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ADEQUACY OF COMMUNICATION CHANNELS FOR MATERNAL HEALTHCARE IN DELTA STATE

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ABSTRACT

This study examined the adequacy of communication channels available for maternal healthcare in Delta State. Rationalized by the agenda setting theory, the quantitative and qualitative research designs, the questionnaire was used to extract relevant information from a sample size of 399 respondents. The study found that the level of awareness of the programs was encouraging for FMHCP and HeFAD. The majority of respondents acknowledged that the communication channels were adequate, and more than half thought they were effective in influencing participation in the maternal healthcare programs. The stakeholders acknowledged the use of multiple communication channels in spreading awareness of the maternal healthcare programs. T herefore, the study recommends the continuous use of communication channels to spread awareness of maternal healthcare programs.

Keyword: Movie, Moral Value, Discourse Analysis

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1. INTRODUCTION

In Delta State, the government introduced its maternal healthcare programs, namely the Free Maternal Healthcare Program (FMHCP), which was launched in November 2007 by the administration of Emmanuel Ewetan Uduaghan, and the Health for All Deltans (HeFAD) by the administration of Arthur Ifeanyi Okowa in 2016. These programs were part of the state government's efforts to reduce maternal mortality which stood at an unacceptable rate of about 800 per 100,000 live births (Delta State Ministry of Health, 2010); ensure equal access to maternal healthcare; promote healthy lifestyles, and make appropriate use of medical facilities during pregnancy, childbirth, and after childbirth. A major concern for maternal health is the care provided or received by a woman of reproductive age during pregnancy, delivery, and after birth (Zmawe, Banda, Dube, 2016; Haltigan, Madigan, Bronfman, Bailey, Borland-Kerr, Mills-Koonce , & Lyons-Ruth, 2017). It has been identified as a key development issue because health issues are central to human development. In addition, maternal health indicates the quality of a country's healthcare system, the level of its social conditions, and is the main determinant of the global ranking of the human development index (Odesanya, Hassan, & Olaluwoye, 2015). In the developing world, maternal health has become a major part of healthcare programs due to the large population of women of reproductive age (21 percent), high maternal mortality, inadequate care during pregnancy and childbirth, poorly spaced or unwanted pregnancies, diseases, nutritional problems, and delivery in the hands of untrained birth attendants, among others (Benis, Barkan, Sela, &Harel, 2020). Statistically, in Sub-Saharan Africa, one woman dies from childbirth-related complications every minute, totaling 529,000 per year, Odesanya et al. (2015). This high maternal mortality rate has become a problem and therefore requires the immediate attention of the government, men, women, and all other stakeholders. It follows that women of reproductive age should be given the utmost care and support to facilitate a safe pregnancy, birth, and healthy postpartum period. Unfortunately, this care does not seem to be maximized due to some variables, and therefore governments have taken steps to ensure adequate maternal healthcare provision (Hidalgo-Lopezosa, Rodríguez-Borrego, & Muñoz-Villanueva, 2013). Achieving this goal depends on initiating or implementing interventions in the form of campaigns or programs through adequate use of available communication channels to achieve goals with information that could influence positive responses (Mbuthia, Reid, & Fichardt, 2019). According to the Delta State

Government used communication channels such as radio, television, newspapers, churches, town halls, market places, posters, town criers, and billboards, among others, to create awareness about maternal healthcare programs. The study therefore seeks to evaluate the adequacy of communication channels used in creating awareness of the maternal healthcare programs in Delta State and to ascertain contribution to the success of the programs (Zmawe, Banda, Dube, 2016 ; Sanghvi, Jimerson, Hajeebhoy, Zewale, & Nguyen, 2013).

Objectives

The study objectives include to:

1. ensure the adequacy of the communication channels in influencing participation by women of reproductive age in the two maternal healthcare programs .
2. ascertain perceptions of the communication channels used in the maternal healthcare programs.
3. find out the views of stakeholders on the communication channels used in the maternal healthcare programs.

Hypotheses

Two hypotheses were tested in the study:

1. Ho1: The adequacy of communication channels does not significantly lead to an increase in the utilization of government maternal healthcare programs.
2. Ho2: The perception of women of reproductive age on the use of communication channels does not significantly affect their utilization of government maternal healthcare programs.

2. RESEARCH METHOD

The study employed quantitative and qualitative research designs, thus making it a mixed method. Oberiri (2017). Two data-gathering instruments were used in this study. They are the questionnaire (quantitative data) and the key informant interview (qualitative data). The questionnaire was for women who gave birth within the period of the programme; it had open and closed-ended questions with 31 items. The key informant interview had 10 semi-structured questions related to the study's objectives. These questions were meant to get detailed information based on observations and experiences of the programs as they relate to the focus of the study. Hence, they were administered to stakeholders in the maternal healthcare programs, namely: the Delta State Primary Healthcare Development Agency; the Public Relations Officer, Delta State Ministry of Information; the Public Relations Officer, Delta State Ministry of Health; the Permanent Secretary, Delta State Ministry of Information, and six mass communication lecturers as communication experts from the Delta State University, Abraka. With the help of Yamane (1967) formula, the sample size 399 respondents were drawn out of the population of the 194,826 women of reproductive age (15–49) residents in Delta State who gave birth at government-owned health facilities. Of which 383 were usable. The sampled population was drawn from senatorial districts, local government areas (LGAs), communities, areas, and households located close to designated hospitals for the programs. Delta State has a total of 25 local government areas (LGAs), three (3) senatorial districts, six (6) central hospitals, and 59 general hospitals. In the first stage, the LGAs, which are spread according to senatorial districts: Delta Central (8 LGAs), Delta South (8 LGAs), and Delta North (9 LGAs), formed a cluster. In the second stage, two (2) LGAs were randomly selected from each of the senatorial districts. The LGAs selected are Ethiope East and Ughelli North (Delta Central); Oshimili North and Ukwuani (Delta North); and Isoko South and Warri South (Delta South). In the third stage, two (2) communities that have designated hospitals for the programs and are easily accessed by nearby smaller communities were purposively selected from each LGA: Abraka/Ughelli (in Delta Central); Ibusa/Obiaruku (in Delta North); and Oleh/Warri (in Delta South), making a total of six communities. Descriptive and inferential data analysis methods were adopted. Descriptive data analysis methods were adopted to analyze the frequency, percentage, and tables used to answer specific research objectives and the questions from the survey instrument. Hypothesis testing was aided by using the Statistical Package for Social Science (SPSS) version 23 to clean up, code, and analyze data.

Communications

As social primate, communication remains a pertinent aspect of human existence (Sekman, 2019). Though it is noted as one of those human activities that everyone recognizes but only a few can satisfactorily define it, many scholars keep trying on its definition. Communication is described by O'Leary, Liebovitz, Wu, Ravi, Knoten, Sun, Walker, & Reddy, (2017), as the planned or organized dissemination of useful information about maternal healthcare programs by the government, health communicators, and health professionals to women of childbearing age with the intention of influencing participation. This means that

until the desired change in behavior is achieved, it cannot be said that communication has taken place effectively. This is why change agents and health communicators often ensure a constant flow of information to their targets and do not stop until the desired behavioral change is achieved. The United Nations Fund for Population Activities (UNFPA, 2006), cited by Saleh (2015), stated that maternal healthcare includes the provision of antenatal care, skilled assistance in normal childbirth, appropriate referrals for women with obstetric complications, and postnatal care. Others include providing family planning and reproductive health services for those with infertility issues, emergency obstetric care, cesarean sections, and emergency blood transfusions. Contextually, maternal healthcare is the physical well-being of a pregnant woman during and after childbirth. According to Okechukwu (2013), the WHO (2010) also defines maternal healthcare as the health of women during pregnancy, childbirth, and the postpartum period. He went further and stated that the healthcare dimension has to do with family planning, preconception, prenatal, and postnatal care to reduce maternal morbidity and mortality.

Communication Channels for Maternal Healthcare

Communication channels for maternal healthcare play a crucial role in ensuring the well-being of expectant mothers. Maternal healthcare providers need clear and open communication channels within healthcare facilities (Rutten, Agunwamba, Greene, Mazor, Ebbert, Sauver, & Dearing, 2014). This includes having knowledgeable staff available to answer questions and provide information to pregnant women during prenatal visits, check-ups, and hospital stays. It is important to ensure that these communication channels are accessible, culturally appropriate, and available in different languages to reach a diverse population of expectant mothers (Kodero, 2017; Sampson, Xu, & Prabhu, 2022) . There are varieties of communication channels available for maternal healthcare programs. Below are some of them: Community Workshops and Support Groups: In-person workshops and support groups provide an opportunity for pregnant women to gather, learn from experts, share experiences, and receive guidance. These sessions can cover topics such as childbirth preparation, breastfeeding, newborn care, and postpartum mental health (Sseguya, Mazur, Wells, &Matsiko, 2015). Public Service Announcements (PSAs): Government agencies and healthcare organizations can utilize TV, radio, and online platforms to broadcast informative PSAs on maternal healthcare. These announcements can raise awareness about the importance of prenatal care, vaccination, nutrition, and other essential aspects of maternal health (Savelyev, 2020 ; Khoshghadam, Kordrostami, & Liu-Thompkins, 2019). Text Messaging Services: SMS-based services can be utilized to deliver important health, reminders, and educational content messages directly to pregnant women. These messages can cover topics such as prenatal care, breastfeeding, postpartum recovery, and infant care. Text messaging can be particularly effective in reaching women in remote or underserved areas with limited internet access (Tolou-Shams, Yonek, Galbraith, & Bath, 2019). Mobile Applications: Mobile apps specifically designed for maternal health can offer a wealth of information and resources. These apps can provide guidance on prenatal care, nutrition, exercise, and general well-being. Additionally, they can send reminders for appointments and offer personalized support based on the user's gestational age (Ponce, Méndez, & García-Peñalvo, 2014). Social Media and Online Forums: Online platforms, including social media groups and forums, can serve as valuable channels for maternal healthcare communication. These platforms allow expectant mothers to connect with healthcare professionals, share experiences with other women, and seek advice in a supportive community (Dong, Liang, & He, 2017; Ojobor, Okpako, & Ivwighren, 2022) .

Perceptions of the Communication Channels Used in Maternal Healthcare Programs

For planning, implementing, and achieving the goals of maternal healthcare programs, communication channels that are reliable and appropriate must be carefully selected after thorough research. This is because when they are perceived as reliable sources of information, the targets' response will be positive (Madula, Kalembo, Yu, & Kaminga, 2018). However, their number should not be limited, because the more communication channels used, the better the chances of achieving the set goals. These communication channels include, but are not limited to, interpersonal communication, radio, television, newspapers, billboards, posters, flyers, songs, videos, celebrities, magazines, and social media. However, Wang, Etowa, Ghose, Tang, Ji, & Huang, (2021) believe that without communication channels, it would not be possible for health promoters and stakeholders to disseminate information as well as monitor and coordinate the activities of different countries on maternal health issues. In addition, Essien and Yusuf (2016) found that the source, consumer predisposition, and nature of the message itself are instrumental in the effective influence of communication channels on the goals of any health program. The effective impact of messages on pregnant women is also determined by their level of exposure. Studies have shown that women's level of education determines their exposure to such media messages. As observed by Nicoloro-SantaBarbara, Rosenthal, Auerbach, Kocis, Busso, & Lobel (2017) , limited mobility and educational opportunities for women have a

major impact on their exposure to new ideas, development of interpersonal skills, initiative, and confidence in interacting with the wider world. In addition, the lack of freedom of movement prevents women from accessing information.

Stakeholders on the Communication Channels used in Maternal Healthcare

People rely on communication to make decisions in areas such as health, education, politics, agriculture, and economics, but its message must first be understood by the recipients. It should be noted that people cannot be carried along without their consent because support for any given cause must be based on an understanding that connects the articulation of the message with the expectations (Wang, Etowa, Ghose, Tang, Ji, & Huang, 2021). It therefore follows that communication can only be said to have taken place when the targets understand the message and afterward respond to it. The response may be positive or negative depending on, channel, language, psychological state of the recipient, peer influences, environment, appropriateness of the message, and frequency, among others (Kasthurirathne, Mamlin, Purkayastha, & Cullen, 2018). As part of its efforts at reducing maternal mortality, ensuring safe motherhood, and encouraging the provision of health needs for pregnant women, the Delta State government has introduced two major maternal healthcare programs, specifically, the Free Maternal Healthcare Program (FMHCP), which was introduced in November 2007 by the administration led by Emmanuel Ewetan Uduaghan, and the Health for All Deltans (HeFAD) by the administration of Ifeanyi Okowa in 2016 till date. The MMR was about 800 per 100,000 live births before the launch of the maternal healthcare programme. Utilization of government health facilities for several years has been poor because of the discouraging state of the facilities, poor service delivery, and the unfriendly nature of the staff, the lack of medical staff, and the delay in attending to patients, which also led to the loss of lives. Considering these, channels proposed in implementing the FMHCP and HeFAD include improvements in service delivery, availability, and accessibility to medical staff, renovation of hospitals, provision of medicines and delivery equipment, and awareness creation, among others. The FMHCP was launched when the state government observed that government health facilities were underutilized by most pregnant women as a result of poverty or a lack of funds to pay hospital bills. The FMHCP was launched because of the need to transform the services and outcomes of maternal health and the desire to reduce the MMR by half within 5 years.

The program was made available for free to all pregnant women in the state. It also provided blood transfusions, post-abortal complications, ectopic pregnancy, and incidental complications (DSMOH, 2013). A total of 54 government hospitals were used for the program (Ivwighren &Umukoro, 2022). It should be noted that during the period of the program, maternity wards and antenatal rooms in the designated government hospitals overflowed with women who had just given birth or were on antenatal visits. In other words, the program was embraced by women of childbearing age in the state. The Free Maternal Healthcare Program of Emmanuel Uduaghan has been reported to be successful, and one of the lessons learned from the program in Delta State is that through the provision of free maternal healthcare services, there was improved service utilization; the MMR reduced from 380 per 100,000 in 2008 to 270 per 100,000 in 2012; and antenatal bookings (ANC) rose from 254,254 in 2008 to 836,544 in 2012. However, the total deliveries were 102,910 (Delta State Development Performance Health Sector Report, 1991–2013). As stated in the DMOH (2013), the rate of hospital-based delivery for a five-year period (2008–2012) was "2008 (37.4%), 2009 (51.9%), 2010 (44.9%), 2011 (47.3 %), and 2012 (49.2%)". This shows that pregnant women in the state responded to or participated in the Free Maternal Healthcare Program. However, the point of interest here is not in the availability or implementation of these two maternal healthcare programs in Delta State but in the evaluation of the communication channels' adequacy in creating the desired awareness and the pregnant women's perception of the channels.

Theoretical Framework

The Agenda Setting Theory (AST) according to Papadouka, Evangelopoulos, & Ignatow (2016). was proposed by Maxwell McCombs and Donald L. Shaw in 1972. The theory holds that the more people are exposed to messages from available communication channels, the more they think, believe and act on them. In other words, the use of multiple communication channels to disseminate messages can make the targets of a program to reflect on the information received. Thus, making them think about what they wouldn't ordinarily, this is what is referred to as agenda setting. However, as observed by one of the theorists, McCombs, the term 'agenda' is purely descriptive and does not necessarily imply that the media (communication channels) have any hidden agenda. McCombs further asserts that through access to information from reliable channels, people learn how to attach importance to the issues presented. In other words, the attachment or importance given to an issue by people is linked to the information they receive from the channels of communication. This attached importance is capable of influencing their thinking and

subsequent actions which could be negative or positive. The use of communication channels to disseminate information on maternal healthcare programs could attract and influence the thinking and response of targets (Boydstun, Glazier, & Phillips, (2013). The theory further holds that what people know and discuss is proportionate to the information they receive from communication channels that are perceived to be reliable. As it applies to this research, the more people are exposed to information on maternal healthcare programs, the more they are likely to be influenced to participate. It also holds that the more communication channels are used to disseminate messages, the more targets' attention is likely to be drawn to the issue. Two major things make the agenda setting theory applicable to this study: first, the use of multiple communication channels to disseminate information can make maternal healthcare programs attractive and popular among the targets. This in turn makes the maternal healthcare programs public agenda. According to Nor Razinah (2014), the agenda-setting theory believes that the communication channels used can influence targets' perceptions, values, focus, and priorities. This raises the possibility that communication channels can direct program targets' attention to them. Second, the communication formats have an effect on targets in terms of drawing people in, influencing how they think about a program, and forming opinions. However, the only people who can be influenced in this way are those who are nearby or have access to the communication channels; people who are far away from them cannot be easily influenced. This implies that accessibility to communication channels can greatly influence the opinion of targets of a program.

3. RESULT AND DISCUSSION

Demographic Variables

The variables of age, marital status, dependants, educational qualifications and occupation provided insight into the sampled respondents. The demographic details are presented below:

Table 1 : Age Of Respondents

VALUES FOR AGE		Frequency	Percent	Valid Percent	Cumulative Percent
VALID	15-19 years	42	11.1	11.1	11.1
	20-24 years	62	16.2	16.4	27.5
	25-29 years old	58	15.1	15.4	42.9
	30-34 years	83	21.7	22.0	64.9
	35-39 years	62	16.2	16.4	81.3
	40 -44 years	38	10.0	10.1	91.4
	45 -49 years	32	8.4	8.5	100.0
	Total	377	98.7	100.0	
	No response	6	0.3		
TOTAL		383	100.0		

Source: Field survey, 2020

Table 1 above shows the age distribution of respondents. Based on the data presented, the majority of respondents fall within the age intervals of 30 to 34 years. Those who are within the ages of 45 to 49 years the least. All respondents fall within the period of child bearing age, this implies that the respondents also under the demographic that is susceptible to maternal health related conditions and interventions.

Table 2: Marital Status Of Respondents

VALUES FOR MARITAL STATUS		Frequency	Percent	Valid Percent	Cumulative Percent
VALID	Single	64	16.7	17.0	17.0
	Divorced	22	5.7	5.8	22.8
	Married	292	76.2	77.2	100.0
	Total	378	98.6	100.0	
	No response	5	1.4		
TOTAL		383	100.0		

Source: Field survey, 2020

In Table 2 above, most of the respondents are married and it is indicative they are living within a family structure where they have legally recognized partners. These marital statuses are meaningful for family related outcomes.

Table 3 : The Number Of Respondents' Dependants

THE VALUES FOR DEPENDANTS		Frequency	Percent	Valid Percent	Cumulative Percent
VALID	1-3	295	77.0	77.4	77.4
	4-6	60	16.1	15.7	93.2
	7 and above	26	6.8	6.8	100.0
	Total	381	99.5	100.0	
	No response	2	.5		
TOTAL		383	100.0		

Source: Field survey, 2020

In Table 3, majority of the respondents have one to three children. This implies that the sampled respondents fall within the purview of reproductive age and are therefore targets of the maternal healthcare programs

Table 4 : Educational Qualification Of Respondents

EDUCATIONAL QUALIFICATIONS		Frequency	Percent	Valid Percent	Cumulative Percent
VALID	Primary school	58	15.1	15.4	15.4
	SSCE/O'level	114	30.0	30.2	45.6
	Tertiary	205	53.5	54.4	100.0
	No response	6	1.4	100.0	
			1.0		
TOTAL		383	100.0		

Source: Field survey, 2020

Table 4 shows the data on educational qualifications of respondents. The majority of the respondents have tertiary education qualifications while those with primary education are the least. The data therefore suggests that the majority of the respondents are educated.

Table 5 : Occupation Of Respondents

VALUES FOR OCCUPATION		Frequency	Percent	Valid Percent	Cumulative Percent
VALID	Farming	45	11.7	11.0	11.8
	Trading	104	27.2	27.2	40.3
	Civil servants	109	28.5	28.5	67.5
	Self employed	124	32.4	32.5	100.0
	No response	1	.2		
TOTAL		383	100.0	100.0	

Source: field survey, 2020

Table 5 has values for the socio-economic variable of occupation, majority of the respondents are self-employed. occupational distribution is an important determinant of the economic variables involved in access to the maternal healthcare programs. from the foregoing, the vast majority of respondents have an occupation that can impact on the demands placed on out-of-pocket expenditure for health.

Table 6 : Location of Respondents

LOCATION		Frequency	Percent	Valid Percent	Cumulative Percent
VALID	Rural	180	47.1	47.4	47.6
	Urban	200	52.2	52.6	100.0

	Total	380	99.3	100.0
	No response	3	.7	
TOTAL		383	100.0	

Table 6 above shows the location of respondents who live in the rural and urban areas. The data presented shows that the majority of the respondents live in urban areas. Rural and Urban areas have distinct issues in terms of access to healthcare. Location has some importance on health and life outcomes therefore it is an important variable.

Test of Hypothesis

The following hypotheses formulated were tested: H01: The adequacy of communication channels significantly leads to an increase in utilization of government maternal healthcare programs

Table 7: Regression Analysis on adequacy of communication channels and the increasing utilization of government maternal healthcare programs

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,662 [a]	,439	,437	.19465

a. Predictors: (Constant), Adequacy of communication channels

ANOVA [a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11,969	1	11,969	315,921	,000 [b]
	Residual	15,306	404	,038		
	Total	27,276	405			

a. Dependent Variable: Utilization of government maternal healthcare programs

b. Predictors: (Constant), Adequacy of communication channels

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	Q	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,990	,076		26,274	,000
	Adequacy of communication channels	,365	.021	,662	17,774	,000

a. Dependent Variable: Utilization of government maternal healthcare programs

Source: Researcher's Computation, 2020

The regression summary for the test of hypothesis 1 which explains the significant effect which adequacy of communication channels has on the increasing utilization of government maternal healthcare programs is presented in Table 7. The standard error value recorded for adequacy of communication channels was 0.19465 indicating that the low value shows the model specified to examine the link between adequacy of communication channels and the increasing utilization of government maternal healthcare programs alongside the regression outcomes are precise and reliable. Therefore, the conclusion drawn from the results

presented in Table 7 is adjudged reliable and dependent. In the analysis, we observed that the value of the model t_{stat} was 17.774 with a corresponding p-value of 0.000. The suggestion is that the adequacy of communication channels has a significant influence on the increasing utilization of government maternal healthcare programs. Confirming this result was the F-statistic result. The F_{-stat} for the overall model stood at 315.921 with a corresponding p-value of 0.0000. We could observe that adequacy of communication channels significantly affects the increasing utilization of government maternal healthcare programs. The coefficient of determination (Un-standardized β value) presented produced a model β value of 0.365. This result indicates that a unit change in adequacy of communication channels results to 0.365 units change in the utilization of government maternal healthcare programs. Regarding the results emanating from the test of hypothesis 1, we have decided to reject this hypothesis, as stated, because there exists a significant effect from the presented results indication. Rejecting the stated hypothesis, thus, leads to the conclusion that there is a significant relationship between adequacy of communication channels and the increasing utilization of government maternal healthcare programs. H02: The perception of the women of reproductive age use of communication channels significantly affects their utilization of government maternal healthcare programs

Table 8: Regression Analysis on the perception of women of reproductive age use of communication channels and their utilization of government maternal healthcare program

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,509 [a]	,259	,258	.22360

a. Predictors: (Constant), Perception of the women of reproductive age

ANOVA [a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7,076	1	7,076	141,530	,000 [b]
	Residual	20,199	404	,050		
	Total	27,276	405			

a. Dependent Variable: Utilization of government maternal healthcare programs

b. Predictors: (Constant), Perception of the women of reproductive age

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,306	,086		26,700	,000
	Perception of women of reproductive age	,301	,025	,509	11,897	,000

a. Dependent Variable: Utilization of government maternal healthcare programs

Source: Researcher's Computation, 2020

The regression summary for the test of hypothesis 2 explains the significant effect of the perception of women of reproductive age use of communication channels on the utilization of government maternal healthcare programs. The standard error value recorded for adequacy of communication channels was 0.22360 indicating that the low value shows the model specified to examine the link between the perception

of reproductive age women's use of communication channels and the utilization of government maternal healthcare programs alongside the regression outcomes are precise and reliable. Therefore, the conclusion drawn from the results presented in Table 8 is adjudged reliable and dependable. In the analysis, we observe that the value of the model t_{stat} was 26.700 with a corresponding p-value of 0.000. This result presents that the perception of reproductive age women's use of communication channels is significantly linked to the utilization of government maternal healthcare programs. Confirming this result was the F-statistic result. The F_{cal} for the overall model stood at 141.530 with a corresponding p-value of 0.0000. We could also observe that the perception of reproductive age women's use of communication channels significantly affects the utilization of government maternal healthcare programs. The coefficient of determination (Un-standardized β value) presented produced a model β value of 0.301. This result indicates that a unit change in the perception of reproductive age women's use of communication channels results to 0.301 units change in the utilization of government maternal healthcare programs. From the results emanating from the test of hypothesis 1, it is affirmative that hypothesis 2 is rejected, as stated, because there exists a significant effect from the presented results indications. Rejecting the stated hypothesis, thus, leads to the conclusion that there is a significant relationship between the perception of reproductive age women's use of communication channels and the utilization of government maternal healthcare programs.

Adequacy of communication channels in influencing participation by women of reproductive age in the two maternal healthcare programs?

The answer to this question is that the communication channels were adequate in influencing participation by women of reproductive age, as seen in the data presented (Savelyev, 2020) . The variables that were used to evaluate communication channels' influence include the perceived reliability of the communication channels by the respondents; their participation in the programs; the point at which the respondents participated in the programmes; communication channels that influence participation; and whether they were adequate in influencing the participation in the programs. The findings showed that 76.1% of the respondents perceived the communication channels as adequate, therefore they were influenced to participate in the programs. In the literature review, it was mentioned that when communication channels are perceived to be reliable by targets, their responses become positive. It is at this point that they are said to be influenced. To justify the mentioned, data showed that 63.7% of the respondents participated in the maternal healthcare programs after receiving messages through the communication channels. This view is also supported by Dong, Liang, & He, (2017) , who argue that channels of communication, sources, and messages are variables that influence participation. Tolou-Shams, Yonek, Galbraith, & Bath (2019) also shared the same view that three things are likely to happen when communication channels are employed in public health. They include learning the correct health information, changing health attitudes, and selecting new health behaviors. These are all indicators of the influence of communication channels. Relating this finding to the agenda setting theory, it thus confirms the stage of the theory, which stipulates that as awareness spreads, people are expected to participate in the programs. As mentioned by the key informants, there was a reduction in maternal mortality rates as the programs were introduced, thus indicating that pregnant women adopted the innovation by participating. As mentioned by Ivwighren &Umukoro(2022), ordinarily, most people do not patronize government health facilities because of their poor state and understaffing, among other reasons. The hypothesis tested further strengthens the above position, illustrating that the increasing utilization of government maternal healthcare programs among women was significantly influenced by the adequacy of the various communication channels available to them.

Perception of the communication channels used in the two maternal healthcare programs?

Responses on the perception of the respondents on the communication channels cover their views on the adequacy of the communication channels, their perception of the reliability of messages received through the communication channels, and their views on the effectiveness of the ability of the program to influence behavior for desirable goals. The findings show that the communication channels were perceived by respondents as adequate. The data shows that 80.4% of respondents assessed the communication channels as adequate. Also, the data gathered shows that 76.1% of the respondents affirmed that the information received through the communication channels was reliable. Meanwhile, 83.6% of the respondents were of the view that the communication channels were effective in influencing participation in the two programs. As noted earlier, communication channels abound, and their effectiveness varies from society to society, but they must be perceived by the targets as credible, accessible, acceptable, adequate, and culturally inclined, among others. This is because, as noted by Madula, Kalembo, Yu, & Kaminga, (2018), they can disseminate information that is strong enough to change whatever negative behavior, attitude, or ignorance is shown by the people and also achieve set objectives. They also help people understand the effect of some practices on

their health and change the perspective from which certain behaviors and attitudes are formed. It is imperative to encourage the dissemination of information that is strong enough to change people through the communication channels that are accessible and used by them. Wang, Etowa, Ghose, Tang, Ji, & Huang (2021) noted that information in itself is not mobile, but it needs a vehicle for dissemination from one person to another and from one distance to another. The vehicles that move information from one place to another are referred to as channels. They could be mass, traditional, or social media. Their importance cannot be overemphasized, as they are capable of reaching their targets with information that could help them take the right decisions. Achieving this is determined by how the channels are perceived by the targets. The findings thus indicate that the respondents had a positive perception of the communication channels and the messages disseminated. The results revealed that the utilization of government maternal healthcare programs was significantly influenced by the perception of reproductive-age women's use of communication channels (Nicoloro-SantaBarbara, Rosenthal, Auerbach, Kocis, Busso, &Lobel, 2017).

Opinion of stakeholders about the communication channels used in the maternal healthcare programs?

Generally, the stakeholders identified the radio as the most popular communication channel to raise the level of awareness of the programs. However, some informants mentioned the print, electronic, and social media, letters, community radio, town announcers, stakeholder meetings such as traditional and religious groups, NGOs and MDAs, and market women's associations. The key informants therefore agreed that multiple communication channels were used for disseminating information about the programs to the targets. The multiple communication channels cut across both mass and interpersonal media, thus aligning with Kasthurirathne, Mamlin, Purkayastha, & Cullen, (2018) belief that both mass and interpersonal media are useful channels for health communication campaigns and should complement each other. They emphasized that although face-to-face communication is influential, the power of mass media in reaching audiences is still unquestionable. Furthermore, the use of multiple communication channels to create awareness of the programs stems from the fact that the government deliberately employed accessible communication channels so as to attract targets for the programs. There is no doubt that the more people access communication channels, the more information they receive, and this is the flashpoint to their participation (Wang, Etowa, Ghose, Tang, Ji, & Huang, 2021). Some of the key informants identified awareness that took the form of jingles detailing the site of programs and the benefits of the programs, such as free delivery at government-owned hospitals, free antenatal medications, free caesarean sections, and prompt attention by health workers, as the major media content themes. The means accessible to subgroups were used and tailored in such a way that the target group got the information.

4. CONCLUSION

The primary aim of this study was to assess the adequacy of communication channels utilized for maternal healthcare in Delta State, Nigeria. This evaluation was prompted by the government's efforts to leverage available communication channels to increase awareness and encourage participation in maternal healthcare programs. The study focused on multiple aspects, effectiveness of communication channels in disseminating information about these programs, the adequacy of communication channels on promoting participation, the extent to which the objectives of the programs were achieved through the communication channels, the perception of women of reproductive age regarding the communication channels employed in the programs. Thus, the research was designed to evaluate the effectiveness of healthcare communication channels employed in engaging stakeholders and ultimately improving maternal health outcomes. Findings indicate that:

1. The majority of the respondents (67.1%) indicated that the communication channels were effective in achieving the objectives of the maternal healthcare programs.
2. More than half of the respondents (80.4%) perceived the communication channels as adequate, while 76.1 percent considered the information received through the channels reliable.
3. The stakeholders acknowledged the use of multiple communication channels in spreading awareness of the maternal healthcare programs.

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