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Analysis of Women's Empowerment in Reproductive Health Decision-Making and Midwifery-Led Interventions in Rivers State, Nigeria

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Abstract

Empowering women to make informed reproductive health decisions is an essential pathway to promoting gender equity and improving their health. However, cultural and socio-economic barriers are often limiting women's autonomy to make informed reproductive health choices. This study examined women empowerment in reproductive health decisions and midwifery -led interventions in Rivers State. Two objectives and two research questions guided the study. Two hypotheses were also tested. The study adopted cross-sectional mixed methods design. The population of this study consisted 799,792 women of reproductive age living in Rivers State during the study. A sample of 400 women of reproductive age living in the state provided data for the study. The instruments used to collect data were a validated questionnaire and an interview guide. The reliability coefficients of the questionnaire were established at 0.82, 0.81, 0.76, 0.86, 0.77 and 0.80. The quantitative data collected were analysed using percentage, mean, standard deviation and Chi-square, while qualitative data were analysed thematically and textually. The findings of the study revealed that 71.47% of women in Rivers State had a high level of awareness about midwifery-led interventions ($\bar{x}$ = 2.92), and 55.71% rated the psychometric properties of the interventions highly ($\bar{x}$ = 2.78). Furthermore, the participation of women in the interventions was substantial ($\bar{x}$ = 2.90; 64.94%), resulting in a significant improvement in their reproductive health outcomes ($\bar{x}$ = 2.85; 57.88%; χ^2 = 43.287, p = .000). The study recommended that Rivers State Ministry of Health should develop and implement a consistent and community-focused awareness campaigns about midwifery-led interventions. These campaigns should leverage local leaders, community radio, and religious organisations to disseminate information on reproductive health services, including antenatal care, and menstrual health management. Healthcare administrators should prioritise the deployment of more midwives to rural areas to ensure that reproductive health services are easily accessible.

How to Cite this Article

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Introduction

Empirical observations of the researcher have shown that the process of childbirth is described as a unique experience and the expectation by women in most situations is a safe vaginal birth. The age-long practice is to assist the woman during this process. Traditionally speaking, midwives have been associated with care of women during the birth process. There is international agreement on the definition of the midwife which clearly states the necessary qualifications for midwifery intervention, the types of care that can be given by midwives and the location where midwives can practice. The International Confederation of Midwives (2020) defined the midwife as a person who has successfully completed a midwifery education programme that is duly recognized in the country where it is located and is based on the ICM Essential Competencies for Basic Midwifery Practice and the framework of the ICM global standards for midwifery education; who has acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery and use the title 'midwife'; and who demonstrates competency in the practice of midwifery.

Invariably, the midwife is acknowledged as a responsible and accountable professional who works in partnership with women to give the necessary support, care and advice during pregnancy, labour and the post-partum period, to conduct births on the midwife's own responsibility and provide care for the new born and the infant. This care includes preventative measures, promotion of normal birth, detection of complications in mother and child, the accessing of medical care or other appropriate assistance, and the carrying out of emergency measures in the absence of medical help. The midwife has an important task in health counselling and education, not only for the woman, but also within the family and the community. Overall, the job description for the midwife involves antenatal education, preparation for parenthood and may extend to women's health, sexual or reproductive health and child care (Esienumooh, Okon, Ojong & Akpan, 2015).

Therefore, midwifery-led interventions in Rivers State, Nigeria, focus on improving maternal and neonatal health outcomes through a range of practices and programmes. These interventions often emphasize the role of skilled midwives in providing care throughout pregnancy, childbirth, and the postpartum period. Midwifery-led interventions in Rivers State play a crucial role in enhancing maternal and child health addressing the challenges faced by midwives through improved training, resource allocation, and community engagement can significantly enhance health outcomes in the region. Effective midwifery-led interventions require informed and autonomous reproductive health decision-making by women.

The term 'reproductive health decisions' according to World Health Organization (2021) encompass a wide range of choices and considerations individuals face regarding their reproductive lives, including family planning, contraception, pregnancy, childbirth, and sexually transmitted infection (STI) prevention. These decisions are influenced by various factors such as personal beliefs, cultural values, socio-economic status, and access to healthcare services. It can be deduced that reproductive health decision are multifaceted and refer to the choices individuals or couples make regarding their reproductive health and well-being. This can include decisions about contraception, pregnancy, childbirth, family planning, sexual health, and the prevention or treatment of reproductive related health issues. These decisions can be influenced by personal, cultural, social, ethical, and medical factors, and they aim to ensure that individuals can exercise control over their reproductive lives in a way that aligns with their needs and values.

The study was anchored on feminist theory is rooted in advocating for gender equality and challenging patriarchal systems, offering a valuable framework for understanding and advancing women's empowerment, especially in areas like reproductive health. At its essence, feminist theory highlights the unequal power dynamics between men and women, particularly within societal, political, and economic institutions. It argues that gender-based oppression manifests in unequal access to resources, opportunities, and decision-making power, leaving women particularly marginalized when it comes to issues of reproductive health (Pasque & Nicholson, 2023).

In the realm of reproductive health, feminist theory emphasizes the critical importance of women's autonomy and their right to make decisions about their own bodies (Ferguson, 2017). It asserts that reproductive decisions should be within the hands of women, free from external coercion, control, or discrimination from authorities like governments, partners, or healthcare providers. Feminist scholars argue that access to comprehensive reproductive health services, such as contraception, maternal care, and health education, is essential so that women can make informed choices about their reproductive lives. This perspective aligns with feminist principles of bodily autonomy, reproductive justice, and equality, which recognize that women's health rights are fundamental (Ferguson, 2017). In Nigeria, feminist theory is particularly significant because it directly challenges cultural and societal norms that often restrict women's autonomy, particularly regarding reproductive decision-making. In many Nigerian communities, patriarchal structures limit women's control over their bodies, making them reliant on male partners or family members when it comes to decisions about their reproductive health.

Statement of the Problem

Sexual and reproductive health disorders disproportionately affect women between the ages of 15 and 44, comprising around one-third of the total health issues they experience (WHO, 2019). The World Health Organization's 2018 report estimates that approximately 308,000 women residing in impoverished nations perished in 2017 as a result of reproductive health-related risk factors. Unfortunately, Africa continues to experience poorer maternal and reproductive health outcomes compared to global averages, as evidenced by its exceptionally high maternal mortality rates. Over fifty percent of these maternal mortality-related tragedies occur in sub-Saharan Africa, where the probability of a woman encountering such an ordeal in her lifespan is one in thirty-eight. African women demonstrate the most pronounced degree of unmet demand for contraception, accounting for 21% of the total (Cleland et al., 2014; Solanke et al., 2022). Moreover, a mere 19% of married women between the ages of 15 and 49 employ modern contraceptive methods, which stands in stark contrast to the considerably higher rate of 88% documented in Eastern Asia (World Bank, 2019a). African women are disproportionately affected by sexually transmitted infections, accounting for 18% of the global incidence of STIs in the continent. Women are inflicted with more than half of these infections (UNFPA, 2018; World Bank 2019a).

Empowering women is a complex idea that involves various aspects of women's ability to take action, make decisions independently, and participate in decision-making. One of the vital areas where women's empowerment is essential is reproductive health decisions. These decisions have a significant impact not only on women's health and well-being but also on their social and economic opportunities. However, in many contexts, women face barriers to exercising their reproductive rights and choices, such as a lack of access to quality health services, information, and education, as well as social and cultural norms that limit their autonomy and voice. In Rivers State, Nigeria, where maternal mortality and morbidity rates are among the highest in the world (Ogundipe, et al., 2018); existing tools for evaluating women's empowerment in reproductive health decisions often lack customization for midwifery settings, limiting their effectiveness. There is a lack of comprehensive validation, and interventions aimed at enhancing empowerment are often overlooked. In addition, tools are not easily integrated into routine midwifery practices due to a lack of standardization or acceptance. Moreover, socio-cultural and religious factors also impact women's agency in reproductive health decisions. Hence, there is a need to develop and validate midwifery-led tools to assess and enhance women's empowerment in reproductive health decisions in Rivers State to achieve more effective, culturally sensitive and tailored interventions, ultimately empowering women in their reproductive health decisions as well as improving their entire wellbeing.

Aim and Objectives of the Study

Aim

The aim of the study is to examine the analysis of women empowerment in reproductive health decisions and midwifery-led interventions in Rivers State.

Objectives

The objectives of the study are to:

1. determine the level of awareness of women on existing midwifery-led interventions for empowering women to make informed reproductive health decisions in Rivers
2. ascertain the psychometric properties of the Midwifery-Led Interventions in Rivers State.

Research Questions

To achieve the objectives of this study, the following research questions guided the study;

1. What is the level of awareness of women on existing midwifery-led interventions for empowering women to make informed reproductive health decisions in Rivers?
2. What are the psychometric properties of the Midwifery-Led Interventions in Rivers State?

Hypotheses

The following null hypotheses were tested in the study.

Ho_1: There is no significant relationship between women's level of awareness of midwifery-led interventions and reproductive health outcomes in Rivers State.

Ho_2: The psychometric properties of midwifery-led interventions are not significantly associated with reproductive health outcomes in Rivers State.

Methodology

The study adopted a health facility-based descriptive cross-sectional design, employing a mixed method approach. The study was conducted in selected healthcare facilities across Rivers State, located in the Niger Delta region of South-South Nigeria. Rivers State, with its capital city in Port Harcourt, comprises 23 Local Government Areas and spans approximately 11,077 square kilometres. The state's economy is predominantly driven by its flourishing petroleum industry, which attracts a diverse population, including both highly educated and less-educated individuals seeking better employment opportunities. Women of reproductive age form a significant portion of this population. The healthcare facilities selected for the study are:

- Zonal Hospital, Ahoada
- Cottage Hospital, Umuebulu, Etche
- Primary Health Centre, Rumuokwurushi
- General Hospital, Okrika
- Primary Health Centre, Iriebe
- Bori General Hospital

These facilities were chosen to ensure a comprehensive representation of healthcare services across different parts of the state, focusing on women that came for antenatal care or other reproductive healthcare services captured in midwifery-led interventions. The population of this study consists of 799,792 women of reproductive age living in Rivers State during the study (United Nations, 2022). Specifically, this includes women of reproductive age between 18 to 45 years who attend antenatal clinics and seeking for other reproductive health services at the mentioned six health facilities. A sample size of 400 women of reproductive age was used in the study. The Yamane (1967) formula for sample size determination for a finite (known) population was used to determine 400 as respondents. The researcher employed a structured questionnaire and an interview guide as the main instruments used in the data collection process. The items used to measure key variables in the instrument were "structure in closed-ended format" and scaled in accordance with 4 point Likert scaling style of Very High Extent (VHE) 4 points, High Extent (HE) 3 points, Low Extent (LE) 2 points, and Very Low Extent (VLE) 1 point. To ensure the validity of the research instruments, the structured questionnaire and interview guide were reviewed by the researcher's supervisors, and one expert in reproductive health research. They provided valuable feedbacks that were instrumental in refining the instruments to ensure their alignment with the study objectives and clarity of the words and language, relevance of item to variables measurement, and comprehensiveness of the instruments. The reliability of the structured questionnaire was established through a pilot study. A total of 30 women were part of the pilot study conducted in a healthcare facility in Port Harcourt. Responses obtained from the respondents were subjected to Cronbach's alpha test, which yielded a coefficient of 0.82, 0.81, 0.76, 0.86, 0.77 and 0.80 for the six subsections in section B of the questionnaire, indicating a high level of internal consistency of the constructs. The coefficients were found to be high and demonstrate that the instrument had high reliably measures for the field study. The data collection process involved a systematic approach to ensure the efficient and ethical collection of information from participants across the six selected healthcare facilities in Rivers State. The quantitative data obtained from the questionnaires were coded into SPSS and analysed using descriptive and inferential statistics. Descriptive statistics adopted to answer the research questions include frequencies and percentages, summarised socio-demographic characteristics and response patterns analysis using mean and standard deviation. The inferential statistics used to test the null hypotheses purporting relationships between dependent and independent variables was Chi-square. Qualitative data obtained from the interviews sessions were transcribed and analysed thematically.

Results

Research Question One: What is the level of awareness of women on existing midwifery-led interventions for empowering women to make informed reproductive health decisions in Rivers State?

Table 1 shows a generally high level of awareness of midwifery-led interventions among women in Rivers State, with an aggregate mean of 2.92. Most respondents demonstrated strong interest, trust in midwives, and media-informed awareness, indicating positive perceptions and substantial engagement with reproductive health programmes.

Table 1: Respondents' Level of Awareness of Midwifery-Led Interventions in Rivers State.

S/N	Items	Very High Level F (%)	High Level F (%)	Low Level F (%)	Very Low Level F (%)	Mean (x)	S.D.	Remarks
1	I have heard about programmes offered by midwives to educate women on reproductive health	100 (27.17)	164 (44.57)	86 (23.37)	18 (4.89)	2.95	0.84	High Level
2	In the past year, I have heard about midwifery-led educational programmes offered in my community during antenatal care (ANC).	50 (13.59)	129 (35.05)	151 (41.03)	38 (10.33)	2.51	0.82	High Level
3	I believe there are enough midwifery-led interventions (including antenatal care and family planning services) in my area to address the needs of pregnant women.	90 (24.46)	140 (38.04)	100 (27.17)	38 (10.33)	2.77	0.57	High Level
4	I would be interested in participating in a midwifery-led intervention focused on reproductive health if offered.	140 (38.04)	195 (52.99)	15 (4.08)	18 (4.89)	3.25	0.76	High Level
5	I frequently engage with midwives for advice on reproductive health issues.	120 (32.61)	182 (49.46)	38 (10.33)	28 (7.61)	3.08	0.87	High Level
6	I believe that midwives are trusted sources of information on reproductive health.	78 (21.20)	140 (38.04)	130 (35.33)	20 (5.43)	2.74	0.74	High Level
7	Media sources (TV, radio, newspapers) have informed me about midwifery-led interventions (e.g. Expanded Midwives Service Scheme [eMSS])	130 (35.33)	203 (55.16)	7 (1.90)	28 (7.61)	3.19	0.67	High Level
8	Religious leaders in my community have spoken positively about midwifery-led interventions (e.g Midwives Service Scheme [MSS])	108 (29.35)	160 (43.48)	80 (21.74)	20 (5.43)	2.98	0.78	High Level
9	I have seen posters or flyers advertising midwifery-led interventions in my area.	73 (19.84)	150 (40.76)	120 (32.61)	25 (6.79)	2.78	0.66	High Level
	Aggregate Mean	**263 (71.47)**		**105 (28.53)**		**2.92**	**0.75**	

Decision Rule: Items with mean score ≥ 2.50 is deemed high level, while those with ≤ 2.49 is deemed low level.

The analysis of the responses of the respondents on the level of awareness of women on existing midwifery-led interventions in Rivers State shows a consistently high level of awareness across the items. The item 1, which assessed the awareness of programmes offered by midwives to educate women on reproductive health, recorded a mean score of 2.95. Similarly, item 2 assessed the views of the respondents on the awareness of midwifery-led educational programmes offered during antenatal care (ANC), the result showed a mean score of 2.51. The confidence level of women on the availability of midwifery-led interventions to meet pregnant women's needs recorded a high mean score of 2.77 in item 3, while their interest in participating in midwifery-led interventions (Item 4) yielded the highest mean score of 3.25. Frequent engagement with midwives for reproductive health advice was common among the respondents given the high mean score of 3.08 recorded in item 5. Trust in midwives as reliable sources of information (Item 6) recorded a mean score of 2.74, while awareness created through media sources (Item 7) and remarks by religious leaders on midwifery interventions (Item 8) had mean scores of 3.19 and 2.98, respectively. Item 9, which evaluated awareness creation through posters and flyers, scored 2.78. The aggregate mean score obtained was 2.92, which is higher than the threshold of 2.50, indicates a high level of awareness of midwifery-led interventions among the respondents, as confirmed by 71.47% of them.

Research Question Two: What are the psychometric properties of the Midwifery-Led Interventions in Rivers State?

Table 2 indicates that respondents rated the psychometric properties of midwifery-led interventions to a high extent (aggregate mean = 2.78). Most items exceeded the 2.50 benchmark, reflecting clarity, relevance, empowerment, and engagement. However, cultural sensitivity recorded a low extent ($\bar{x}$ = 2.47), suggesting an area for improvement.

Table 2: Psychometric Properties of Midwifery-Led Interventions in Rivers State

S/N	Items	Very High Extent F (%)	High Extent F (%)	Low Extent F (%)	Very Low Extent F (%)	Mean (x)	S.D.	Remarks
10	The language used by midwives during the interventions was easy for me to understand	74 (20)	110 (30)	129 (35)	55 (15)	2.60	0.87	High Extent
11	The midwifery-led interventions provided information relevant to my stage of life and reproductive health needs.	92 (25)	129 (35)	111 (30)	36 (10)	2.92	0.67	High Extent
12	I felt comfortable asking questions and clarifying any doubts I had during the interventions.	77 (21)	132 (36)	110 (30)	47 (13)	2.85	0.74	High Extent
13	The midwives treated me with respect and made me feel valued throughout the interventions.	66 (18)	125 (34)	121 (33)	55 (15)	2.76	0.98	High Extent
14	The information and skills learned through the interventions empowered me to make informed decisions about my reproductive health.	110 (30)	147 (40)	73 (20)	36 (10)	3.03	0.86	High Extent
15	The format of the midwifery-led educational interventions (e.g., lectures, group discussions) was engaging and facilitated learning.	84 (23)	150 (41)	99 (27)	33 (9)	2.98	0.76	High Extent
16	The midwives presented the information in a clear and organized manner.	73 (20)	136 (37)	110 (30)	47 (13)	2.79	0.88	High Extent
17	The educational interventions by midwives provided opportunities to practice the skills learned (e.g., self-examinations).	62 (17)	121 (33)	128 (35)	55 (15)	2.57	0.96	High Extent
18	I felt the midwives were culturally sensitive and respectful to my beliefs and practices.	55 (15)	110 (30)	136 (37)	66 (18)	2.47	0.65	Low Extent
19	I would recommend the midwifery-led interventions to other women in my community.	73 (20)	132 (36)	117 (32)	44 (12)	2.85	0.73	High Extent
	Aggregate Mean	**205 (55.71)**		**163(44.29)**		**2.78**	**0.81**	

Decision Rule: Items with mean score ≥ 2.50 is deemed high level, while those with ≤ 2.49 is deemed low level.

The table examined the psychometric properties of midwifery-led interventions in Rivers State. In item 10, the language used by midwives in attending to woman during the interventions was found to be understandable by most respondents, as indicated by a mean score of 2.60. This score reflects a high extent of clarity in communication on the part of the midwives. Similarly, the midwife-led interventions were rated highly for being relevant in addressing the healthcare needs of the respondents' stage of life and reproductive health needs, given the high mean score of 2.92 obtained for the item 11. These findings suggest that the interventions were appropriately tailored to meet the participants' specific health needs. In addition, the participants felt relatively comfortable during the sessions, as seen in the item 12, "I felt comfortable asking questions and clarifying any doubts," which received a mean score of 2.85. Additionally, respondents acknowledged that the midwives treated them with respect and made them feel valued throughout the interventions (2.76).

The empowerment derived from the information and skills provided to women during the midwife -led interventions was highly rated by the participants (3.03) in item 14. This indicates that participants strongly felt equipped to make informed decisions about their reproductive health after their encounter with midwife-led educational and clinical services. Similarly, the engagement and effectiveness of the format of the interventions, such as lectures and group discussions, received a strong mean score of 2.98. This highlight that the facilitators achieved success in delivering their educational content in an interactive manner. This view was reinforced by the clarity and organisation with which the midwives presented the information to women (2.79), indicating strongly that the majority of respondents found the content delivery approach to be well-structured and consistent. However, when asked about the opportunities provided for practising the skills they learned during the sessions, such as self-examinations, the mean score dropped slightly to 2.57 in item 17, although this still falls within the high extent category, it somewhat suggests the need for improvement.

One notable area of concern was cultural sensitivity and respect for participants' beliefs and practices, which received a low mean score of 2.47. This is the only item rated below the threshold for high extent, and apparently indicates that respondents perceived a lack of adequate cultural accommodation on the part of midwives during the interventions in item 18. Furthermore, the item, "I would recommend the midwifery-led interventions to other women in my community," received a mean score of 2.85, demonstrating a high level of satisfaction and endorsement by the participants. The high aggregate mean score of 2.78 suggests that the psychometric properties of the midwifery-led interventions are generally perceived to be of a high extent. This is strengthened by the confirmation of 55.71% of the respondents whose perceptions are consistent that the interventions excelled in areas such as empowerment, relevance, and clarity. Nevertheless, there is a need to address the issue of cultural sensitivity to ensure inclusivity and enhance participants' overall satisfaction.

Test of Hypotheses

H_{o1}: There is no significant relationship between women's level of awareness of midwifery-led interventions and reproductive health outcomes in Rivers State.

Table 3 shows a relationship between awareness of midwifery-led interventions and reproductive health outcomes. Women with medium and high awareness levels recorded more medium and high outcomes, while low awareness was associated with poorer outcomes, suggesting that increased awareness positively influences reproductive health results

Table 3: Crosstabulation of Level of Awareness of Midwifery-Led Interventions and Reproductive Health Outcomes.

			Outcomes			Total
			Low	Medium	High	
Awareness level	Low	Count	39	26	57	122
		Expected Count	28.8	55.0	38.1	122.0
	Medium	Count	14	85	15	114
		Expected Count	27.0	51.4	35.6	114.0
	High	Count	34	55	43	132
		Expected Count	31.2	59.5	41.3	132.0
Total		Count	87	166	115	368
		Expected Count	87.0	166.0	115.0	368.0

The analysis in Table 3, Fig. 1 and the Chi-Square test results examines the relationship between women's levels of awareness of midwifery-led interventions and their reproductive health outcomes. The crosstabulation reveals notable patterns: respondents with low awareness were underrepresented in medium outcomes (26 observed vs 55 expected) and overrepresented in high outcomes (57 observed vs 38.1 expected). This suggest an unexpected trend, and could imply that other factors, such as access to quality healthcare or external support systems, might be compensating for low awareness levels in achieving better outcomes. Alternatively, it could indicate that some women with low awareness benefit indirectly from the outcomes of interventions without actively engaging with them. Medium awareness respondents were significantly overrepresented in medium outcomes (85 observed vs 51.4 expected) but underrepresented in high outcomes (15 observed vs 35.6 expected), indicating a stronger link between medium awareness and moderate improvements. Respondents with high awareness showed a balanced distribution across outcomes, closely aligning with expected counts.

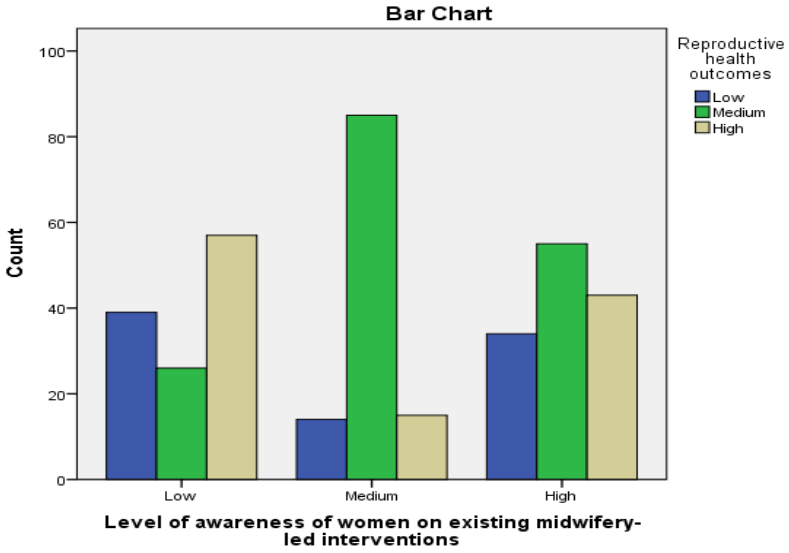

Figure 1: Level of Awareness of Women on existing Midwifery-Led Interventions

Chi-Square Tests

Statistics	Value	Degrees of Freedom (df)	P-value (Asymp. Sig.)
Pearson Chi-Square	68.996[a]	4	.000
Likelihood Ratio	72.207	4	.000
Linear-by-Linear Association	32.689	1	.006
N of Valid Cases	368		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 26.95.

The Chi-Square test statistically validates the observations observed in the crosstabulation table, given with the Pearson Chi-Square value of 68.996 at p-value of 0.000 and the Likelihood Ratio of 72.207 and p-value 0.000, effectively confirming a highly significant relationship. The Linear-by-Linear Association (32.689, p = .006) further confirms the significance of the trend. All expected counts exceeded the minimum requirement, and thus ensures that the test is valid. The results collectively reveal a significant relationship between awareness levels and reproductive health outcomes, hence the null hypothesis is rejected.

Ho_2: The psychometric properties of midwifery-led interventions are not significantly associated with reproductive health outcomes in Rivers State.

Table 4 indicates an association between the psychometric properties of midwifery-led interventions and reproductive health outcomes. Higher psychometric ratings corresponded with more favorable health outcomes, particularly high outcomes, while lower ratings were linked to poorer results. This suggests that well-structured, effective interventions positively influence women's reproductive health outcomes.

Table 4: Crosstabulation of Psychometric Properties of the Midwifery-Led Interventions Associated with Reproductive Health Outcomes

			Reproductive Health Outcomes			Total
			Low	Medium	High	
Psychometric Properties	Low	Count	31	25	24	80
		Expected Count	18.9	36.1	25.0	80.0
	Medium	Count	30	80	25	135
		Expected Count	31.9	60.9	42.2	135.0
	High	Count	26	61	66	153
		Expected Count	36.2	69.0	47.8	153.0
Total		Count	87	166	115	368
		Expected Count	87.0	166.0	115.0	368.0

The analysis of Table 4 and Fig. 2 examines the relationship between the psychometric properties of midwifery-led interventions and reproductive health outcomes in Rivers State. The crosstabulation results reveal that the interventions with respect to low psychometric properties show an overrepresentation in low outcomes (31 observed vs 18.9 expected) and an underrepresentation in medium outcomes (25 observed vs 36.1 expected). This indicates that low-quality intervention programmes are less likely to result in moderate or a better reproductive health outcome. For medium psychometric properties, there is a notable overrepresentation in medium outcomes (80 observed vs 60.9 expected) but an underrepresentation in high outcomes (25 observed vs 42.2 expected). This suggests that while medium-quality interventions were adequate for achieving

moderate outcomes, they may however not consistently deliver high reproductive health outcomes. For interventions with high psychometric properties, the analysis showed an underrepresentation in low outcomes (26 observed vs 36.2 expected) and an overrepresentation in high outcomes (66 observed vs 47.8 expected). This implies that high-quality interventions programmes are more likely to deliver better health outcomes.

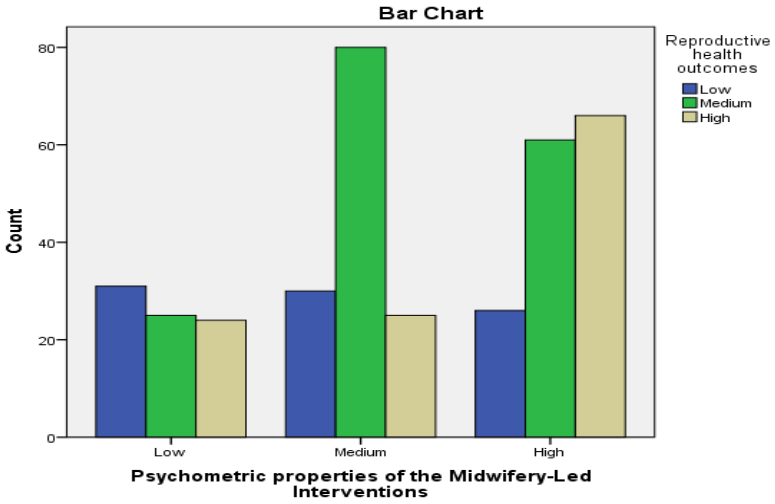

Figure 2: Psychometric Properties of the Midwifery-Led Interventions

Chi-Square Tests

Statistics	Value	Degrees of Freedom (df)	P-value (Asymp. Sig.)
Pearson Chi-Square	34.990[a]	4	.000
Likelihood Ratio	34.424	4	.000
Linear-by-Linear Association	14.434	1	.000
N of Valid Cases	368		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 18.91.

The Chi-Square test results provide statistical validation of these patterns in the crosstabulation table, confirming a significant association between psychometric properties and reproductive health outcomes. The Pearson Chi-Square value (34.990, p = .000) and the Likelihood Ratio (34.424, p = .000) indicate a highly significant association. The Linear-by-Linear Association (14.434, p = .000) further highlights a significant trend across ordered levels of psychometric properties. Importantly, all expected counts meet the validity requirement, given that the minimum value of 18.91 was obtained. This results support the conclusion that psychometric properties significantly influence reproductive health outcomes, hence the above stated null hypothesis was rejected.

Discussion of Findings

Level of awareness of women on existing midwifery-led interventions for empowering women to make informed reproductive health decisions.

The findings from this study provide insights into the awareness level of women about midwifery-led interventions in Rivers State. The results a high level of awareness, as evidenced by an aggregate mean score of 2.92, which is higher than the criterion mean of 2.50. This indicates that majority of women (71.47%) were generally well-informed about the services provided by midwives under the auspices of midwife-led interventions. This finding is consistent with the report of Dede et al. (2024), who examined pregnant women's perceptions of midwife-led perinatal care in Rivers State, reported that women recognized the essential roles played by midwives in providing maternal and child healthcare services, emphasizing further the importance of such interventions in improving maternal health outcomes. The findings arising from test of hypothesis reinforced the descriptive results. The Chi-Square analysis results ($\chi^2 = 68.996$, $p < 0.001$) revealed that a positive and significant association exist between women level of awareness of midwifery-led interventions and their reproductive health outcomes. Result from crosstabulation analysis provides further depth to the results, which showcased the varying effects of low, medium, and high awareness levels on women reproductive health outcomes. For women with low awareness, the results arising from the study revealed an unexpected trend: they were overrepresented in high reproductive health outcomes (57 observed vs. 38.1 expected). This potential anomaly suggests the presence of compensatory mechanisms that offset the lack of formal knowledge on the part of the women. These mechanisms could include indirect exposure to intervention benefits through family networks, community structures, or other informal channels. Results indicate that women with medium awareness levels generally achieved a better health outcome, and thus suggest that a even moderate level of knowledge can have a positive impact women reproductive health outcomes. This improvement is likely to have stemmed from a basic understanding they had on reproductive health, which enables women to make more informed decisions.

Psychometric Properties of the Midwifery-Led Interventions

The findings of this study further showed that the psychometric properties of midwifery-led interventions had a significant influence on reproductive health outcomes among women in Rivers State. The aggregate mean score of 2.78 is higher than the criterion mean of 2.50 and generally confirms the 55.71% of the respondents had a positive perception of the interventions among the participants, suggesting a high level of effectiveness across multiple dimensions. The findings showed that women expressed satisfaction with the clarity of communication, the relevance of the interventions, and the respect they received from midwives. The ability of midwives to use comprehensible language, as well as the relevance of the interventions to the participants' life stages and reproductive health needs, underscores the appropriateness of the programme's design and delivery. Additionally, participants reported feeling comfortable while asking questions to clarify doubts, effectively indicating that the interventions provided a supportive and interactive environment that is conducive to effective learning. These findings align Olsson et al. (2019), reported the importance of patient-centered communication specifically tailored to the healthcare needs of women during interventions to achieve a high positive health outcomes. The test of hypothesis finding established a strong relationship between psychometric properties and reproductive health outcomes. Interventions with low psychometric properties were strongly associated with adverse health outcomes, as evidenced by their disproportionate representation in low outcome categories and underperformance in medium outcome categories. These findings underscored the critical link between intervention quality and health outcomes. Suboptimal interventions which is often characterised by poor design and inadequate delivery mechanisms, failed to meet the specific health needs of women, particularly in resource-limited settings. Siegle et al. (2021) reported that poorly structured maternal health programmes lacked essential components, such as adequately trained personnel, functional infrastructure, and consistent service delivery, leading to limited or negligible impacts on health outcomes. Such deficiencies not only compromise the effectiveness of interventions but also hinder the overall health-seeking behaviour of women, thereby exacerbating health disparities in underserved communities. Moreover, the failure of low-quality interventions to achieve meaningful outcomes strongly aligns with broader evidence on maternal health disparities in low-resource settings. Some studies suggest that interventions designed without a clear and robust understanding of women or community needs or without addressing systemic challenges such as inadequate midwife training, insufficient support structures, and cultural insensitivity tended mostly to have limited impact (Campbell et al., 2016). These gaps contribute to negative health outcomes, which may include higher rates of maternal and infant morbidity and mortality. To improve the effectiveness of interventions, it is crucial to integrate evidence-based practices, such as comprehensive midwife training, facility upgrades, and culturally tailored approaches into the programme designing and implementation stages. Addressing these issues would enhance the capacity of maternal health programmes to deliver equitable and impactful services, particularly in vulnerable communities.

Conclusion

This study investigated the empowerment of women in reproductive health decisions through midwifery-led interventions in Rivers State, with focus on women's awareness level, participation, and psychometric properties of midwife-led interventions and associated outcomes. The findings revealed that the awareness level of midwifery-led interventions is generally high, though not unevenly distributed. Some rural areas faced communication challenges and inadequate access to reproductive health services. The psychometric properties of midwifery-led interventions were rated highly, with respect, clear communication, and relevance to women's needs being key strengths of the interventions. However, systemic barriers such as understaffing, resource shortages, and a lack of cultural sensitivity limited their effectiveness.

Recommendations

1. Based on the findings of this study, the following recommendations were made:
2. The Rivers State Ministry of Health should develop and implement a consistent and community-focused awareness campaigns about midwifery-led interventions. These campaigns should leverage local leaders, community radio, and religious organisations to disseminate information on reproductive health services, including antenatal care, family planning, and menstrual health management.
3. Healthcare administrators should prioritise the deployment of more midwives to rural areas to ensure that reproductive health services are easily accessible. This should be accompanied by setting up mobile clinics to increase the frequency of outreach programmes in underserved communities.

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