

Determinants of Phc Services Utilizations among Women in Rivers East Senatorial District, Rivers State: An Application of the Health Belief Model.

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Article History	Abstract
Original Research Article	<p><i>Primary healthcare is the backbone of healthcare systems, offering people and families comprehensive and necessary medical services that improve their general health and well-being. This study looked into the factors that influence women in Rivers State's Rivers East Senatorial District's use of basic healthcare services. To direct the investigation, three research questions and hypotheses were formulated. With a population of 133,545 women in the Rivers East Senatorial District, a descriptive correlational study methodology was used. A multistage sampling technique was used to choose the sample size of 1596. A standardized questionnaire with a reliability coefficient of 0.80 was used to gather data. The mean and Pearson Product Moment Correlation (PPMC) at the 0.05 alpha level were used for the analysis. This result revealed that, the utilization of PHC services amongst women in Rivers East Senatorial District was determined highly by perceived severity of illness (3.39 ± 0.83); perceived susceptibility to illness (3.55 ± 0.77); and perceived benefits of PHC services (3.39 ± 0.80). The result revealed that, there existed a noteworthy correlation between variables like perceived severity of illness ($N = 1549, r = 0.44, p = 0.00$); perceived susceptibility to illness ($N = 1549, r = 0.51, p = 0.00$); perceived benefits of PHC services ($N = 1549, r = 0.46, p = 0.00$) and primary healthcare services utilization among women in Rivers East Senatorial District. The research concluded that the major determinants of utilization among women in Rivers East senatorial district were behavioural factors such as perceived severity, perceived susceptibility and perceived benefits. Among other things, it was advised that health care workers should educate women on the benefits of utilizing PHC services.</i></p> <p>Keywords: Determinants, Health Belief Model, Primary Healthcare, Utilization.</p>
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<p>Copyright © 2025 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.</p> <p>Citation: OKWU-BOMS, C. R.; SAMUEL, G.K. (2025). Determinants of Phc Services Utilizations among Women in Rivers East Senatorial District, Rivers State: An Application of the Health Belief Model. UKR Journal of Medicine and Medical Research (UKRJMMR), volume 1(2), 20-26.</p>	

Introduction

Primary healthcare, which offers people and communities complete and necessary health services, is the fundamental basis of healthcare systems around the world. The World Health Organization (WHO) defines primary healthcare as "essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford" sustain (WHO, 2024). Primary healthcare involves a broad array of services, including preventive measures, health promotion, diagnosis, and management of chronic health issues and the treatment of common diseases (Behera et al., 2022). In order to address the many health requirements of people

throughout their lifetimes, a coordinated team of healthcare professionals, including general practitioners, nurses, and community health workers, usually provides these services. It adopts a comprehensive approach to health, focusing not only on treating diseases but also on promoting general well-being and preventing illness. This strategy plays a key role in minimizing health inequalities, and enhancing overall health outcomes (Nadrian, 2024), when the services are utilized. Hence the usage of Primary Health Care (PHC) services among women is a critical component of healthcare access and significantly contributes to the enhancement of women's health and well-being (Okonofua et al., 2018). However, sub-optimal level of utilization have been reported (Abdulaziz et al., 2022). In African,

according to Yaya et al. (2018), only 17.1% of Ethiopian women gave birth in a medical facility. In Nigeria, studies from Ugochukwu et al. (2022) and Nwokoro et al. (2022) in Enugu revealed the level of utilization to be 46.2%, which is below average. In addition, several studies revealed that the utilization of PHC is influenced by perceived benefits of the services and perceived susceptibility to illness (Agyemang-Duah & Rosenberg, 2023), and perceived severity of illness (Robinson-Mbato et al., 2024).

Understanding the seriousness of various health conditions is essential for uncovering the complexities behind patterns of primary healthcare (PHC) utilization. They stress that when people perceive a health problem to be serious, they are more likely to undertake behaviours that promote health (Antiga et al., 2025). This suggests that women who recognize the potential dangers or serious outcomes of certain health conditions are more likely to seek out preventive or treatment services offered in PHC settings. As such, perceived severity plays a crucial role in shaping women's decisions to seek healthcare, with research consistently showing that it significantly affects healthcare utilization behavior. Individuals evaluate their risk or vulnerability to particular health conditions, which in turn shapes their willingness to seek healthcare services. In the realm of women's health, understanding how women perceive their susceptibility to different health challenges is essential for uncovering the underlying factors influencing their patterns of primary healthcare (PHC) utilization (Alyafei & Easton-Carr, 2024). The World Health Organization (2024) asserts that individuals believe they are at risk of a certain health hazard, which makes them more likely to adopt health-promoting behaviours. Numerous studies have consistently shown that perceived susceptibility significantly influences healthcare-seeking behavior. For instance, in the case of mammography use among women, research indicates that those who view themselves as more vulnerable to breast cancer are more likely to participate in preventive screening.

A range of interrelated factors or determinants influences usage of primary healthcare (PHC) services among women, with perceived benefits playing a crucial role in shaping their decisions to either seek or avoid care. The term "perceived benefits" describes how someone assesses the possible benefits and positive outcomes associated with using PHC services. Gaining insight into how women view these benefits is essential for understanding the intricacies of their healthcare-seeking behavior. It also provides a basis for designing interventions that resonate with their health priorities and perceived value of care (Okonofua et al., 2018). The Health Belief Model (HBM) states that people are more inclined to take health-related behaviours when

they think the advantages of doing so outweigh any potential costs or obstacles. For women's primary healthcare (PHC) utilization, perceived benefits serve as a key motivator, influencing their decision to seek preventive, curative, or routine health services. Research consistently supports the significant role of perceived benefits in shaping healthcare-seeking behavior. For example, individuals who recognize the value of preventive measures, such as regular health screenings, are more inclined to adopt these health-promoting practices (Alyafei et al., 2024). Personal observation has shown that, many women in this region fail to access these PHC essential health services adequately due to unfavourable perceptions. Therefore, this study investigated the determinants of PHC services utilization among women in Rivers East Senatorial District, Rivers State. The following enquiries served as the study's guiding questions:

1. What extent does perceived severity of illness constitute a determinant to PHC services utilization among women in Rivers East Senatorial District, Rivers State?
2. To what extent does perceived susceptibility to illness constitute a determinant to PHC services utilization among women in Rivers East Senatorial District, Rivers State?
3. To what extent does perceived benefits of PHC constitute a determinant to PHC services utilization among women in Rivers East Senatorial District, Rivers State?

Hypotheses

1. Women's use of basic healthcare services in Rivers State's Rivers East Senatorial District is not significantly correlated with their perception of the severity of their condition.
2. Women's use of primary healthcare services in Rivers State's Rivers East Senatorial District is not significantly correlated with their perception of their vulnerability to sickness.
3. Women's use of basic healthcare services in Rivers State's Rivers East Senatorial District is not significantly correlated with their perception of the advantages of PHC services.

Methodology

One of the three senatorial districts of Rivers State, Rivers East, is where the study was conducted. Emohua, Etche, Ikwerre, Obio-Akpor, Ogu-Bolo, Okirika, Omuma, and Port Harcourt are among its eight local government areas. With a population of 133,545 and a sample size of 1596 women, a descriptive cross-correlational study design was employed. The sample size was determined using the Taro Yamene formula ($N / 1 + N(e)^2$). The 1,596 sample for the study was chosen using a multi-stage sampling technique.

First, a cluster sampling used to group the senatorial district into four clusters based on their cultural similarities (Cluster 1 – Obio/akpor and Port Harcourt; Cluster 2 – Etche and Omuma; Cluster 3 – Ikwerre and Emohua; Cluster 4 – Okrika and Ogu/bolo). One LGA was chosen at the second stage from each cluster, which includes Port Harcourt, Emohua, Okrika, and Etche, using a straightforward random sampling procedure. Two communities were chosen from each Local Government at the third stage using a straightforward random sample procedure. The fourth step involved choosing responders

from the chosen communities using a straightforward random sampling method. The Determinants of Primary Healthcare Services Utilisation (DPHSU) tool, which has a reliability coefficient of 0.80, was used to gather data. The Statistical Product for Service Solution (SPSS) version 27.0 was used to assist with all statistical analyses. The research topics were addressed utilising statistical methods including mean and standard deviation, and hypotheses were tested using Pearson Product Moment Correlation (PPMC).

Results

Table 1: Mean and Standard deviation showing the extent to which perceived severity of illness constitute a determinant to PHC services utilization among women.

s/n	Items	Mean	SD	Decision
1	Persistent headache and high fever.	3.57	0.68	High extent
2	Seriousness of my health condition.	3.24	0.71	High extent
3	Condition would worsen with time without care.	3.08	1.06	High extent
4	Getting children immunized can reduce the risk of them dying from any childhood killer diseases.	3.39	0.96	High extent
5	Seriousness of my child's illness.	3.65	0.75	High extent
	Grand Mean	3.39	0.83	High extent

Criterion Mean: 2.50

The result in table 1 showed the extent to which perceived severity of illness constitute a determinant to PHC services utilization between women in Rivers East Senatorial District, Rivers State. The grand mean of 3.39 ± 0.83 , which is higher than the criterion mean of 2.50, indicates a high degree of success. In particular, the severity of their kids' illnesses had a high extent of 3.65 ± 0.75 ; high fever and ongoing headaches also had a high extent of 3.57 ± 0.60 . As a result, women in the Rivers East Senatorial District were very likely to use PHC services based on their perception of the severity of their sickness.

Table 2: Mean and Standard deviation showing the extent to which perceived susceptibility to illness constitute a determinant to PHC services utilization among women.

s/n	Items	Mean	SD	Decision
1	Child is at risk without utilizing their immunization services.	3.50	0.87	High extent
2	Unintended pregnancy can occur without using family planning services.	3.74	0.66	High extent
3	Prone to non-communicable diseases like diabetes and hypertension.	3.44	0.65	High extent
4	Not protected against every communicable disease, hence, need for vaccination.	3.44	0.84	High extent
5	Diarrhoea can occur if I do not drink safe water.	3.65	0.82	High extent
	Grand Mean	3.55	0.77	High extent

Criterion Mean: 2.50

The result in Table 2 showed the extent to which perceived susceptibility to illness constitute a determinant to PHC services utilization amongst women in Rivers East Senatorial District, Rivers State. The outcome showed a grand mean of 3.55 ± 0.77 , which is greater than the criteria mean of 2.50 indicating a high extent. Specifically, prone to non-communicable diseases had a high extent 3.44 ± 0.65 ; unintended pregnancy can occur without using family planning services also had a high extent 3.74 ± 0.66 . Hence, the extent to which perceived susceptibility to illness constitute a determinant of PHC service utilization among women in Rivers East Senatorial District was high.

Table 3: Mean and Standard deviation showing the extent to which perceived benefits of PHC services constitute a determinant to PHC services utilization among women.

s/n	Items	Mean	SD	Decision
1	Services rendered in the PHC are beneficial and nice.	3.60	0.76	High extent
2	Health education rendered in the facility helps improves health.	3.23	0.63	High extent

3	PHC services enhances early detection, diagnosis and successful treatment of health conditions.	3.11	0.88	High extent
4	The nutritional counselling offered are beneficial.	3.40	0.95	High extent
5	Able to space childbirth due to family planning services in the PHC facility.	3.62	0.82	High extent
Grand Mean		3.39	0.80	High extent

Criterion Mean: 2.50

Result in Table 3 indicated the extent to which perceived benefits of PHC services constitute a determinant to PHC service utilization among women in Rivers East Senatorial District, Rivers State. A high degree of agreement was shown by the result's grand mean of 3.39 ± 0.80 , which was higher than the criteria mean of 2.50. Specifically, the services were beneficial to them had a high extent 3.60 ± 0.76 ; able to space childbirth due to the family planning services offered also had a high extent 3.62 ± 0.82 . Thus, the extent to which perceived benefits of PHC services determines PHC services utilization amongst women in Rivers East Senatorial District was high.

Table 4: Pearson Correlation analysis showing relationship between perceived severity of illness and primary healthcare services utilization among women.

Variables		perceived severity	utilization	Decision
Perceived severity	Pearson correlation	1	0.44	H_0 rejected
	Sig.		0.00*	
	N	1549	1549	
Utilization	Pearson correlation	0.44	1	
	Sig.	0.00*		
	N	1549	1549	

***Significant; $p < 0.05$**

Table 4 presents Pearson Correlations examination on association between perceived severity of illness and primary healthcare services utilization among women in Rivers East Senatorial District. With an outcome that indicated statistical significant connection amongst perceived severity of illness and PHC services utilization as $p < 0.05$ ($N = 1549$, $r = 0.44$, $p = 0.00$). Consequently, the null hypothesis asserted that there is no meaningful connection amongst perceived severity of illness and primary healthcare services utilization among women in Rivers East Senatorial District, Rivers State was rejected.

Table 5: Pearson Correlation analysis showing relationship between perceived susceptibility to illness and primary healthcare services utilization among women.

Variables		perceived susceptibility	utilization	Decision
Perceived susceptibility	Pearson correlation	1	0.51	H_0 rejected
	Sig.		0.00*	
	N	1549	1549	
Utilization	Pearson correlation	0.51	1	
	Sig.	0.00*		
	N	1549	1549	

***Significant; $p < 0.05$**

The Pearson Correlations study of the association between women's use of basic healthcare services and their perceived vulnerability to sickness in the Rivers East Senatorial District is shown in Table 5. According to the results, there was a statistically significant correlation ($p < 0.05$) between the use of PHC services and perceived vulnerability to sickness ($N = 1549$, $r = 0.51$, $p = 0.00$). Therefore, the null hypothesis which claimed that there is no meaningful connection between women's use of basic healthcare facilities in Rivers East Senatorial District, Rivers State, and their perceived susceptibility to illness was rejected.

Table 6: Pearson Correlation analysis showing relationship between perceived benefits of PHC services and primary healthcare services utilization among women.

Variables		perceived benefits	utilization	Decision
Perceived benefits	Pearson correlation	1	0.46	H_0 rejected
	Sig.		0.00*	
	N	1549	1549	
Utilization	Pearson correlation	0.46	1	
	Sig.	0.00*		
	N	1549	1549	

***Significant; $p < 0.05$**

The Pearson Correlations study of the association between women's use of primary healthcare services in the Rivers East Senatorial District and their perception of the benefits of PHC services is shown in Table 6. The findings showed that the perceived benefits of PHC services and their utilisation were statistically significantly correlated, with a p-value of less than 0.05 ($N = 1549$, $r = 0.46$, $p = 0.00$). As a result, the null hypothesis which claimed that there was no meaningful correlation between women's use of basic healthcare services in Rivers East Senatorial District, Rivers State, and their perceptions of the advantages of PHC services was rejected.

Discussion of Findings

The study's results showed that the grand mean (3.39 ± 0.83) was higher than the eligibility mean (2.50), indicating the extent to which perceived severity of illness constitute a determinant of PHC services utilization amongst women in Rivers East Senatorial District was high. This finding was anticipated because if a woman does not think that her illness or condition is dangerous or harmful to her health or that of her baby, she may probably not want to utilize the health care services especially knowing that it involves money. Many will rather want to use the money for other things and manage the health condition. Additionally, the study's findings indicated a strong correlation between perceived severity ($N = 1549$, $r = 0.44$, $p = 0.00$) and primary healthcare utilization among women in the Senatorial District of Rivers East. This outcome is consistent with research conducted in Ghana's Ashanti region by Agyemang-Duah and Rosenberg in 2023, which found a negative and substantial correlation between healthcare utilisation and perceived severity of a health problem ($\beta = -0.038$, $IRR = 0.963$, $95\% \text{ CI} = [0.949-0.979]$). 62% of the participants "agreed strongly" that the idea of having a health problem scared them, and 68.7% "agreed strongly" that having a health problem would change their entire life. Their study also revealed that the perceived severity of a health problem affected their use of the primary healthcare facility. This was also in agreement with the study of Richard and Kio (2021) in Odeda Local Government Area, Ogun State which that revealed women's

perception of the severity of their illness significantly ($t\text{-value} = 4.505$, $f(1,365) = 6.326$, $p\text{-value} = 0.000$) affected how they used primary care services. Furthermore, according to a study by Robinson-Mbato et al. (2024) on the factors influencing the use of maternal health care services in Rivers State's Port Harcourt Local Government Area, 45% of respondents cited significant health issues as a major reason for seeking medical attention. Additionally, the study discovered that compared to 30% of women who perceived lower severity ($p = 0.03$), 62% of women who felt extremely severe childbirth difficulties were more likely to use maternal healthcare services ($p < 0.05$). The homogeneity of the study population may be the cause of the parallels between the current study and earlier research.

The study's conclusions showed the grand mean (3.55 ± 0.77) is higher than the 2.50 criterion mean, indicating that the degree to which perceived susceptibility to illness constitute a determinant of PHC service utilization amongst women in Rivers East Senatorial District was high. This finding was expected because a woman's perception of her vulnerability to a disease or condition greatly influences her decision to use health care services. The results of this study are consistent with those of Agyemang-Duah and Rosenberg's (2023) study conducted in Ghana's Ashanti area, which found that the majority of participants (52.2%) "Agreed strongly" that they believed their perception of the likelihood of developing a health problem was extremely high. Additionally, the findings demonstrated a positive and substantial correlation between healthcare utilization and perceived susceptibility to a health condition ($\beta = 0.067$, $IRR = 1.069$, $95\% \text{ CI} = [1.054-1.083]$). This was also similar to the result from Richard and Kio (2021) in Odeda Local Government Area, Ogun State who revealed that women's perception of their susceptibility significantly ($t\text{-value} = 4.505$, $f(1,365) = 6.326$, $p\text{-value} = 0.000$) affected how they used primary care services. According to Agofure and Sarki's (2017) study conducted in the Jaba Local Government Area of Kaduna State, Nigeria, 359 (35.20%) of the parents who participated confirmed that they mostly used primary health care services to keep an eye on their children's health because they believed they were at risk.

The study's findings also showed a strong correlation between women in the Rivers East Senatorial District's primary healthcare utilization and perceived susceptibility ($N = 1549$, $r = 0.51$, $p = 0.00$). This finding was corresponded to the finding of Abazie et al. (2019) of rural pregnant women in Lagos State, Nigeria who revealed in their study that there is a significant association ($X^2 = 89.14$; $df = 1$; p value = 0.00) between pregnant women's perceptions of their vulnerability and their use of delivery services in Lagos State's rural PHCs. The similarities between the result from the present study and the past studies could be as a result of the similarity in methodological approaches like the study design and tool for gathering data.

The study's results showed that the grand mean (3.39 ± 0.80) was higher than the eligibility mean of 2.50, indicating that the degree to which perceived benefits of PHC services determines PHC services utilization amongst women in Rivers East Senatorial District was high. This effect was not surprising because when a person feels a service or facility is beneficial to them despite all obvious factors; they would still more likely use it. This result is consistent with the findings from Egbewale and Odu (2013) in a South-Western Nigerian semi-urban neighbourhood who disclosed that the major reasons cited for non-utilization of the PHC facility were the people perception of poor quality of service provided by PHC workers (61.5%). This finding was also related to the findings of Agyemang-Duah and Rosenberg. (2023) found that 69.7% of people in Ghana's Ashanti area "agreed strongly" that receiving medical treatment made them feel good about themselves, and 73.7% "agreed strongly" that receiving medical care would lower their risk of developing a health issue. The finding is in accordance with the finding of Abdulaziz et al. (2022) among adult residents in KSA who revealed that contentment with medical care received at a prior visit ($AOR = 2.6$, 95% CI 1.1–6.3) had an influence on PHC utilization. Richard and Kio (2021) found that women's use of primary health care services was strongly influenced by their impression of PHC in Odeda Local Government Area, Ogun State (t -value = 4.505, $f(1,365) = 6.326$, p -value = 0.000). Of the respondents, 59.7% had a negative opinion of primary health care services, and 42.8% of the women stated that primary health care professionals do not refer patients to another medical facility when necessary. This outcome was consistent with Okonofua et al. (2018)'s findings in rural Nigeria who revealed that (19.9%) perceived the services rendered, as good quality service was their reason for utilization. Ugochukwu et al. (2022) in Enugu State revealed in his study that contentment with medical services $AOR = 2.6$ (95% CI 1.1–6.3) predicted use of PHC services during prior visit. The findings from Abazie et al.

(2019) in Lagos State that revealed that largely, 80.5% of the participants perceived that delivery at PHCs by skilled health workers is not a benefit was in variance to the results of the current investigation. The variability of the research population may be the cause of the discrepancy between the results of this study and the one that came before it. The results of this study also showed that among women in the Rivers East Senatorial District, primary healthcare utilisation and perceived benefits were significantly correlated ($N = 1549$, $r = 0.46$, $p = 0.00$). This stayed in agreement with the results from Agyemang-Duah and Rosenberg (2023), found that healthcare use was positively and strongly correlated with the perceived benefits of seeking care in Ghana's Ashanti area ($\beta=0.023$, $IRR=1.023$, 95% CI= [1.002–1.045]). The findings from Abazie et al. (2019) in Lagos State, Nigeria which showed a significant association ($X^2 = 89.14$; $df = 1$; p value = 0.00) between perceived benefits and utilisation of delivering services for expectant mothers in rural PHCs in Lagos State was in correlation to the results of the current investigation. The similarity between finding of this current homogeneity of the study population and study location may be the cause of the prior study.

Conclusion

The major determinants of PHC services utilization among women in Rivers East senatorial district were behavioural factors such as perceived severity, perceived susceptibility and perceived benefits, which played a major role in their utilization of these healthcare services.

Recommendations

The study's findings led to the following recommendations being made:

1. Health care workers should emphasize on the seriousness and dangers associated with health conditions to foster and cue the perception of women to take their health conditions serious, hence the need for medical attention.
2. Community health workers should emphasize health education to the women to improve knowledge on their vulnerability to health conditions during their immunization and antenatal visits.
3. Government and health care workers should incorporate the use of public advertisement such jingles to educate and sensitize women on the benefits of utilizing PHC services to enhance awareness and utilization.
4. Healthcare workers and government agencies should educate the women during their visit on the benefits of utilizing PHC services in the facility

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