspaper		
Yes	620	12.4
No	4368	87.6
Watching TV		
Yes	1330	26.7
No	3658	73.3
Listening to radio		
Yes	3194	64.1
No	1794	36.0
Exposure to any mass media		
Yes	2594	52.0

No	2394	48.0

Table 3 presents the utilisation of maternal health care services by media exposure among the participants. Overall, most of the respondents had ≥ 4 ANC visits (76%), facility delivery (77%) and PNC within 2 days of delivery (57%). Furthermore, there were striking distinctions in the utilisation of maternal health care services by mass media exposure of women. More than 80% of the women exposed to at least one type of mass media received at least four ANC visits, while 52% delivered in health facilities and 62% received PNC within 48 hours of delivery.

Table 3: utilisation of Maternal Health Care Services by Media Exposure among Women in Zimbabwe, ZDHS 2015, (N=4998)

Variables	≥4ANC visits	Facility delivery	PNC within 2 days
Exposure to mass media			
Yes	91.2	96.0	84.2
No	75.5	79.3	55.9
Reading newspaper			
Yes	81.7	93.1	70.7
No	751	74.9	54.7
Watching TV			
Yes	81.3	90.9	63.7
No	73.7	72.3	54.2
Listening to radio			
Yes	78.9	77.7	60.4
No	74.3	76.6	54.4
All women	**75.7**	**77.0**	**56.5**

Table 4 shows the results of adjusted and unadjusted models of the association between mass media exposure and maternal healthcare utilisation. After adjusting for socio-demographic variables (Model 2), women who were exposed to any type of mass media were more likely to receive at least four ANC visits (aOR, 2.21; 95% CI (1.07-4.57) and receive PNC within two days of delivery (aOR, 2.26; 95% CI = (1.01-5.04) compared with those who did not. After controlling for the other background variables, mass media exposure does not have an association with facility delivery. With respect to each type of mass media, women who listened to the radio at least once a week had significantly greater odds (adjusted) of reaching an acceptable number (four visits) of ANC visits (AOR, 1.26; 95% CI (1.07-1.49)) and receiving postnatal check-up (AOR 1.26; 95% CI (1.01-1.57) than women who did not. After controlling for other variables, exposure to television did not affect maternal healthcare utilisation while exposure to newspapers was associated with facility-based delivery (aOR 1.59; 95% CI (1.02-2.47). In the unadjusted model, parity, residence, household wealth, education, religion and working status were also significantly associated with maternal healthcare utilisation. For instance, educated women, women from wealthier households, residing in urban areas and women with few children were more likely to utilize maternal healthcare services compared to women from poor households, rural areas, those less educated, and those with higher parity.

Table 4: Association between Mass Media Exposure and Maternal Healthcare utilisation among Women in Zimbabwe, ZDHS 2015

Variables	Antenatal care		Facility delivery		Postnatal Care	
	Model 1 OR (95% CI)	Model 2 AOR (95% CI)	Model 1 OR (95% CI)	Model 2 AOR (95% CI)	Model 1 OR (95% CI)	Model 2 AOR (95% CI)
Mass media exposure	3.33(1.60- 6.92)**	2.21*(1.07-4.57)	6.33***(2.55-15.73)	0.95(0.34-2.67)	4.22***(1.96-9.11)	2.26*(1.01-5.04)
Exposure to radio	1.29**(1.10-1.52)	1.26**(1.07-1.49)	1.16(0.97-1.38)	1.03(0.85-1.24)	1.28*(1.03-1.59)	1.26*(1.01-1.57)
Exposure to television	1.55***(1.28-1.87)	1.16(0.93-1.45)	3.54***(2.75-4.56)	1.09(0.81-1.46)	1.49***(1.19-1.86)	0.91(0.70-1.18)
Exposure to newspapers	1.47**(1.13-1.91)	1.10(0.84-1.44)	4.64***(3.15-6.83)	1.59*(1.02-2.47)	2.00***(1.38-2.89)	1.27(0.85-1.88)
Age						
15-24	1		1		1	
25-34	1.130(0.95-1.34)		0.88(0.73-1.08)		1.02(0.85-1.23)	
35-49	1.27(0.99-1.61)		3.06***(2.67-3.51)		0.93(0.70-1.24)	

Parity			
0-1(ref.)	1	1	1
2–4	0.96(0.803-1.15)	0.57***(0.45-0.72)	0.87(0.71- 1.08)
5 and above	0.57***(0.44-0.74)	0.24***(0.18-0.3)	0.50***(0.37-0.68)
Place of Residence			
Urban (ref.)	1	1	1
Rural	0.87(0.72-1.06)	0.21***(0.15-0.29)	0.55***(0.42-0.71)
Household Wealth			
Poorest(ref.)	1	1	1
Poorer	1.06(0.84-1.35)	1.53***(1.20-1.94)	1.22(0.91-1.65)
Middle	1.512**(1.15-1.99)	2.07***(1.54-2.77)	1.45*(1.06-2.00)
Richer	1.05(0.82-1.34)	4.42***(3.16-6.19)	2.04***(1.49-2.80)
Richest	2.49***(1.83-3.39)	14.46***(9.30-22.50)	2.50***(1.76-3.54)
Level of education			
Higher (ref.)		1	1
No education	0.41(0.15 -1.12)	0.01***(0.001 - 0.03)	0.11***(0.03-0.30)
Primary	0.30***(0.19-0.47)	0.01***(0.003-0.03)	0.17***(0.10-0.32)
Secondary	0.34***(0.22-0.53)	0.03***(0.01-0.09)	0.36***(0.20-0.63)
Marital status			
Never in Union(ref.)	1	1	1
Currently in Union	1.79***(1.35-2.36)	0.83(0.56-1.23)	0.54**(0.36-0.80)
formerly in Union	1.86***(1.30-2.67)	0.71(0.46-1.08)	0.57*(0.35-0.93)
Working status			
Not working (ref.)	1	1	1
Working	1.11(0.94-1.30)	1.05(0.89-1.25)	1.30*(1.06-1.60)
Religion			
Catholic(ref.)	1	1	1
Protestant	0.83(0.54-1.27)	1.38(0.81-2.35)	1.40(0.81-2.42)
Pentecostal	0.72(0.49-1.06)	1.20(0.73-1.96)	1.09(0.63-1.88)
Apostolic	0.49***(0.33-0.72)	0.36***(0.22-0.58)	0.62(0.37-1.02)
Other Religion	0.56*(0.35 - 0.90)	0.59(0.33-1.06)	1.36(0.68-2.69)
No Religion	0.41***(0.26-0.65)	0.37***(0.22-0.62)	0.65(0.34-1.25)

Note: * p < 0.10, **p < 0.05, ***p <0. 001.OR- Crude odds ratios, AOR- Adjusted odds ratio

Discussion

This study explored the association between mass media exposure and maternal healthcare utilisation. Overall, radio is the most popular media source compared to television and newspapers. Most people, especially in rural settings, rely on the radio as a source of information (33,34). New radio stations, especially community radio that started broadcasting in the country in the past decade may explain why the majority of participants were more exposed to this form of mass media (35). Radio, particularly community stations are not only widespread and popular but also a more accessible, convenient and inexpensive way to disseminate information in local communities in a participatory approach (35). Public engagement over the radio improves health knowledge, debunks misconceptions, and is an effective means of engaging men in resource-poor settings (36). Despite being educated, most women in this study were not employed and living in rural areas, conditions that make access to other forms of media, such as newspapers, less likely. Furthermore, rural areas lack supporting infrastructure such as electricity and roads which facilitate access to newspapers and

television(37). Unlike listening to the radio, unpaid care work at home leaves women with less time for activities such as watching television and reading newspapers (38).

Our results show a strong association between mass media exposure and the use of maternal healthcare services, especially ANC and PNC. Similarly, studies from low-resource settings such as Uganda, Ethiopia, and Malawi have reported this positive association (25,39,40). Additionally, evidence from other LMICs showed that maternal healthcare utilisation was associated with mass media exposure, even after controlling for sociodemographic factors (20,24,31). In Malawi, Uganda, and Nepal, mass media was associated with birth preparedness, ANC and PNC utilisation (22,23,41). Women exposed to mass media have several advantages when compared to their non-exposed counterparts. For instance, exposure to mass media generates knowledge and increases access to information (21,42). In addition to its effects on individual women, mass media also influences male partners and other family members who might play a key role in the facilitation of maternal healthcare utilisation (41,42). As a result mass media can have an impact beyond women since evidence has shown that information motivates women and their partners to take practical action toward their health (20).

The effect of radio on maternal healthcare utilisation was strong among women. After controlling for other variables, women, who listened to the radio at least once a week were more likely to have the four recommended ANC visits and receive PNC. However, exposure to television was not associated with any form of maternal healthcare service while exposure to newspapers was associated with facility-based delivery. This may be because exposure to newspapers and television was less prevalent among women, especially in rural areas. Likewise, rural areas are characterized by social norms that discourage women from using health services (43). In addition, rural health facilities are far away, poorly equipped, and understaffed which negatively affects access and utilisation of maternal health services (44,45). Within these contexts, mass media, especially radio can potentially close the gap by disseminating information and providing knowledge on maternal healthcare(22).

Sociodemographic factors have an influence on maternal healthcare utilisation by affecting how these mass media messages are received and utilized by women. For example, educated women from wealthy households are more likely to use maternal healthcare services. These findings are supported by previous studies that showed that women from rich households have access to resources including information to make informed decisions on healthcare utilisation(6,31,46). Additionally, well-educated women were found to deliver their babies in health facilities and return for a postnatal check-up(6,31,46). Educated women are more likely to be employed, and have access to information, and financial resources to enable them to access any type of mass media(47,48). Women in urban areas had higher odds of maternal healthcare utilisation when compared to their rural counterparts. Previous studies in Zimbabwe (30) and Ghana (49) showed that urban women have better educational attainment, knowledge and access to maternal health services compared with rural women.

In addition to access to mass media, women also access health information through the internet. The digital gender gap highlights widespread intersectional inequalities in digital health access between and among different women (50). This might mean educated women and those in urban areas have access to more information and critical digital health services than women from rural areas. However, this study did not explore the effect of exposure to digital media on maternal healthcare utilisation since our data was limited to mass media. This current study is based on nationally representative survey data and therefore can be generalized to all women in Zimbabwe. However, it's based on a cross-sectional survey that restricts the interpretation of causality. Additionally, ZDHS did not provide qualitative information on the content of mass media programs. Future studies should consider including the content of the mother's mass media exposure to capture the qualitative dimensions of access to media.

Conclusions

Exposure to mass media is associated with maternal healthcare utilisation in Zimbabwe. Mass media, especially the radio, is a powerful tool for reaching people with health information especially those in low settings. Providing media access and disseminating health information through these mediums may assist in improving women's healthcare-seeking behaviour regarding maternal healthcare. Socioeconomic factors should also be considered, with a focus on eliminating inequalities in healthcare service utilisation between urban and rural areas. Programmes and interventions aimed at increasing maternal healthcare should be strengthened to target women from low-resource settings. This can be achieved through targeted and participatory mass media campaigns on maternal healthcare.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request

Competing interests

The authors declare that they have no competing interests

Authors' contributions

R.M.: Designed and conceptualised the study, analysed the data, created tables interpreted results, and drafted the manuscript, revised the manuscript; NW: Designed and conceptualised the study, interpreted results, drafted the manuscript, revised the manuscript. The authors read and approved the final manuscript.

References

1. WHO. New global targets to prevent maternal deaths [Internet]. 2021 [cited 2022 Jul 14].

Available from: https://www.who.int/news/item/05-10-2021-new-global-targets-to-prevent-maternal-deaths
2. WHO. Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division: executive summary [Internet]. World Health Organization; 2019 [cited 2022 Jul 14]. Report No.: WHO/RHR/19.23. Available from: https://apps.who.int/iris/handle/10665/327596
3. Tsawe M, Moto A, Netshivhera T, Ralesego L, Nyathi C, Susuman AS. Factors influencing the use of maternal healthcare services and childhood immunization in Swaziland. Int J Equity Health. 2015;14(1):1–9.
4. Gabrysch S, Campbell OMR. Still too far to walk: Literature review of the determinants of delivery service use. BMC Pregnancy Childbirth. 2009;
5. Banke-Thomas OE, Banke-Thomas AO, Ameh CA. Factors influencing utilisation of maternal health services by adolescent mothers in Low-and middle-income countries: A systematic review. BMC Pregnancy Childbirth. 2017;
6. Paul P, Chouhan P. Socio-demographic factors influencing utilisation of maternal health care services in India. Clin Epidemiol Glob Health. 2020;8(3):666–70.
7. Fernandez Turienzo C, Newburn M, Agyepong A, Buabeng R, Dignam A, Abe C, et al. Addressing inequities in maternal health among women living in communities of social disadvantage and ethnic diversity. BMC Public Health. 2021 Jan 21;21(1):176.
8. Gebregziabher NK, Zeray AY, Abtew YT, Kinfe TD, Abrha DT. Factors determining choice of place of delivery: analytical cross-sectional study of mothers in Akordet town, Eritrea. BMC Public Health. 2019 Jul 10;19(1):924.
9. Justice Ajaari Ms (Med), Honrati Masanja P, Renay Weiner Ms (Med), Shalom Akonyi Abokyi MPH, Seth Owusu- Owusu-Agyei P. Impact of Place of Delivery on Neonatal Mortality in Rural Tanzania. Int J Matern Child Health AIDS IJMA. 2012;1(1):49–59.
10. Novignon J, Ofori B, Tabiri KG, Pulok MH. Socioeconomic inequalities in maternal health care utilisation in Ghana. Int J Equity Health. 2019 Sep 5;18(1):141.
11. Zamawe COF, Banda M, Dube AN. The impact of a community driven mass media campaign on the utilisation of maternal health care services in rural Malawi. BMC Pregnancy Childbirth. 2016;
12. Igbinoba AO, Soola EO, Omojola O, Odukoya J, Adekeye O, Salau OP. Women's mass media exposure and maternal health awareness in Ota, Nigeria. Amoo EO, editor. Cogent Soc Sci. 2020 Jan 1;6(1):1766260.
13. Galea S, Putnam S. The Role of Macrosocial Determinants in Shaping the Health of Populations. In: Galea S, editor. Macrosocial Determinants of Population Health [Internet]. New York, NY: Springer; 2007 [cited 2022 Jul 14]. p. 3–12. Available from: https://doi.org/10.1007/978-0-387-70812-6_1
14. Grilli R, Ramsay C, Minozzi S. Mass media interventions: effects on health services utilisation. Cochrane Database Syst Rev. 2002;
15. Lecouturier J, Rodgers H, Murtagh MJ, White M, Ford GA, Thomson RG. Systematic review of mass media interventions designed to improve public recognition of stroke symptoms, emergency response and early treatment. BMC Public Health. 2010;
16. Sarrassat S, Meda N, Badolo H, Ouedraogo M, Some H, Bambara R, et al. Effect of a mass radio campaign on family behaviours and child survival in Burkina Faso: a repeated cross-sectional, cluster-randomised trial. Lancet Glob Health. 2018;
17. Konkor I, Sano Y, Antabe R, Kansanga M, Luginaah I. Exposure to mass media family planning messages among post-delivery women in Nigeria: testing the structural influence model of health communication. Eur J Contracept Reprod Health Care. 2019;
18. Somefun OD, Wandera SO, Odimegwu C. Media Exposure and HIV Testing Among Youth in Sub-Saharan Africa: Evidence From Demographic and Health Surveys (DHS). SAGE Open. 2019;
19. Yaya S, Uthman OA, Amouzou A, Bishwajit G. Mass media exposure and its impact on malaria prevention behaviour among adult women in sub-Saharan Africa: results from malaria indicator surveys. Glob Health Res Policy. 2018;
20. Fatema K, Lariscy JT. Mass media exposure and maternal healthcare utilisation in South Asia. SSM - Popul Health. 2020;
21. BBC. BBC - TV drama on maternal and newborn health in Bangladesh - Media Action [Internet]. 2014 [cited 2020 Aug 26]. Available from: https://www.bbc.co.uk/mediaaction/where-we-work/asia/bangladesh/mch
22. Acharya D, Khanal V, Singh JK, Adhikari M, Gautam S. Impact of mass media on the utilisation of antenatal care services among women of rural community in Nepal. BMC Res Notes. 2015;
23. Asp G, Pettersson KO, Sandberg J, Kabakyenga J, Agardh A. Associations between mass media exposure and birth preparedness among women in southwestern Uganda: A community-based survey. Glob Health Action. 2014;
24. Dhawan D, Pinnamaneni R, Bekalu M, Viswanath K. Association between different types of mass media and antenatal care visits in India: a cross-sectional study from the National Family Health Survey (2015-2016). BMJ Open. 2020 Dec 15;10(12):e042839.
25. Sserwanja Q, Mutisya LM, Musaba MW. Exposure to different types of mass media and timing of antenatal care initiation: insights from the 2016 Uganda Demographic and Health Survey. BMC Womens Health. 2022 Jan 11;22(1):10.
26. ZIMSTAT., UNICEF. Multiple Indicator Cluster Survey (MICS) 2019, Survey Findings Report. Zimbabwe National Statistics Agency (ZimStat). 2019.

27. ZIMSTAT. Zimbabwe Demographic Health Survey 2015 : Final Report. Rockville, Maryland USA; 2016.
28. Kifle D, Azale T, Gelaw YA, Melsew YA. Maternal health care service seeking behaviors and associated factors among women in rural Haramaya District, Eastern Ethiopia: a triangulated community-based cross-sectional study. Reprod Health. 2017 Jan 13;14(1):6.
29. WHO. WHO Recommendations on Health Promotion Interventions for Maternal and Newborn Health [Internet]. Geneva: World Health Organization; 2009 [cited 2022 Jul 14]. (WHO Guidelines Approved by the Guidelines Review Committee). Available from: http://www.ncbi.nlm.nih.gov/books/NBK304983/
30. Ovikuomagbe O. Determinants of Maternal Healthcare utilisation in Nigeria. Afr Res Rev. 2017;11(2):283–99.
31. Muchabaiwa, Lazarus; Mazambani, D.; Chigusiwa, L.; Bindu S; M, V. Determinants of maternal healthcare utilisation in Zimbabwe. Int J Econ Sci Appl Res. 2012;5(2):145–62.
32. Rutstein SO, Johnson K. The DHS Wealth Index. Maryland: ORC Macro; 2004. Report No.: No. 6.
33. Fombad MC, Jiyane GV. The role of community radios in information dissemination to rural women in South Africa. J Librariansh Inf Sci. 2019;
34. Robert Powell. Zimbabwe Media and Telecoms Landscape Guide. 2011.
35. UNESCO Zimbabwe. Zimbabwe Government Heightens Community Radio Development [Internet]. 2020 [cited 2020 Aug 28]. Available from: https://en.unesco.org/news/zimbabwe-government-heightens-community-radio-development
36. Nyirenda D, Makawa TC, Chapita G, Mdalla C, Nkolokosa M, O'byrne T, et al. Public engagement in Malawi through a health-talk radio programme 'Umoyo nkukambirana': A mixed-methods evaluation. Public Underst Sci Bristol Engl. 2018 Feb;27(2):229.
37. Kalombe C, Phiri J. Impact of Online Media on Print Media in Developing Countries. Open Journal of Business and Management [Internet]. 2019 [cited 2022 Jul 15];7(4). Available from: https://www.scirp.org/journal/paperinformation.aspx?paperid=95846
38. Samtleben C, Müller KU. Care and careers: Gender (in)equality in unpaid care, housework and employment. Res Soc Stratif Mobil. 2022 Feb 1;77:100659.
39. Dewau R, Muche A, Fentaw Z, Yalew M, Bitew G, Amsalu ET, et al. Time to initiation of antenatal care and its predictors among pregnant women in Ethiopia: Cox-gamma shared frailty model. PLOS ONE. 2021 Feb 5;16(2):e0246349.
40. Wang Y, Etowa J, Ghose B, Tang S, Ji L, Huang R. Association Between Mass Media Use and Maternal Healthcare Service utilisation in Malawi . J Multidiscip Healthc. 2021 May 20;14:1159–67.
41. Zamawe COF, Banda M, Dube AN. The impact of a community driven mass media campaign on the utilisation of maternal health care services in rural Malawi. BMC Pregnancy Childbirth. 2016;
42. Rahman M, Curtis SL, Chakraborty N, Jamil K. Women's television watching and reproductive health behavior in Bangladesh. SSM - Popul Health. 2017;
43. Musizvingoza R. Social Determinants Affecting utilisation of Maternal Health Services In Africa: A Narrative Review of The Evidence. International Journal of Health Services Research and Policy,. 2020;5(1):64–74.
44. Makate M, Makate C. Prenatal care utilisation in Zimbabwe: Examining the role of community-level factors. J Epidemiol Glob Health. 2017 Dec 1;7(4):255–62.
45. van den Heuvel OA, de Mey WG, Buddingh H, Bots ML. Use of maternal care in a rural area of Zimbabwe: a population-based study. Acta Obstet Gynecol Scand. 1999 Nov;78(10):838–46.
46. Machira K, Palamuleni M. Factors influencing women's utilisation of public health care services during childbirth in Malawi public health facility utilisation. Afr Health Sci. 2017;17(2):400–8.
47. Kim J. Female education and its impact on fertility: the relationship is more complex than one may think. IZA World of Labor. 2016.
48. Chol C, Negin J, Agho KE, Cumming RG. Women's autonomy and utilisation of maternal healthcare services in 31 Sub-Saharan African countries: Results from the demographic and health surveys, 2010-2016. BMJ Open. 2019;
49. Saaka M, Akuamoah-Boateng J. Prevalence and Determinants of Rural-Urban utilisation of Skilled Delivery Services in Northern Ghana. Scientifica. 2020;
50. Musizvingoza R, Handforth C. The Digital Gender Gap in Healthcare: Progress, Challenges, and Policy Implications - International Institute for Global Health [Internet]. 2021 [cited 2022 Jul 15]. Available from: https://iigh.unu.edu/news/news/the-digital-gender-gap-in-healthcare-progress-challenges-and-policy-implications.html