Influence of Mass Media on Institutional Delivery Service Utilization among Ethiopian Women: Insights from the 2016 Demographic and Health Survey

Adane Nigusie Weldeab*[1] and Amlaku Nigusie[2]

[1]Health Research Development Directorate, Amhara Public Health Institute, Bahir Dar, Ethiopia
[2]Department of Health Promotion and Health Behavior, Institute of Public Health, College of Medicine and Health Sciences, University of Gondar, Ethiopia.
*Corresponding Author: Adane Nigusie; Email: adane2009ec@gmail.com, Phone: +251-913673758, P.O.Box: 477,

ABSTRACT:

Introduction: *Globally, the rapid advancement of technology has significantly expanded the reach of mass media, exposing a large portion of the world's population to diverse information sources. Mass media encompass various technologies that distribute information, ideas, and opinions to broad and targeted audiences. In this context, mass media can play a critical role in addressing significant issues, such as the low utilization of institutional delivery services, which remains a major challenge in developing countries like Ethiopia.*

Objective: *This study aims to assess the influence of mass media on the utilization of institutional delivery services among women in Ethiopia, utilizing data from the 2016 EDHS.*

Methods :*The study used data from the published reports of Ethiopian Demographic and Health Surveys-2016.*

Results: *Nearly twenty-eight percent (27.7%) of the respondents were exposed to radio, followed by television (19.6%) and newspapers (7.1%). Multivariable logistic regression analyses showed that mothers exposed to mass media were more likely to utilize institutional delivery services (AOR 1.25; 95% CI 1.10, 1.42). Place of residence, specifically rural areas (AOR 0.20; 95% CI 0.16, 0.25), educational status (primary school: AOR 1.98; 95% CI 1.76, 2.24; secondary school: AOR 6.12; 95% CI 4.59, 8.17; higher education: AOR 8.21; 95% CI 4.72, 14.30), and wealth index (poorer: AOR 1.72; 95% CI 1.44, 2.06; middle: AOR 1.97; 95% CI 1.65, 2.36; richer: AOR 2.11; 95% CI 1.76, 2.54; richest: AOR 3.19; 95% CI 2.52, 4.03) were significantly associated with institutional delivery service utilization.*

Conclusion: *The study reveals that exposure to mass media significantly increases the likelihood of utilizing institutional delivery services among women in Ethiopia. Additionally, factors such as urban residency, higher educational attainment, and greater wealth are positively associated with higher rates of institutional delivery service utilization. These findings highlight the importance of mass media and socio-economic factors in improving maternal health service uptake.*

Keywords: *Institutional delivery, Mass media, Ethiopia.*

አጎድሮተ ጥናት

የጥናቱ መግቢያ:- *በዓለም አቀፍ ደረጃ፣ የቴክሎጂ ፈጣን እድገት የብዙኀን መገናኛ ተደራሽነትን በከፍተኛ ሁኔታ እንዲጨምር አድርጓል፤ ሰፊውን የዓለም ህዝብ ከፍል ለመገናኛ ብዙኀን እንዲጠቀም አስችሏል። መገናኛ ብዙኀን መረጃዎችን፣ ሐሳቦችንና አስተያየቶችን ለውስን እና ሰፊ ታዳሚዎች ለማሰራጨት የተለያዩ የሚዲያ ቴክሎጂዎችን ይጠቀማል። ኢትዮጵያን ጨምሮ በማደግ ላይ ባሉ ሀገሮች የተቋማዊ ወሊድ አገልግሎት አጠቃቀም አሁንም በጣም ዝቅተኛ ነው።*

የጥናቱ ዓላማ:- *የዚህ ጥናት ዓላማ ከ2016 ዓ ም የኢትዮጵያ ዲሞግራፊክና ጤና ዳሰሳ የተገኘውን መረጃ በመጠቀም የመገናኛ ብዙኀን በኢትዮጵያ ውስጥ ባሉ ሴቶች የተቋማዊ ወሊድ አገልግሎት አጠቃቀምን ላይ ያለውን ተፅዕኖ ማጥናት ነው።*

የጥናቱ ሰልት:- *ይህ ጥናት የ2016 ዓ ም የኢትዮጵያ ዲሞግራፊክና ጤና ዳሰሳ መረጃን በመጠቀም የተሰራ ነው።*

የጥናቱ ውጤት:- *ወደ 28 በመቶ (27.7 በመቶ) የሚሆኑት መረጃ ሰጪዎች ሬዲዮ፣ 19.6 በመቶ የሚሆኑት ደግሞ ቴሌቪዥን እና 7.1 በመቶ መረጃ ሰጪዎች ጋዜጦችን ተጠቃሚ ነበሩ። ሁለገብ የሆነዉ ሎጂስቲክስ ሪግሬሽን እንደሚያሳየው (multivariable logistic regression) ትንታኔዎች የመጨረሻ ውጤቶች እንደሚያሳዩት ለመገናኛ ብዙኀን የተጋለጡ እናቶች የተቋማዊ ወሊድ አገልግሎት የመጠቀም እድላቸው ከፍተኛ ነው (AOR1.25፤ 95% CI 1.10፣ 1.42)። የመኖሪያ ቦታ በተለይም የገጠር አካባቢዎች (AOR 0.20፤ 95% CI 0.16፣ 0.25)፣ የትምህርት ደረጃ (የመጀመሪያ ደረጃ ትምህርት:- AOR 1.98፤ 95% CI 1.76፣ 2.24፤ ሁለተኛ ደረጃ ትምህርት:- AOR 6.12፤ 95% CI 4.59፣ 8.17፤ ከፍተኛ ትምህርት:- AOR 8.21፤ 95% CI 4.72፣ 14.30)፣ እና የሀብት ደረጃ (ደሃ:- AOR 1.72፤ 95% CI 1.44፣ 2.06፤ መካከለኛ:- AOR 1.97፤ 95% CI 1.65፣ 2.36፤ ሀብታም:- AOR 2.11፤ 95% CI 1.76፣ 2.54፤ በጣም ሀብታም:- AOR 3.19፤ 95% CI 2.52፣ 4.03) የተቋማዊ ወሊድ አገልግሎት አጠቃቀም ጋር በእጅጉ የተያያዙ ናቸው።*

የጥናቱ ማጠቃለያ:- *ጥናቱ በኢትዮጵያ ውስጥ የሴቶች ለመገናኛ ብዙኀን መጋለጥ የተቋማዊ ወሊድ አገልግሎት የመጠቀም እድልን በከፍተኛ ሁኔታ እንደሚጨምር አሳይቷል። በተጨማሪም እንደ የከተማ ነዋሪነት፣ ከፍተኛ የትምህርት ደረጃና ከፍተኛ የሀብት መጠን ያሉ ምክንያቶች ከከፍተኛ የተቋማዊ ወሊድ አገልግሎት አጠቃቀም መጠን ጋር አዎንታዊ ቁርኝት አላቸው። እነዚህ ግኝቶች የእናቶች የጤና አገልግሎትን ለማሻሻል የመገናኛ ብዙኀንና ማኅበረ-ኢኮኖሚያዊ ምክንያቶች አስፈላጊ መሆናቸውን አሳይተዋል።*

ቁልፍ ቃላት፡- የተቋማዊ ወሊድ አገልግሎት ፣ መገናኛ ብዙኀን ፣ ኢትዮጵያ

INTRODUCTION

In 2020, there were an estimated 287,000 maternal deaths globally[1]. Developing countries bear a disproportionate burden of maternal deaths, with about 87% of these deaths occurring in Sub-Saharan Africa and South Asia[2]. Ethiopia experiences a high maternal mortality rate of 412 deaths per 100,000 live births. However, with the implementation of effective interventions, this rate has the potential to decrease significantly[3].

For improved maternal and newborn survival outcomes, timely and appropriate healthcare during pregnancy and childbirth is crucial. Studies indicate that mass media is a potent and effective tool for health education and behavioral change [4, 5]. For instance, research conducted in Tanzania demonstrated that mass media campaigns influenced intentions to use female condoms [6]. A study in Nigeria indicated that individuals exposed to mass media were more likely to engage in discussions about HIV/AIDS with a partner and to understand the role of condom use in reducing HIV transmission risk, compared to those who were not exposed [7].

Furthermore, research on maternal health in Indonesia, Bangladesh, and India showed that exposure to mass media campaigns correlated with increased utilization of prenatal, postnatal, and delivery care services [8-11]. Mass media encompasses a range of technologies used to disseminate diverse information, ideas, and perspectives to broad and specific audiences through publishing, broadcasting, or spoken communication [12].

Improving public health through mass media can often feel like navigating a vast network of roads without road signs, prompting questions about whether you are progressing in the right direction toward your destination [13]. Mass media plays a pivotal role in disseminating information about health and medical treatments, with considerable attention given to the relationship between clinical trial investigators and pharmaceutical manufacturers [14, 15].

However, mass media can also play a beneficial role in public health [16, 17]. Its influence is rapidly expanding, promoting ongoing social change, particularly in developing nations. Mass media serves as a crucial tool for public health by disseminating information on health and maternal health [18-21]. Researchers have identified various influences and factors associated with mass media that can affect people's perceptions and behavior [22]. However, to the best of our knowledge, no previous study has investigated the influence of mass media on institutional delivery service utilization in Ethiopia.

The aims of this paper were to assess the influence of mass media on the utilization of institutional delivery services among women in Ethiopia, to examine the evolving familiarity status with notable differences, and to identify areas where exposure to mass media needs improvement. Additionally, we aimed to discern best practices in mass media usage through its trends.

METHODS

Data description and sampling procedure

Ethiopia is located in the eastern region of Africa and has a population of over 100 million, divided into 11 administrative provinces known as regions. The country falls into the low development category according to recent socioeconomic assessments. Approximately 85% of the population resides in rural areas, with agricultural trade emerging as the dominant sector of the economy[23].

The data utilized in this study were sourced from the 2016 Ethiopian Demographic and Health Survey (EDHS), which is a component of the global Demographic and Health Surveys (DHS) project funded by the United States Agency for International Development (USAID). The survey was carried out by the Federal Ministry of Health and the Central Statistical Agency (CSA) of Ethiopia from September 2015 to June 2016. It involved interviews with a nationally representative sample of 7,193 women from 16,650 households. The final analysis included 7,193 women who had given birth at least once within the two to five years preceding the survey.

The Ethiopian Demographic and Health Survey (EDHS) is a nationally representative survey designed to meet the monitoring and evaluation requirements of the Health, Population, and Nutrition Sector Development Program. Its principal objective is to furnish data to program managers and policymakers for effective intervention strategy formulation and implementation. The survey aims to collect evidence on critical national indicators of social progress, encompassing fertility rates, childhood mortality rates, maternal and child health, as well as the nutritional status of mothers and children. Additionally, it assesses factors such as exposure to mass media and awareness of, and attitudes towards, communicable and non-communicable diseases.

The survey employs a population-based, cross-sectional data collection method. For the 2016 EDHS, the sample was designed to provide population and health indicators at both national and regional levels. The sample was representative of Ethiopia's 11 geographic/administrative regions and was selected using a stratified, two-stage cluster design. In the first stage, Enumeration Areas (EAs) served as sampling units, with 645 EAs selected (including 202 urban and 443 rural areas). In the second stage, households were sampled, resulting in a total of 16,650 households being selected. All women aged 15–49 years who had given birth within the five years preceding the survey and were permanent residents of the selected households were eligible for interview. Data collection utilized a structured and pretested questionnaire, and interviews were conducted in the local language [3].

Variable definition

The dependent variable in this study is institutional delivery service utilization, defined as women aged 15–49 years who utilized delivery services for their most recent birth. The independent variables include exposure to mass media through television, radio, newspaper, and contact with a health worker. Additionally, socio-demographic variables such as age, sex, marital status, religion, ethnic group, residence, family size, wealth index, education, occupation, experience of maternal health service, husband's education, and decision-making for maternal health service use are considered.

Data analysis

Data analysis was conducted using STATA version 14 software. The unit of analysis comprised women who had given birth at a health facility with the assistance of health professionals within the five years prior to the data collection period. The analysis utilized weighted data to adjust for sample design effects and non-response rates, ensuring accurate estimates of standard errors. Bivariate analysis was performed to identify associations between dependent and independent variables, with all variables having a p-value of ≤0.2 in the bivariate analysis included in the multivariable logistic model to assess the independent effect of each variable. Adjusted odds ratios (AOR) with a 95% confidence interval and a p-value < 0.05 were used to ascertain the presence of associations between dependent and independent variables.

RESULTS

Descriptive findings of predictor and outcome variables

Approximately 27.7% of the participants reported exposure to radio, followed by television at 19.6%, and newspapers at 7.1% (Table 1).

Table 1 Women exposure to mass media as a source of information about health (weighted), EDHS 2016.

Mass media	Frequency	Percentage
Television	1488	19.6
Radio	2099	27.7
Newspaper	540	7.1
Non-users	4969	65.5

Most of the mothers (69.7%) were within 20 to 35 age group. Over half of the mothers (63.1%) had no formal education. A small percentage of mothers participated from Harari (0.23%), Gambela (0.27%), and Dire-Dawa (0.44%). The vast majority of participants (87.23%) resided in rural areas (Table 2).

Table 2 Characteristic of the women with exposure status of mass media (Weighted), EDHS 2016.

Characteristics		Number (%)	Exposed (n=2620)	Non-exposed (n=4969)	P-value*
Age	<20	339(4.5%)	115	224	0.000
	20-35	5291(69.7%)	1966	3325	
	>35	1959(25.8%)	538	1421	
Region	Tigray	537(7.1%)	238	299	0.000
	Afar	71(0.94%)	23	48	
	Amhara	1632(21.5%)	501	1131	
	Oromia	3129(3.5%)	1083	2046	
	Somali	269(3.5%)	34	235	
	Benishangul	81(1.1%)	21	60	
	SNNPR	1601(21.1%)	497	1104	
	Gambela	21(0.27%)	8	13	
	Harari	17(0.23%)	9	8	
	Addis Abeba	198(2.6%)	189	9	
	Dire-Dawa	33(0.44%)	17	16	
Educational status of the	No education	4791(63.1%)	1123	3668	0.000

Characteristics		Number (%)	Exposed (n=2620)	Non-exposed (n=4969)	P-value*
respondent	Primary	2150(28.3%)	935	1215	
	Secondary	420(5.5%)	343	77	
	Higher	230(3.02%)	220	8	
	No education	3,346(47.07%)	739	2607	0.000
Educational status of the husband	Primary	2731(38.42%)	1004	1727	
	Secondary	613(8.62%)	377	236	
	Higher	419(5.89%)	346	73	
Number of families	<5	3636(47.9%)	1423	2213	0.000
	>5	3954(52.09%)	1197	2757	
Wealth Index combined	Poorest	1651(21.76%)	232	1419	0.000
	Poorer	1654(21.79%)	305	1349	
	Middle	1588(20.93%)	429	1159	
	Richest	1427(18.80%)	643	784	
	Richer	1269(16.72%)	1011	258	
Place of residence	Urban	969(12.77%)	782	187	0.000
	Rural	6621(87.23%)	1838	4783	

Residence, respondent's education level, family size, and wealth index demonstrated significant associations with exposure to mass media in the univariate analysis. The final results of the multiple logistic regression analyses indicated that mothers exposed to mass media were more likely to utilize institutional delivery services (AOR 1.25; 95% CI 1.10, 1.42). Additionally, rural residence (AOR 0.20; 95% CI 0.16, 0.25), primary school education level (AOR 1.98; 95% CI 1.76, 2.24), secondary school education level (AOR 6.12; 95% CI 4.59, 8.17), higher education level (AOR 8.21; 95% CI 4.72, 14.30), as well as poorer wealth index (AOR 1.72; 95% CI 1.44, 2.06), middle wealth index (AOR 1.97; 95% CI 1.65, 2.36), richer wealth index (AOR 2.11; 95% CI 1.76, 2.54), and richest wealth index (AOR 3.19; 95% CI 2.52, 4.03) were significantly associated with institutional delivery service utilization (Table 3).

Table 3 Influence of mass media exposure on institutional delivery service utilization using a logistic regression model (weighted)

Variables		Institutional delivery		COR with 95%CI	AOR with 95%CI
		yes	No		
Media exposure	Not Exposed	1194	3775	1.00	1.00
	Exposed	1329	1291	3.26(2.94,3.60)	1.25(1.10,1.42)
Educational status	No education	1036	3755	1.00	1.00
	Primary	927	1222	2.75(2.46,3.07)	1.98(1.76,2.24)
	Secondary	346	74	17.01(13.11,22.08)	6.12(4.59,8.17)
	Higher	214	16	49.99(29.72,84.76)	8.21(4.72,14.30)
Family size	>5	1452	2184	1.00	1.00
	<5	1071	2882	1.79(1.62,1.97)	1.20(1.07,1.34)
Residence	Urban	816	153	1.00	1.00
	Rural	1707	4914	0.06(0.05,0.08)	0.20(0.16,0.25)
Wealth index	poorest	250	1402	1.00	1.00
	poorer	409	1245	1.85(1.55,2.20)	1.72(1.44,2.06)
	middle	449	1140	2.21(1.86,2.63)	1.97(1.65,2.36)
	Richer	485	942	2.89(2.43,3.44)	2.11(1.76,2.54)
	richest	931	339	15.43(12.85,18.54)	3.19(2.52,4.03)

DISCUSSION

The role of mass media in influencing institutional delivery service utilization is a critical aspect of our study's discussion, shedding light on its impact on healthcare decision-making among women. Our findings reveal intriguing associations between exposure to mass media and the likelihood of opting for institutional delivery services, prompting deeper exploration of this dynamic relationship. According to our research, 27.7% and 19.6% of the respondents reported exposure to radio and TV at least once a week, respectively. These figures are notably lower compared to national data gathered by the 2011

Nepal Demographic Health Survey, which estimated that 44% of women across the country listen to the radio, and 47% watch TV at least once a week [24]. This variance in exposure levels could be attributed to the greater spread of radio stations and TV channels in Nepal compared to Ethiopia.

The current study revealed that mass media had a positive impact on the utilization of institutional delivery services. These findings are consistent with other studies conducted in Ethiopia, Uganda, Bangladesh, and India, where women with access to media were more likely to use maternal healthcare services compared to those without access[25-27].

Respondents from urban areas had higher odds of seeking institutional delivery compared to those from rural areas. This finding is consistent with studies conducted in various regions of Ethiopia [28,29]. Possible reasons for these findings include higher levels of education among mothers in urban areas, better access to healthcare services and transportation, increased decision-making autonomy among mothers, greater awareness of pregnancy and delivery complications, and improved access to information compared to rural areas.

On the other hand, respondents' educational status—those with primary school, secondary school, and higher educational levels—showed higher odds of seeking institutional delivery compared to those with no education. This finding is consistent with studies conducted in various parts of Ethiopia, Nigeria, Pakistan, and Kenya[29-37]. The possible reasons for this trend could include factors such as better awareness and understanding of maternal health issues among educated individuals, improved access to healthcare services and information, increased decision-making autonomy, and greater ability to navigate healthcare systems among those with higher levels of education. Additionally, education may empower individuals to recognize the importance of seeking institutional delivery services and overcome barriers to accessing them[38].

The majority of study participants in the current study resided in rural areas. In these settings, reaching all participants through health workers is challenging. Therefore, mass media emerges as the primary option to reach families and communities, disseminating messages about the importance of institutional delivery and the availability of such services in their communities. The study findings revealed evidence that mass media has a positive effect on the utilization of institutional delivery services.

Limitations

A notable limitation of our study is the lack of correlation between education levels across regions and urban-rural divides in relation to wealth quintiles. Consequently, further research is warranted to explore variations across different geographic regions of Ethiopia.

CONCLUSION

Mass media, as a primary mode of information communication technology, holds significant influence over people's perceptions and behaviors. Exposure to mass media has the potential to bring about positive changes or prevent negative trends among large population groups. Our study indicates an association between exposure to mass media and the utilization of institutional delivery services, with mothers exposed to mass media being more inclined to seek delivery at health facilities. These findings highlight the potential benefit of utilizing mass media in rural settings to promote institutional delivery service utilization in Ethiopia.

ACKNOWLEDGEMENT

The authors would like to acknowledge Measure DHS for granting access to the 2016 DHS dataset for Ethiopia.

ABBREVIATIONS

AOR-Adjusted Odds Ratio

CI- Confidence Interval

COR-Crude Odd Ratio

CSA- Central Statistical Agency

EAs-Enumeration Areas

EDHS-Ethiopian Demographic and Health Survey

USAID -United States Agency for International Development

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Since this study involved a secondary analysis of publicly available survey data from the MEASURE DHS program, ethical approval and participant consent was not required. Permission to use the data was obtained from the DHS Program, and it was downloaded from http://www.dhsprogram.com with their authorization. The procedures for DHS public-use datasets, as approved by the Institution Review Board, ensure that respondents, households, or sample communities cannot be identified from the data. The data files do not contain names of individuals or household addresses. Therefore, ethical approval and consent to participate were not

applicable to this study, as it is based on nationally representative EDHS data.

CONSENT FOR PUBLICATION

Not applicable.

AVAILABILITY OF DATA

The 2016 EDHS data used in this study are third-party from the Demographic and Health Surveys Program website (https://dhsprogram.com/data/available-datasets.cfm) and can be accessed following the protocol outlined in the method section.

COMPETING INTERESTS

The authors declare that they have no competing interests.

FUNDING

There is no funding for this manuscript.

CONTRIBUTION OF AUTHORS

AdN: contributes to the study design, data organization, analysis, and write-up; AmN contributes to the write-up and the overall supervision of the study from its inception. Both authors read and approved the final manuscript.

AUTHOR'S INFORMATION

AdN is a senior Public Health researcher at Amhara Public Health Institute

REFERENCES

[1.] World Health Organization. Trends in maternal mortality 2000 to 2020: estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division. World Health Organization; 2023 Feb 22.

[2.] Crowe S, Utley M, Costello A, Pagel C. How many births in sub-Saharan Africa and South Asia will not be attended by a skilled birth attendant between 2011 and 2015? BMC Pregnancy and Childbirth. 2012 Dec;12(1):4.

[3.] EDHS E. Demographic and health survey 2016: key indicators report. The DHS Program ICF. 2016.

[4.] Wakefield MA, Loken B, Hornik RC. Use of mass media campaigns to change health behavior. The Lancet. 2010 Oct 9; 376(9748):1261-71.

[5.] Grilli R, Ramsay C, Minozzi S. Mass media interventions: effects on health services utilization. Cochrane database of systematic reviews. 2002(1).

[6.] Agha S, Van Rossem R. Impact of mass media campaigns on intentions to use the female condom in Tanzania. International Family Planning Perspectives. 2002 Sep 1; 28(3):151-8.

[7.] Keating J, Meekers D, Adewuyi A. Assessing effects of a media campaign on HIV/AIDS awareness and prevention in Nigeria: results from the VISION Project. BMC Public Health. 2006 Dec; 6(1):123.

[8.] SHEFNER-ROGERS CL, Sood S. Involving husbands in safe motherhood: effects of the SUAMI SIAGA campaign in Indonesia. Journal of health communication. 2004 May 1;9(3):233-58.

[9.] Wakefield MA, Loken B, Hornik RC. Use of mass media campaigns to change health behavior. The Lancet. 2010 Oct 9; 376(9748):1261-71.

[10.] Rahman M, Islam R, Rahman M. Antenatal Care Seeking Behaviour among Slum Mothers: A Study of Rajshahi City Corporation, Bangladesh. Sultan Qaboos University Medical Journal. 2010 Apr; 10(1):50.

[11.] Singh PK, Rai RK, Alagarajan M, Singh L. Determinants of maternity care services utilization among married adolescents in rural India. PloS one. 2012 Feb 15; 7(2):e31666.

[12.] Mass media. Encyclopedia of Public Health 2002: ENCYCLOPEDIA.COM., The Role and Influence of Mass Media. Houghton Mifflin Harcourt 2016. Available from https://www. cliffsnotes.com/study-guides/sociology/contemporary y-mass-media/the-role-and-influence-of-massmedia.

[13.] Winett LB, Wallack L. Advancing public health goals through the mass media. Journal of Health Communication. 1996 Apr 1; 1(2):173-96.

[14.] Moynihan R, Bero L, Ross-Degnan D, Henry D, Lee K, Watkins J, Mah C, Soumerai SB. Coverage by the news media of the benefits and risks of medications. New England journal of medicine. 2000 Jun 1; 342(22):1645-50.

[15.] Schwitzer G, Mudur G, Henry D, Wilson A, Goozner M, Simbra M, Sweet M, Baverstock KA. What are the roles and responsibilities of the Media in disseminating Health information? Mass Communication: Issues, Perspectives, and Techniques. 2016 Apr 19:197.

[16] Bonacossa P, Kermani F, New Ways to Recruit Trial Subjects. Applied Clinical Trials 2003. Available from http://www.appliedclinicaltrialsonline.com/new ways- recruit-trial-subjects.

[17] Bonevski B, Wilson A, Henry DA. Americans talk about science and medical news: The National Health Council Report. New York: Roper Starch Worldwide; PLOS ONE 1997. Available from http://www.oalib. com/references/5517784.

[18] Arora S. Reproductive medicine: Challenges, solutions, and breakthroughs. JP Medical Ltd; 2014 Feb 28.

[19] Breslow L. Encyclopedia of Public Health; 2000. Available from https://books.google.co.jp/books? isbn=0028653521. .

[20] Torre GL. Smoking Prevention and Cessation – Page 169; Available from https://books.google.co.jp/books?isbn=1461470463.

[21] Naveena N. Importance of Mass Media in Communicating Health Messages: An Analysis; IOSR Journal of Humanities and Social Science (IOSRJHSS) Volume 20, Issue 2, Ver. V (Feb. 2015), PP 36.

[22] Happer C, Philo G. The role of the media in the construction of public belief and social change. Journal of social and political psychology. 2013 Dec 16;1(1):321-36.

[23] https://www.worldbank.org/en/country/ethiopia/overviews.

[24] Ministry of Health and Population, New ERA, ICF International (2012) Nepal demographic and health survey 2011 Kathmandu, Nepal and Calverton. Ministry of Health and Population, New ERA and ICF International, Maryland, USA.

[25] Nigussie M, Hailemariam D, Mitike G. Assessment of safe delivery service utilization among women of childbearing age in north Gondar Zone, North West Ethiopia. Ethiop J Health Dev. 2004;18(3):145–52.

[26] Edward B (2011) Factors influencing the utilization of antenatal care content in Uganda. Australas Med J 4(9):516.

[27] Kulkarni M, Nimbalkar M (2008) Influence of socio-demographic factors on the use of antenatal care. Indian J Soc Prev Med 39(3&4):98–102.

[28] Yared M, Asnaketch M: Utilization of Maternal Health Care Services in Ethiopia ORC Macro Calverton. USA Nov: Maryland; 2002.

[29] Teferra AS, Alemu FM, Woldeyohannes SM. Institutional delivery service utilization and associated factors among mothers who gave birth in the last 12 months in Sekela District, North West of Ethiopia: A community-based cross-sectional study. BMC pregnancy and childbirth. 2012 Dec; 12(1):74.

[30] Amano A, Gebeyew A, Berhanu A. Institutional delivery service utilization and associated factors among mothers who gave birth in the last 12 months before the study in Munesa wereda, Arsi zone 2011. BMC Pregnancy and Child birth. 2012(12):105-116.

[31] Nigussie M, Haile Mariam D, Mitike G. Assessment of safe delivery service utilization among women of childbearing age in North Gondar Zone, North West Ethiopia. Ethiop J Health Dev. 2004; 18(3):145–52.

[32] Tura G, G/Mariam A. Safe delivery service utilization in Metekel Zone, North West Ethiopia. Ethiop J Health Sci. 2008; 17(4):213–22.

[33] Malkamu A. Assessment of factors affecting utilization of maternal health care services in Assaita and Dubti towns, afar regional state [masters thesis]. In press 2010.

[34] Dhakal S, Teijlingen E, Raja E, Dhakal K. Skilled care at birth among rural women in Nepal: practice and challenges. J Health Popul Nutr. 2011; 29(4):371–8.

[35] Ikeako L, Onah H, Iloabachei G. Influence of formal maternal education on the use of maternity services in Enugu, Nigeria. J Obstet Gynecol. 2006; 26(1):30–4.

[36] Agha S, Carton TW. "Determinants of institutional delivery in rural Jhang, Pakistan.". Int J Equity Health. 2011; 10.1:31.

[37] Ochako R, Fotso J, Ikamari L, Khasakhala A. Utilization of maternal health services among young women in Kenya: insights from the Kenya Demographic and Health Survey, 2003. BMC Pregnancy Childbirth. 2011; 11(1):1476–2393.

[38] Nigusie A, Azale T, Yitayal M. Institutional delivery service utilization and associated factors in Ethiopia: a systematic review and META-analysis. BMC pregnancy and childbirth. 2020 Dec;20:1-25.