

Women’s Use of Mass Media and Information Technology to Curb Pre- and Post-Natal Complications in Rural Cameroon

Kingsley L. Ngange & Stephen N. Nnode

ABSTRACT

Pre- and post-natal complications in Cameroon are a serious cause for concern. Neonatal mortality in 2023 was 54 deaths per 1000 live births. Common causes include prematurity, asphyxia, infection, congenital malformations, and neonatal tetanus. Meanwhile, hemorrhage, hypertensive diseases and their complications, sepsis/infection, and HIV/AIDS are leading causes of death among child-bearing mothers in Cameroon. This study, conducted in ten rural communities in Cameroon, interrogates how Information and Communication Technologies (ICTs) and conventional media can be used to fight against these complications. A total of 1351 women who are pregnant or were pregnant within the past five years were surveyed using a questionnaire with 48 variables split into seven sections: media use and knowledge; other channels of health communication; pre-natal complications; pre-natal healthcare; delivery complications; post natal complications; and demographics. Findings suggest that only 10.4% of respondents rely on ICTs (mobilephones and Internet) for their healthcare education during pregnancy and after delivery. This is due to limited accessibility, affordability, and low literacy levels. Results show that ICTs like smartphones are valuable in communicating privacy and sensitive health information. For conventional media, respondents prefer television (39.5%) and radio (29.5%) because they are available, reliable, affordable, and entertaining. Overall, 1190 (88.3%) respondents attest that hospital talks by doctors, midwives, and nurses are the most effective way of obtaining reliable information to tackle pre- and post-natal issues in rural Cameroon. Hence, findings valorize interpersonal communication. Recommendations illustrate the need to democratize and simplify healthcare information in the media and during one-on-one interactions between health providers and mothers, so as to speed health information adoption and use by women of child-bearing age.

INTRODUCTION

Women, like men, are pillars of development in society. Their wellbeing, and that of their child(ren) is a powerful indicator for peace, development, and stability in the family, community, and society. Over the years, mass media have maintained a powerful effect on healthcare education in general and adolescent health in particular^{1 2 3 4 5}. The media have been instrumental channels in informing and educating women of child-bearing age on specific issues to aid them easily solve pre- and post-natal complications.

Mass media refer to channels of mass communication such as books, newspapers, magazines, radio, television, and Internet. Public health officials in Cameroon depend a lot on these channels to raise

¹ Brown, J.D., & Witherspoon, E.M. (2002). The mass media, & American adolescent. *Journal of Adolescent Health*, 31, 153-170.

² L’Engle K.L.; Brown, J.D & Kenneavy, K. (2006). The Mass Media are an important context for adolescents’ sexual behaviour. *Journal of Adolescent Health* 38. 186-192.

³Saraf, R.A., & Balamurugan, J. (2018). The role of mass media in healthcare development: A review article. *Journal of Advanced Research in Journalism & Mass Communication*, 5(1&2), 39-43.

⁴ WHO (2022). The role of media in supporting health. Retrieved from: <https://www.who.int/tools/your-life-your-health/a-healthy-world/people-s-roles/the-role-of-media-in-supporting-health>

⁵ Kasturia, S & Jaisal, M. (2023). Role of mass media in achieving sustainable healthcare. *International Journal of Humanities and Social Science Invention (IJHSSI)*, 12(9), 110-115.

awareness about healthcare challenges in both rural and urban areas in the country. Women of child-bearing age, for instance, face several challenges relating to birth, including child mortality⁶. So, for such messages to be effective, need exists for a well-defined behaviour change communication plan with the media actively involved at every stage⁷. Key amongst the stages are formation of healthcare messages, coordination, evaluation and monitoring of the media campaign.

In Cameroon, the media have been seen as having tremendous potential to promote reproductive healthcare, especially in rural communities⁸. According to the authors, media messages for rural communities are packaged and delivered through different communication channels to reach target groups. The ultimate goal of such messages is to achieve behaviour change through communication in areas related to birth control and healthy living.

However, despite the existence of these numerous information channels, women of the child bearing age in rural communities still face a plethora of complications before and after birth (pre- and post-natal complications). This prompted the Cameroon Association of University Women (CAMAUW) members to start working with a selected group of Mbororo⁹ women leaders some years ago to promote women's and girls' sexual reproductive health rights. This is an endeavour to stress the relevance of communication channels (social groups) in the process of fighting against pre- and post-natal complications.

This article aims to provide understanding on the relationship between neonatal and infant mortality and mass media exposure in Cameroon. In seeking to understand which communication channels can be most effective in addressing women's pre- and post natal needs, we ask the following questions:

1. Which Mass Media channels do women depend on more for pre- and post-natal needs in Rural Cameroon?
2. Are pre- and post-natal needs of women addressed adequately by these channels of communication?

The study hypothesizes that:

1. Women in rural communities make use of the media for pre- and post-natal healthcare education
2. Women in rural communities depend more on traditional media than the new media for information on their pre- and post-natal needs.
3. Interpersonal communication is an important means of enhancing healthcare education in rural communities which are known for their closeness and unwillingness to discuss sensitive issues like pregnancy in public.

LITERATURE REVIEW

Society today depends on information to keep moving in the right direction in fulfilling the daily activities of work, entertainment, health care, education, personal relationships, traveling, amongst others. This

⁶ Talom, K.A., Ymele, F.F., Nzene, E.M., Fouedjio, J. & Foumane, P. (2021) Maternal Mortality in Two Reference Hospitals in the City of Yaounde (Cameroon): Epidemiological, Clinical and Prognostic Aspects. *Open Journal of Obstetrics and Gynecology*, 11, 610-625. <https://doi.org/10.4236/ojog.2021.115057>

⁷ Bauman, A., Smith, J.B., Maibach, E.W., & Bill Reger-Nash, B., (2006). Evaluation of mass media campaigns for physical activity. *Evaluation and Program Planning* 29 (2006) 312–322.

⁸Ngange, K., Tanjong, E., Boateng, R., & Mbarika, V., (2010) Healthcare education and information technology: exploring channels of communicating family planning messages in Rural Cameroon. www.ires.africanacademy.com.

⁹ Mbororo are an indigenous community situated in the borderlands of Cameroon and in neighbouring areas of Central African Republic, Chad, and the Democratic Republic of Congo.

information can be obtained through different channels—traditional mass media, information and communication technologies (ICTs), individuals, amongst others.

Mass Media and Healthcare Education

Health-related mass media campaigns are organized and purposive efforts to communicate to, persuade and influence a population to consider, adopt or change to more health enhancing practices¹⁰. The dissemination of appropriate health education messages is essential to any health promotion campaign. Health communication messages are essential for promoting behaviour change among individuals and groups. If successfully produced, they can increase knowledge and awareness of a health complications, influence perceptions which may lead to behaviour change, increase demand for health services, and inform decision-making¹¹.

Every year, new public health mass media campaigns are launched in an attempt to change health behaviour and improve health outcomes¹². These campaigns enter a crowded media environment filled with messages from competing sources. Public health practitioners have to capture not only the attention of the public amid such competition, but also motivate them to change health behaviours that are often deep-rooted, or to initiate habits that may be new or difficult. In an endeavor to further explain the relationship between the mass media and health care education, Rayuso asks a series of questions¹³:

- In what ways are public health mass media campaigns now attempting to succeed in a world crowded with media messages from a myriad of sources?
- What are the conditions that are necessary for a media campaign to successfully alter health behaviors and alter outcomes in the long term?
- To what extent can the successes and failures of previous campaigns be useful in teaching important lessons to those planning campaigns in the future?

As part of the answers to these questions, mass communication health campaign messages should emphasize information that is new to the target group and essential for behaviour change¹⁴. In other words, a comprehensive strategy that addresses policy and environmental constraints, individual factors in behaviour change and social influences on the target population should be considered. A variety of channels should be chosen for their ability to reach the target population multiple times and help people, (especially women in this case) to remember the messages.

The messages themselves need to be carefully crafted to persuade women to change their behaviour and enable them meet up with their pre- and post-natal needs. The need for strong persuasive messages cannot be over-emphasized since African traditional societies are well-known for their keenness to preserve their customary values and cultures. Such habitual values and cultures like female genital mutilation, circumcision rites of children, crude delivery methods for pregnant women, etc, are often contrary to modern healthcare practices.

¹⁰ Atkin, C., & Wallack, L. (1990). *Mass communication and public health: Complexities and conflicts*. California: Sage.

¹¹ Heggenan et al. (2009). Examining media habits: Implications for health promotion programs among the Toposa in Southern Sudan. *International Health*, 1(1), 45-52. doi: 10.1016/j.inhe.2009.06.005

¹² Randolph, W., & Viswanath, K. (2004). Lessons learned from public health mass media campaigns: Marketing health in a crowded media world. *Annual Review of Public Health*, 25, 419-37.

¹³ Randolph et al. (ibid).

¹⁴ Grunig, J. (1989). Publics, audiences, and market segments: Segmentation principles for campaigns. In C. Salmon (Ed.), *Information campaigns: Balancing social values and social change*. Newbury Park, Calif: Sage.

Then, mass media campaigns on health need to have built-in methods of garnering feedback about campaign execution and effectiveness. For instance, through careful planning and execution, family planning campaigns should succeed in changing the child-bearing behaviors of some members of their target population. In Cameroon, some rural communities are now embracing modern family planning methods like using contraceptives for birth control and healthy living as well as limiting the number of sex partners, thanks to communication health campaign strategies and messages from the media and health officials.

It is rather unfortunate that communication campaigns on health effects often decline after a campaign is over¹⁵. Research is needed into which strategies—such as participation in the campaign by local organizations; selecting goals, messages, and strategies that are sensitive to local cultures and values; and targeting informal socialization agents so that they may teach successive generations the behavioural links with healthcare education.

Most governments in economically less advanced nations ensure that maternities are located towards family settlements in rural areas to enable pregnant women, of the vulnerable group, receive medical attention easily. To this effect, in most African countries like elsewhere, maternity houses have been established near hospitals to bring women living in remote areas to care before any complication develops.

Media also cover post-natal complications like preventing post-natal transmission of HIV through breastfeeding. Aid is offered to some less privileged pregnant women before and after birth. That notwithstanding, while some women report perfectly in health before and after birth, others develop more serious health complications that can threaten their lives, as well as that of their babies.

In order to prevent any complications, pregnant women should frequently eat small meals and stacks high in complex carbohydrates, such as whole grains or vegetables. The role of their partners in helping them maintain good diet during and after pregnancy is also crucial¹⁶.

In order to support should healthy diet, pregnant women should benefit tremendously from health campaigns in the mass media. Due to economies of scale, media activities can be much less expensive per person reached than counseling. Tailored media may provide a more efficient approach for some populations, combining some of the advantages of counseling with wider reach¹⁷.

Similarly, one of the basic tenets of health campaigns is to specify fairly homogenous target groups and to create messages designed for each group¹⁸. The justification for targeting is that messages crafted to be successful with a homogenous group are more likely to have an impact on that group than messages designed for a heterogeneous population with varied concerns, values, and behaviors.

Regarding the presentation of mass media messages on health care education, this factor (presentation) affects how the message looks and sounds, and can mean the difference between messages that are accepted

¹⁵ Hornik, R.C. (1988). *Development Communication: Information, Agriculture, and Nutrition in the Third World*. New York: Longman Publishing Group.

¹⁶ Lonkhuijzen, R.M. et al. (2023). The role of the partner in the support of a pregnant woman's healthy diet: An explorative qualitative study. *BMC Pregnancy and Childbirth*, 23:760. doi.org/10.1186/s12884-023-06072-9

¹⁷ Kreuter, M., Farrell D., Olevich, L., Brennan L. (Eds.). (2000). *Tailoring Health Messages: Customizing Communication with Computer Technology*. Mahwah, NJ: Lawrence Erlbaum Association.

¹⁸ Kreuter, M. & Wray, R. (2003). Tailored and targeted health communication: Strategies for enhancing information relevance. *American Journal of Health Behavior*, 27(3), 227-32. doi:10.5993/AJHB.27.1.s3.6

and those that are rejected by the target population¹⁹. Furthermore, messages need to capture attention and be easily remembered by each member of the target population. This goal can be accomplished by using multiple executions (different versions of the same underlying concept); being creative and original by refreshing media messages often depicting people who are clearly members of the target population; and by creating logos, slogans, and jingles.

As much as possible, messages should be kept simple, because complicated messages are more likely to be misunderstood and misremembered²⁰. To them, campaign designers can think creatively about how to present complicated messages in order to increase the chance of people remembering the correct message, such as employing songs, or by selecting channels like reminder cards or refrigerator magnets. The emotional tone of the presentation should be carefully considered. In many circumstances, messages that evoke positive emotions may have a greater impact with the target group than those evoking negative emotions like fear.

Another aspect of message presentation is the information sources and their credibility and consistency. To increase acceptance of the message, the campaign must select credible spokespeople and organizations that balance trustworthiness and expertise²¹. All sources of communication with which members of the target population come into contact should share consistent messages. Planners may want to enlist the cooperation of businesses that benefit from the dietary recommendation like cereal companies for fiber messages and restaurants to mark healthful choices on menus), as well as others who communicate about nutrition with the target population like teachers, dietitians, reporters, and health care professionals.

Enhancement of trust in mass media among the general population could be utilized to promote people's health²². Regarding causal pathways for how trust in mass media operates to influence health, the following mechanism can be considered: greater media trust may lead to higher use of mass media for health information; this in turn may lead to higher awareness of important health information and may result in better health-related decision-making and behavior.

Mass media can have beneficial effects on people's health through conveying useful information related to health by various approaches, such as educational campaigns, series programmes, and advertisements. Given the widespread influence of mass media, well-designed mass media campaigns can have beneficial effects not only on health knowledge and attitudes, but also on health behaviour, with a potentially huge public health impact.

Thus, trust in mass media is related to seeking behaviour for health information and low trust may be associated with low levels of knowledge regarding important information relevant to people's health. In addition to issues associated with media access, understanding the audience is also crucial to developing appropriate and effective health promotion materials²³.

¹⁹ Hoffmann, T. & Worrall, L. (2004). Designing effective written health education materials: considerations for health professionals. *Disability and Rehabilitation*, 7; 26 (19):1166-73. doi: 10.1080/09638280410001724816

²⁰ Elrod, J.K., & Fortenberry, J.L. (2020). Advertising in health and medicine: Using mass media to communicate with patients. *BHC Health Services Research*, 20(1). doi.org/10.1186/s12913-020-05599-3

²¹ McGuire, W.J. (1981). The theoretical foundation of campaigns. In: R.E. Rice & W.J. Paisley (Eds.). *Public communication campaigns*. Beverly Hills, Calif: Sage.

²² Dekker, P., & Broek, A. (2004). Civil society in longitudinal and comparative perspective: voluntary associations, political involvement, social trust and happiness in a dozen countries. Proceedings of the 6th International Conference of the International Society for Third-sector Research: Ryerson University, Toronto.

²³ Remington P., Reisenberg L., Needham D., Siegel P. (2002. p. 127—40.) Written communication. In D. Nelson, R. Brownson, P. Remington, & C. Parvanta (Eds.), *Communicating public health information effectively: A guide for practitioners*. Washington, DC: United Book Press.

ICTs and Healthcare Education in Rural Communities

Mobile technology has expanded around the world. ICTs have altered how health care is delivered^{24 25}. Mobile phones, for instance, can be effectively used to empower expectant mothers, reminding them to take medication at the proper time, extending service to underserved areas, and improving health outcomes and medical system efficiency.

Essentially, information is vital for community development. Julius Nyerere, one of Africa's greats asserted that while other countries aim to reach the moon, Africa must aim to reach the villages by providing them with necessary information. Information can eradicate ignorance and help achieve economic, social, political, and cultural objectives towards the development of the entire community. The introduction of ICTs in rural communities to help in disseminating healthcare messages to women of child bearing age is important.

Need exists for more effective information on healthcare education to be delivered in a coherent form through ICTs to rural women of child bearing age. This will create an intellectual climate that stimulates women to take a look at their current practices and future perspectives. Ideally, information brings about knowledge. Thus, no community can develop without knowledge, and a community can only become knowledgeable by using information as a tool for development. The contradiction between the vital role of information in development and its lack of official recognition in developing countries can hardly escape the attention of information specialists²⁶. The personal development of the rural pregnant women is therefore based on their level of exposure to information pertaining to healthcare education.

Information in rural communities is largely hidden and not much has been discovered by researchers. It is also not surprising that some rural communities of the developing world are not fully aware of the existence and benefits of ICTs. So, it is imperative for ICTs to be introduced and exploited (especially by women of child bearing) in these communities.

Information is a fundamental resource for development, but even when the necessary information is available, not everyone benefits from it²⁷. There are sectors in society that are better informed than others. This disparity is more visible in developing countries. In these countries, a majority of the people live in rural areas, and are often left out of the existing information flow.

Connecting rural communities to the global network is made possible with ICTs. When carefully designed and implemented, ICTs can establish a network for preserving, ordering, and transmitting information to rural communities. But providing infrastructure, hardware, and software alone is not sufficient. In order to empower individuals, they must be equipped with the necessary skills.

The technological revolution is limited by the need to overcome economic, organizational, and technology disparities across nations. Research at the Columbia University Center for Global Health and Economic Development has identified several sources of inequity: treatment compliance, disease surveillance, health

²⁴ Wang, H., & Liu, J. (2009). "Mobile Phone Based Health Care Technology", *Recent Patents in Biomedical Engineering*, 2, 15-21.

²⁵ Megbowon, E.T., & Oladipo, O.D. (2023). Information and communication technology development and health gap nexus in Africa. *Frontiers in Public Health*, 11, doi:10.3389/fpubh.2023.1145564

²⁶ Mchombu, K.J. (2003). Case studies: Impact of information rural development: Background, methodology, and progress. International Development Research Centre. Science for Humanity.

²⁷ Megbowon, E.T., & Aladipo, O.D. (ibid.)

information systems, point-of-care support, health promotion, disease prevention, and emergency medical response²⁸.

Also, despite the potentials of ICTs, technological barriers are perhaps the most challenging aspect to be addressed. Pushing ICTs into rural communities could create resistance, because it requires a new set of skills and competencies. If not properly planned and developed, ICTs can be perceived as a threat to rural communities. These issues make it difficult for people in all nations to share in the benefits of the unfolding technological revolution.

To overcome this resistance, need exists for an approach which portrays the merits of ICTs and creates a demand for information that serves rural communities. Convincing rural communities/women on the importance of information will result in acceptance of information as a key for their own personal benefits and the interest of their unborn babies.

Since ICTs are therefore envisaged as the medium or container of information and a key enabler to women's wellbeing, greater awareness and understanding on the role of ICTs must be conveyed to rural communities. For example, the Internet is an important component in bridging the digital gap. However, while one needs to master the content of the Internet, it can only be done by knowing how to use the technology. With the mobile phone, pregnant women can receive timely and confidential messages from their doctors or other health personnel reminding the women to take their medication or honour an appointment. This can easily persuade women in rural areas to use mobile phones, as a means of guaranteeing their traditional value of confidentiality/secretcy relating to their health.

Perhaps, the most important challenge to be addressed, in terms of ICT penetration in rural areas, is technological barriers. Access to information in rural communities is affected by a number of such barriers as infrastructure, low level of literacy, lack of proper information services, technical competencies, and lack of proper information policy and governance directed to rural communities²⁹. To overcome this, African governments must invest hugely in this sector in order to catch up with the level of technology in Europe, America and Asia.

Accepting information as an important commodity will call for all stakeholders to change their strategies from establishing digital divide initiatives that are technology-driven to those that are community-based and information-driven. The emphasis would be on directing, educating and training rural communities on how to find and use information through ICTs. The demand for information will create a parallel demand for ICTs. Thus, rural communities/women will be more ready to accept ICTs, since they will be the ones looking for information, education, and sensitization.

Mass media and ICTs are indispensable tools to reach rural women (who constitute over 60% of the population of most African countries) with information that is relevant to their health and the health of their unborn and born babies. This makes these channels of communication keys player in addressing pre- and post-natal infant mortality complications in Cameroon like in other parts of Africa. For this reason, African governments should invest in these sectors in order to overcome the barriers which are continually responsible for the death of women, their unborn babies, and especially children of 0-5 years.

²⁸Patricia Mechael, Hima Batavia, Nadi Kaonga, Sarah Searle, Ada Kwan, Adina Goldberger, Lin Fu, & James Ossman, "Barriers and Gaps Affecting Health in Low and Middle Income Countries", Columbia University Center for Global Health and Economic Development, May 2010.

²⁹Mchombu, K.J. (1992). Information needs for rural development: The case of Malawi. *African Journal of Library Archives and Information Science* 2 (1): 17-32.

Theoretical Framework

The study draws from the Uses and Gratifications and Two Step Flow theories, as well as the Technology Acceptance Model (TAM). Uses and Gratifications (U&G) theory has its origin from Harold Lasswell's 1948 model of *who? Says what? In which channel? To whom? With what effect?* This model identified what the media do to people, as opposed to what people do with the media. Four major reasons for media use are: *information; personal identity; integration and social interaction; and entertainment*³⁰. By information, McQuail refers to how individuals use a medium to: a) find out about relevant events and conditions in their immediate surroundings, society and the world, b) seek advice on practical matters or opinion and decision choices, c) satisfy curiosity and general interest, d) learn and self-education; and, e) gain a sense of security through knowledge.

From the above perspective, the study seeks to understand why and how women in the rural communities depend on certain channels for health care education. For instance, do the women use the media to obtain information on how to overcome ante-natal complications which they are likely to face?

The Two Step Flow theory, propounded by Lazarsfeld and colleagues, provides the first clue of the limited effects of the media, contrary to the Magic Bullet theory, which explains the all-powerful effects of the media on the audience. The Two Step Flow theory brings out the role secondary channels play in the decision-making process of people. To this end, the study probes to see what role secondary channels (doctors, nurses and midwives) play in the decision-making process of women in rural communities faced with pre- and post-natal challenges.

Meanwhile, the Technology Acceptance Model (TAM) basically points to two things—that the adoption and use of a new technology is influenced by its Perceived Ease of Use (PEOU) and its Perceived Usefulness (PU). PEOU has to do with the degree of ease associated with the use of the system, while PU represents the degree to which an individual believes that using the system will help him or her to attain gains in job performance³¹. A direct relationship exists between PEOU and PU in that, as individuals find the use of a technology easy, there is greater likelihood for them to use it to perform tasks. This is a good model to predict the level of adoptability and usability of ICTs by rural women as communication channels of healthcare education.

METHODOLOGY

The study employed the survey research method. A total of 1351 women of child bearing age, who were pregnant and/or have given birth within the past five years were interviewed in the 10 randomly selected rural communities of the Buea Municipality (Likombe, Bova, Bwassa, Lysoka, Maumu, Bonakanda, Wututu, Bonjongo, Bwiyuku, and Lower Wonganjo). Buea is the headquarters of the South West Region in Cameroon. The selected communities are inhabited by people from different tribes and cultures in Cameroon, which makes these communities Cameroon in miniature.

A purposive random sample was used in order to particularly address only women who have actually faced pre- and post-natal complications. A questionnaire with 48 variables was developed. It had 7 sections which include: media use and knowledge, other channels of health communication, pre-natal complications, pre-natal healthcare, delivery complications, post-natal complications and demographics. The data were collected by well-trained research assistants. They lived in the communities during the period of data collection, in order to gain background cultural knowledge relating to respondents' views. Data collection

³⁰ McQuail, D. (1983). *Mass communication theory* (1st ed.). London: Sage

³¹ Venkatesh, V., Morris, M.G., Davis, F.D., & Davis, G.B. (2003). *User acceptance of information technology: Toward a unified view,*” *MIS Quarterly*, 27, 425-47.

was face-to-face in order to minimize errors, given that most of the rural women were not literate, and also to increase the response rate. Research assistants had a mastery of the medium of communication in these rural communities (Pidgin English) and effectively translated the questionnaire from English Language to the Pidgin English. Prior to data collection, a pilot study was conducted meant to identify the problematic areas of the instrument. The questionnaire was adjusted accordingly in order to enhance its reliability.

FINDINGS AND DISCUSSION

Findings are based on the research questions.

RQ1: Which Mass Media channels do women depend on more for pre- and post-natal needs in Rural Cameroon?

The findings reveal that television is the channel that pregnant women are most exposed to during and after pregnancy. This is followed by radio. Due to the low literacy level in rural communities, newspaper is the least used traditional medium amongst pregnant women in the rural communities.

This is shown in tables one and two below:

Table 1: Media exposure during pregnancy

Medium	Frequency	Percentage
Television	533	39.6
Radio	398	29.5
Other channels	367	27.2
Newspaper	17	1.3
No response	36	2.4
Total	1351	100

Table 2: Media Exposure after pregnancy

Medium	Frequency	Percentage
Television	532	39.5
Radio	386	28.7
Other channels	317	23.5
Newspaper	21	1.6
No response	95	6.7
Total	1351	100

Tables 1 and 2 suggest that television has a dominant percentage (39.6% and 39.5% respectively) of respondents' preference as opposed to radio (29.5% and 28.7% respectively) and newspapers (1.3% and 1.6% respectively). Hence, women pay more attention to TV in order to become educated on health issues for their sake and that of their unborn/born babies. The data also suggest that other information channels (27.2% and 23.5%, respectively) like health officials play a key role in educating the rural women.

RQ2: Are pre- and post-natal needs of women addressed adequately by these channels of communication?

To get further insights, respondents were asked to rate the effectiveness of the mass media in solving pre- and post-natal infant complications. Television still had the highest rating, followed by radio. Interpersonal channels like hospital talks were also highlighted. This confirms the usefulness of the theories used, as further shown below:

Table 3: Appraisal of Mass media addressing pre-natal needs

Response	Frequency	Percentage
Yes	1028	76.1
No	251	18.6
No response	72	5.3
Total	1351	100

Table 4: Appraisal of mass media addressing post-natal needs

Response	Frequency	Percentage
Yes	976	72.2
No	259	19.2
No response	116	8.6
Total	1351	100

From tables 3 and 4, 76.1% and 72.2% of respondents, respectively say the mass media adequately address their pre- and post-natal needs. This means that the respondents are satisfied with the information they receive from the media. This makes the mass media indispensable tools for health officials to pass across healthcare information to needy mothers in rural communities.

Concerning the issues addressed by the media during pregnancy, *precaution* recorded 314 responses (23.3%). This is so because it is considered that the mother needs to take particular caution on the types of activities to undertake for the safety of the child. These activities include: type of food to eat, type of labour to do, response to environmental conditions, physical exercises, ante-natal care, medication to take, avoiding alcohol and drugs, etc.

For post-natal needs, *child care* is addressed most in the media (430 respondents, 31.9%). This confirms the fact that after delivery, the media focus on educating mothers on the need to take care of their children through vaccination, nutrition, and breast feeding. A handful of respondents also indicated that pre- and post-natal needs are addressed ‘often’ in the media. Thus, the media address pre- and post-natal complications as seen from the above revelations.

Apart from traditional mass media (radio, television and newspapers), the study also probed into the other communication channels used by rural women who are either pregnant or have been pregnant in the past five years. Only 141 respondents (10.4%) rely on mobile phones or internet for health care education. This shows that ICTs are not the best way of communicating healthcare messages. This is partly attributed to the complexity of health information online, which some rural women are not able to interpret and understand. However, respondents who depend on them say ICTs are useful in cases where privacy is needed such as texting (with mobilephones) anonymous messages to request and receive “sensitive” healthcare information like reminding HIV patients to take drugs and/or respect their rendez-vous with their doctors.

The findings also suggest that in rich interpersonal contexts (typical of African societies) the credibility of the bearer/deliverer of healthcare information (in this study health officials), influences the value attached to the information by recipients. In this light, 1190 (88.3%) respondents say hospital talks offered by doctors, midwives and nurses are the most effective ways of communicating pre- and post-natal messages in rural Cameroon.

DISCUSSION

This research has shown that mass media are an important ingredient in the lives of women of child-bearing age. Television, radio, hospital talks, and ICTs have been shown to lend some degree of assistance to these women, as they depend on the channels to take care of themselves and their babies. As scholars suggest, the media have the potential to galvanize educational, sensitization, informative, and persuasive messages to influence the women on how they should conduct themselves during and after pregnancy^{32 33}.

The study's findings corroborate the literature's assertion that well-designed mass media campaigns can lead to behavior change, increased knowledge, and awareness of health complications³⁴. Successful campaigns should consider the context, addressing policy constraints, individual factors, and social influences on the target population³⁵. In the case of maternal healthcare, crafting persuasive messages tailored to women's needs and cultural sensitivities is crucial, given the persistence of traditional practices that may contradict modern healthcare norms.

Our findings reveal that television has a dominant percentage (39.6% and 39.5% respectively) of respondents' preference as opposed to radio (29.5% and 28.7% respectively) and newspapers (1.3% and 1.6% respectively). Hence, women pay more attention to TV in order to become educated on health issues for their sake and that of their unborn/born babies. The data also suggest that other information channels (27.2% and 23.5%, respectively) like health officials play a key role in educating the rural women.

While mass media campaigns play a vital role in health education, sustaining their impact post-campaign remains a challenge³⁶. Research emphasizes the need for continued strategies, involving local organizations, cultural alignment, and targeted approaches to foster behavioral links with healthcare education. Engaging informal socialization agents becomes imperative to impart healthcare knowledge through successive generations³⁷.

The integration of ICTs in healthcare education, especially in rural areas, presents both opportunities and challenges. Mobile technology, when effectively utilized, can empower expectant mothers by providing timely reminders, extending services to underserved areas, and improving health outcomes³⁸. Advocacies for reaching villages with necessary information aligns with the potential of ICTs to bridge information gaps in rural communities.

³² Saraf et al. (2018). (ibid.)

³³ Elrod et al. (2020). (ibid.)

³⁴ Heggenan et al. (2009). Examining media habits: Implications for health promotion programs among the Toposa in Southern Sudan. *International Health*, 1(1), 45-52. doi: 10.1016/j.inhe.2009.06.005

³⁵ Grunig, J. (1989). Publics, audiences, and market segments: Segmentation principles for campaigns. In C. Salmon (Ed.), *Information campaigns: Balancing social values and social change*. Newbury Park, Calif: Sage.

³⁶ Hornik, R.C. (1988). *Development Communication: Information, Agriculture, and Nutrition in the Third World*. New York: Longman Publishing Group.

³⁷ Heggenan et al. (2009). Examining media habits: Implications for health promotion programs among the Toposa in Southern Sudan. *International Health*, 1(1), 45-52. doi: 10.1016/j.inhe.2009.06.005

³⁸ Megbowon, E.T., & Oladipo, O.D. (2023). Information and communication technology development and health gap nexus in Africa. *Frontiers in Public Health*, 11, doi:10.3389/fpubh.2023.1145564

Our findings provide insights into the effectiveness of mass media channels in addressing pre- and post-natal needs. From these tables, 76.1% and 72.2% of respondents, respectively, say the mass media adequately address their pre- and post-natal needs. This means that the respondents are satisfied with the information they receive from the media. This makes the mass media indispensable tools for health officials to pass across healthcare information to needy mothers in rural communities.

The literature acknowledges the challenges associated with ICT implementation in rural areas, including infrastructure limitations, low literacy levels, and resistance to technological changes¹. Addressing these challenges requires not only providing infrastructure but also equipping individuals with the necessary skills³⁹. The study's findings echo these challenges, emphasizing the importance of community-based and information-driven initiatives to promote ICT acceptance.

Hence, the major pre-occupation of this research has been addressed in that, findings show that women of child-bearing age rely on the media. They also affirm that the media assists them at pre-natal and post-natal stages. During pre-natal, they highlighted precaution (the need to properly take care of themselves and their unborn child(ren)). At post-natal, the women highlighted the importance of child care. This means that mass media campaigns and advocacy can capitalize on these factors to accompany the women in their efforts to raise their children. Women can also take advantage of ICTs and benefit from the transformative power of these technologies in the healthcare sector^{40 41}.

CONCLUSION

Women in rural communities make use of the mass media for healthcare education. Among the mass media, women make more use of the television, radio, and healthcare professionals (doctors, midwives, nurses). Also, respondents make more use of the traditional media than new media because the new media are, to a greater extent, still a novelty and costly to these rural women. The data reveal that television, radio and newspapers constitute over 70% use among rural women as opposed to a 10.4% of respondents who rely on ICTs (Mobile phones and the Internet) for their healthcare education. The internet for instance, is almost non-existent in most of these rural communities.

Then, it is evident that interpersonal communication stands out as the best way to communicate health-related messages to rural women involved in pre- and post-natal complications. The findings show that up to 88.3% of respondents say hospital talks offered by doctors, midwives and nurses are the most effective means of obtaining reliable information to tackle pre- and post-natal issues in rural Cameroon.

Moreover, an analysis of the theoretical framework used in the study shows that the Two Step Flow theory is the most effective theory that is applicable to the study. This is because up to 88.3% of rural women are of the opinion that hospital talks are the most effective channels of disseminating healthcare related messages to them. The Uses and Gratifications theory comes in the second position because over 70% women rely on the mass media to satisfy their information needs during and after pregnancy. These women make an impressive use of the television and radio as key traditional media. Finally, the Technology Acceptance Model (TAM) is least effective because only 10.4% of rural women say they are exposed to Mobile phones and the Internet for healthcare education. Hence, ICTs are still at infancy in rural Cameroon.

This article proposes set of recommendations to curb pre- and post-natal complications in rural Cameroon through mass media and information and communication technology. Therefore, health promotion

³⁹ Mchombu, K.J. (1992). Information needs for rural development: The case of Malawi. *African Journal of Library Archives and Information Science* 2 (1): 17-32.

⁴⁰ WHO (2022). (ibid.)

⁴¹ Megbowon et al. (2023). (ibid.)

campaigns need not only estimate access to various forms of media but to address strategies to increase access among all individuals. Since video and radio have not been used extensively to promote health education messages in this area, formative research is necessary to ensure messages are both appropriate and understood by community members. Formative research based on sound behavioral change theory is essential to develop audience-targeted and effective campaign messages.

Also, the constructive synergy between contemporary and traditional forms of communication will be important for reaching the desired population and working with them to design health communications strategies that are appropriate and trustworthy. In addition, campaign outcomes should be based on established and reliable measures, with an emphasis on examining proximal outcomes first, such as changes in campaign awareness, message understanding, and motivation to change.

Conclusively, quantifying media access and preferences will allow public health and other socioeconomic initiatives to identify the most appropriate means for reaching the target audience. Hence, the information obtained from this study will enable the Ministry of Public Health in Cameroon and other parts of Africa to identify pre- and post-natal complications common in rural settings, including the most effective channels to use in sending out valuable information on health to women of the child bearing age. It would enable the government to allocate resources to help promote child care in rural areas in Cameroon. Women of child-bearing age will benefit from results of this research, as they draw on the need for exposure to, and use of mass media and information technology for healthcare education.

Further research could consider the use of social media by women of child-bearing age to address pre- and post-natal issues. The information revolution is here; so, it is important to take advantage of innovations in ICTs. Adoption of media practices and efficient use of ICTs can level information gaps in healthcare and enable the realization of targeted outcomes, especially in urban and rural settings in Africa⁴². Accordingly, stakeholders, each in their domain, have to make these ICTs a reality, and not a nightmare, for individuals and communities.

⁴² Megbowon, E.T., & Oladipo, O.D. (2023). Information and communication technology development and health gap nexus in Africa. *Frontiers in Public Health*, 11, doi:10.3389/fpubh.2023.1145564