

The Impact of Online Information Seeking Behaviour and Quality Healthcare of Women During Pregnancy

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ABSTRACT This study addresses the intersection of Online Information Seeking Behaviour (OISB) and quality healthcare for women during pregnancy in Lagos, Nigeria. The objective is to look at OISB trends, information needs, and how they affect quality healthcare. The Technology Acceptance Model and the Health Belief Model serve as the foundation for the hypothesis. Path analysis is used to examine the data using a mixed-method approach once it has been collected through surveys. The findings indicate a significant positive relationship between the OISB variables of information sources, frequency of information seeking, and preference for information formats, and the quality of prenatal treatment. In summary, the research concludes with suggestions that recognise the substantial influence of the Office of Information and Science Board and underscore the necessity of joint endeavours to guarantee the assimilation of evidence-based online resources into maternity healthcare practices.

INTRODUCTION

Information is generally acknowledged in many sectors as a crucial tool for decision-making (Adesina et al. 2021; Akindeji et al. 2020; Vogels-Broeke et al. 2022). In the health sector, the type of health information available and accessed by users play an important role in the delivery of healthcare and the quality health decisions made (Aririguzoh et al. 2021). Similar to other health needs, during the pregnancy stage, pregnant women seek a wide range of pregnancy-related information to stay healthy to the time of delivery (Lu et al. 2022). This stage in women's lives has significant and life-altering consequences, which places a special demand on the information they require.

This behaviour of seeking health information is primarily concerned with making practical decisions in order to gather knowledge to address health issues at a specific moment (Bello 2015). Pregnant women can learn about their pregnancy and childbirth as well as have any potential health issues identified and treated as early as possible by accessing such pregnancy-related information from a variety of sources, including the internet (Omoanono and Ufuoma 2020). According to Amodu et al. (2019), the internet has unquestionably impacted the way things are done today. Pregnant women often turn

to the internet as their main source of pregnancy-related information, according to Murugathas et al. (2020), raising questions regarding the veracity of online health information. This emphasises how crucial it is to study women's internet behaviours and decision-making processes in this particular setting. Despite the existence of previous studies in related fields, the failure of existing review papers to establish connections across disciplines is notable.

According to Ojewole and Oludipe (2017), pregnancy is not only a time of major physical changes for a woman, but it is also a critical time in her life when decisions about her health take on a greater significance because those decisions affect the mother as well as the unborn child. This suggests that the imperative for pregnant women to lead healthy lives and ensure safe deliveries propels them to seek and acquire information essential for their well-being. This information-seeking journey commences with the identification of knowledge gaps, as highlighted by Allen (1993), who posits that an information need arises whenever an individual's knowledge fails. Every year, pregnancy-related complications account for over 287,000 deaths among women of reproductive age (Oyston and Baker 2020). Pregnancy-related complications continue to be the primary cause of mortality for these women. Nigeria accounts for almost 13 percent of all maternal death

rates globally, with 36,000 childbirth-related fatalities reported annually, making it a major contributor to the global burden of maternal mortality (Nanda 2020; Omoanono and Ufuoma 2020). Consequently, pregnant women grapple with fears, concerns, and uncertainties related to pregnancy, prompting a heightened desire to acquire more information about this critical period. Pregnancy, marked by physiological changes and role adjustments, necessitates women to seek information to meet the demands posed during this transformative phase, often obtained through antenatal visits.

Panahi et al. (2020) argued that the global concern for maternal well-being is justified, with staggering statistics revealing substantial risks faced by women in the poorest parts of the world during pregnancy and childbirth compared to their counterparts in more developed regions. The study's focus on the information-seeking behaviour of pregnant women in Lagos Metropolis becomes crucial in shedding light on the severity of maternal health care issues, especially in regions like Nigeria, where high maternal and infant mortality rates persist.

Pregnancy, particularly the first experience, represents a major life transition marked by significant physical, psychological, and social transformations. This transformative period prompts pregnant women to reassess various aspects of their behaviour, including nutrition habits, with an emphasis on high-quality nutrition during this critical phase. The study aligns with the findings of previous research, such as that by Szwajcer et al. (2008), affirming heightened interest in nutrition information during pregnancy compared to pre-conception periods. The overarching goal is to contribute to the understanding of and response to the multifaceted challenges faced by pregnant women, facilitating improved maternal health care outcomes and a reduction in preventable pregnancy-related deaths.

There are still barriers that need to be addressed in order for pregnant women to identify and manage pregnancy-related difficulties. These include the fact that women may not always act on the information they get, that healthcare personnel are overworked, and that pregnant women may not always have enough access to the internet and other communication resources. Pregnant women in Western nations have been the main focus of study on their information demands, which has left a significant knowledge vacuum about the information-seeking behaviour of pregnant women in Nigeria, especially in Lagos State.

Objectives

For this study, the following research questions were developed in accordance with the problem statement:

- i. What are the distinct patterns and sources of Online Information Seeking Behaviour (OISB) among pregnant women in Lagos State, Nigeria?
- ii. What specific information needs do pregnant women in Lagos State, Nigeria have concerning their health care during pregnancy?
- iii. How does Online Information Seeking Behaviour influence quality healthcare for women during pregnancy in Lagos state, Nigeria?

Literature Review

Saleh and Lasisi (2011) investigated the information needs and search behaviour of rural women in Borno State, Nigeria. This survey shows that most pregnant women are in great need of information about safe childbirth, breastfeeding, child immunisations, and prenatal and postnatal care. Meanwhile, according to Akindeji et al. (2020), pregnant women in Osun State have information needs regarding clean environment, breastfeeding, vaccination, diseases during pregnancy, and postpartum diseases. Akindeji et al. (2020) found that expectant mothers use doctors, specialists, health pamphlets, and websites when searching for health-related information.

According to a study by Folayan et al. (2017) on the impact of the Internet on pregnant women, Nigerian pregnant women often follow pregnancy-related advice on the Internet due to the lack of sufficient health professionals to meet their information needs. This can lead to self-medication in some cases. To determine the information seeking behaviour of pregnant women in Lagos State, Ojewole and Oludipe (2017) investigated the information needs of these women. This was in line with findings from a research by Dalyop and Jacob (2020), which showed that pregnant women's information demands influenced their activity while looking for information and caused them to explore a range of sources. It is critical to determine the online resources for information that expectant mothers may access and what information they need.

Development of Research Questions

Conrad (2022) recognised that digital sources are viewed as complementary rather than replace-

ments for the ‘human touch’ provided by healthcare professionals. Previous studies emphasised the importance of online information seeking behaviour in offering reassurance when women encounter conflicting information from various sources. Bello (2015) asserted that while online information seeking behaviour offers convenience due to accessibility and unlimited availability, there is concern about limited discussions between women and maternity care providers regarding online information. Understanding the particular information needs of women during pregnancy in Lagos State, Nigeria, is fundamental for bolstering quality healthcare to meet their different prerequisites. Empirical studies such as Adebayo (2022) highlight various aspects of the information-seeking behaviour of pregnant women in Lagos Metropolis. Information is recognised as a crucial element in enhancing an individual’s well-being, particularly during pregnancy. Maternal mortality may be decreased by encouraging a healthy lifestyle and guaranteeing a safe birth, both of which depend on the availability, accessibility, and use of health information. The primary goal of research is to improve practice and advancement in general by producing new knowledge that may either introduce completely new ways or improve practices that already exist. These varied patterns and sources lay the foundation for the first research question in this study.

Research Question 1: What are the distinct patterns and sources of Online Information Seeking Behaviour (OISB) among pregnant women?

Professional information sources are often regarded as being very reliable and helpful. Interestingly, despite being viewed as less reliable and beneficial, digital sources are among the most frequently utilised by pregnant women (Hamzehei et al. 2018; Dalyop and Jacob 2020). According to Hou and Hou (2022), midwives are important personal sources of information since they are the majority of maternity care providers in the Netherlands. Notably, the perceived quality of various information sources remains consistent across different participant characteristics, indicating the involvement of numerous factors in assessing information quality. This study emphasises how important it is to give professional pregnancy and delivery information the highest priority on digital platforms like websites

and apps, as traditional pamphlets might not suit the information needs of today’s expectant mothers (Kubb and Foran 2020). Remarkably, peers, apps, and websites were utilised more frequently than pamphlets given by maternity care specialists. This suggests a need for a more targeted and timely approach to providing information, as excessive leaflets may not meet women’s specific needs. Nulliparous women, experiencing pregnancy for the first time, exhibited a broader use of information sources, highlighting their higher information needs during this transformative period. Personal factors explained a minimal portion of the variation in perceived information source quality, especially for digital sources. These findings form the basis for the second research question in this study.

Research Question 2: What specific information needs do pregnant women in Lagos State, Nigeria have concerning their health care during pregnancy?

Omoanono and Ufuoma (2020) emphasise the diverse information needs of women, asserting that meeting these needs significantly influences their quality of life and overall well-being. Sayakhot and Carolan-Olah (2016) highlight pregnant women’s information requirements regarding environmental cleanliness and immunisation, with doctors and nurses being the most accessible and utilised sources. In contrast, libraries are reported as the least utilised. Murugathas et al. (2020) underscore the role of adequate information in mitigating the lack of knowledge and fear of the unknown during pregnancy. According to Folayan et al. (2017), it is critical to meet women’s demands for knowledge on pregnancy, delivery, and the postpartum period. The study emphasises the need for personalised information for successful treatment by highlighting important areas where knowledge is essential during pregnancy, labour, and the postpartum period.

Dalyop and Jacob (2020) underscore the importance of adequate information for maternal health, contributing to the mental relaxation of pregnant women. According to Ogunmodede et al. (2013), a significant amount of the information requirements of rural women in Northern Nigerian communities are related to health. Mumba (2015) identifies various information needs of pregnant women, including those related to food, rest, exercise, antenatal care, blood examination, immunisation, and family

planning. The World Health Organization (2004) criticises existing information systems for pregnant women, citing issues like being non-demand-driven, overlooking local knowledge, misconstruing the role of intermediaries, and lacking supervision. Most pregnancy and delivery difficulties, according to Aktas and Aydin (2019), are caused by inadequate information.

Sayakhot and Carolan-Olah (2016) highlight challenges in Zambia, where a significant percentage of births lack skilled health personnel attendance, leading to delayed antenatal care. Pregnant women seek health information through informal sources like friends and oral talks from health workers. Acharya et al. (2010) emphasise the diverse information sought by pregnant women, covering nutritional information, sexual and familial relationships, and pregnancy complications. Slomian et al. (2017) report that women often feel inadequately informed during pregnancy, emphasising the importance of psychological support. Ezeama and Ezeamah (2015) link antenatal care attendance to positive effects on birth weight, highlighting the correlation between healthcare access and maternal and neonatal outcomes. This dual nature of influence forms the basis for the third research question.

Research Question 3: How does Online Information Seeking Behaviour influence quality healthcare for women during pregnancy?

Theoretical Justifications

One major theory that shed light on the circumstances and issues raised in the research on Online Information Seeking Behaviour (OISB) and high-quality healthcare for expecting mothers (TAM) is the Health Belief Model (HBM). The health belief model suggests that people are more likely to engage in health-promoting activities when they perceive a threat to their health and feel that a particular action will reduce that threat, and online resources may be useful for pregnant women searching for health information on. Given that pregnant mothers' health attitudes and beliefs influence how they seek information online, this theory supports the identification of online information seeking behaviour (OISB).

Research Gaps

The existing literature on the Online Information Seeking Behaviour (OISB) of pregnant women in

the context of healthcare quality in Lagos, Nigeria, reveals notable research gaps. Methodologically, a gap exists in the absence of comprehensive studies employing mixed-method approaches, combining quantitative and qualitative methods to provide a holistic understanding of OISB patterns and healthcare outcomes. Theoretical gaps are apparent as the majority of studies lack a strong theoretical foundation, with limited incorporation of established health behaviour and information science theories. Additionally, conceptual gaps arise in the insufficient exploration of the socio-cultural factors influencing OISB and healthcare quality, necessitating a more nuanced examination of these elements to bridge the existing knowledge gaps and enhance the applicability of findings to the unique context of pregnant women in Lagos. Closing these methodological, theoretical, and conceptual gaps is essential for developing more robust and contextually relevant frameworks that contribute meaningfully to the understanding of OISB and its impact on healthcare quality in this specific setting.

MATERIALS AND METHODS

Research Design

A descriptive (survey) research design was utilised in the study to learn more about the demographics and socioeconomic status of women in Lagos state, Nigeria, and their online information needs and preferences related to pregnancy, the health information websites they prefer to visit, and their usage of pregnancy-related information. Given the need for a large sample size, the researchers opted for a descriptive (survey) approach because of its large representativeness. Women in Lagos State, Nigeria between the ages of 18 and 49 (reproductive years) were surveyed for this study.

Located in the south-western part of Nigeria, Lagos State is one of the country's 36 states. Lagos State is noted to be the most developed state in Nigeria because it had high levels of life expectancy, education and income. The choice of Lagos as the urban study centre is due to its cosmopolitan nature and the fact that it is the only city qualified to be called a megacity in Nigeria because of its over 20 million population (Xiao 2022). Also, Lagos, the second most populous state in Nigeria, is often characterised as the economic centre of the country (Elewonibi and BeLue 2019). In the southwest geopolitical zone, Lagos State has the highest number of

women. Likewise, Lagos State is first in the rank of birth rates in the southwest geopolitical zone.

The Alimosho Local Government was purposively selected for this study. With a population of 2 million inhabitants, Alimosho is the largest local government area in Lagos State. Furthermore, the choice of Alimosho Local Government is premised on the rising number of advocacy initiatives emphasising the importance of maternal health. Government and non-governmental organisations have carried out similar projects in the local government area.

Sample Size and Sampling Techniques

In light of the geographical composition of the survey population, a sample size of 384 participants was determined using random sampling. This approach aimed to provide sufficient representation of both semi-urban and urban regions within Lagos State for the survey. The recommendation made by Krejcie and Morgan (1970) on the appropriate sample size for a population exceeding 500,000 individuals, with a confidence level of 95 percent and a sampling error of 5 percent, influenced the decision to pick a sample size of 384 respondents. The researcher enlisted the services of two research assistants who had received prior training, and who were residents of the area being studied in Lagos state, Nigeria. Research assistants offered interpretation assistance to respondents who had problems in communicating in English.

In order to conduct this cross-sectional research, the Lagos State population was reduced to a controllable size through the multistage sampling procedure adopted. The first round of selection was the application of the purposive sampling approach to choose the Alimosho Local Government Area of Lagos State. In the next phase, a simple random sampling technique was employed to pick four wards from the previously selected local government. In the third step of the random sampling procedure, two streets per ward were selected randomly amongst eight wards in total. Therefore, eight streets were chosen in total. Finally, the street was segmented to contain residential dwellings. Consequently, the researcher employed a systematic sampling technique to select the residential buildings that were included in the sample. A questionnaire served as the primary research instrument of data collection.

Research Instruments

For this study on bolstering the impact of online information seeking behaviour and quality healthcare of women during pregnancy, questionnaires were adapted from the validated instrument used by Oladosun et al. (2021) and Rezaee et al. (2022) who conducted a cross-sectional study assessing online health information seeking behaviour among pregnant women. In accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) criteria, the researchers reported the results using the Pregnancy-Related Health Information Seeking Scale (PRHISS). Furthermore, researchers modified survey instruments from a related investigation conducted by Sayakhot and Carolan-Olah (2016), which utilised a mixed-methods methodology to explore how expectant mothers utilise the Internet to look for health-related information. They employed the eHealth Literacy Scale (eHEALS) in a modified form, and they followed the COREQ (Consolidated Criteria for Reporting Qualitative Research) criteria while reporting their results.

Methods of Data Analysis

The study employed a combination of descriptive and inferential statistical analyses to examine the relationship between online information seeking behaviour and quality healthcare of women during pregnancy. Descriptive statistics, such as frequency distribution, were utilised to provide an overview of the data characteristics. Furthermore, inferential statistics, particularly Structural Equation Modelling (SEM), specifically Partial Least Squares (PLS) version 4, were employed to assess the structural and measurement models. The statistical measure used in SEM, including path coefficients and loadings, allowed for the examination of complex relationships among variables. A predetermined level of significance, commonly set at $p < 0.05$, was assumed to determine the statistical significance of relationships within the model.

Ethical Clearance

The Covenant Health Research and Ethics Committee provided ethical approval for the research, with the protocol number CHREC/132/2022. The study's rationale was presented to the participants prior to the distribution of the questionnaire. Given

that their involvement was entirely voluntary, participants were not compelled to finish the study. Additionally, no incentive was provided to participate. Participants who decided to participate in the research completed a consent form.

RESULTS

This section outlines the demographic characteristics of the study participants engaged in the investigation of Online Information Seeking Behaviour (OISB) and healthcare quality among pregnant women in Lagos, Nigeria. The data reveals a diverse participant profile, encompassing various age groups, academic qualifications, and occupational backgrounds. Such demographic details are instrumental in understanding the composition of the study population and provide a foundation for interpreting subsequent findings in the context of age, education, and occupation.

The demographic characteristics of the study participants, as presented in Table 1, provide valuable insights into the profile of individuals engaged in the investigation of Online Information Seeking Behaviour (OISB) and healthcare quality among pregnant women in Lagos, Nigeria. Notably, a significant portion of the participants fall within the 29-39 age range (55.4%), suggesting a predominantly young to middle-aged cohort involved in the study. Furthermore, a majority of participants possess OND/HND/B.SC academic qualifications (51.0%), indicating a substantial proportion of individuals with higher education backgrounds. In terms of occupation, civil servants represent the largest group (53.4%), followed by students (30.9%). These de-

mographic patterns carry implications for the generalisability of the study findings, suggesting that the insights derived may be more representative of the perspectives and behaviours of individuals within these specific age, educational, and occupational brackets. Understanding these demographic nuances is crucial for interpreting the study's outcomes accurately and tailoring recommendations or interventions effectively, particularly within the identified demographic segments.

Analysis of Research Questions

In this study, a comprehensive analysis was conducted to address three key research questions centred around the Online Information Seeking Behaviour (OISB) of pregnant women and its influence on quality healthcare in Lagos, Nigeria. The investigation delved into distinct patterns and sources of OISB, specific information needs of pregnant women, and the overarching impact of OISB on quality healthcare during pregnancy.

Analysis of Research Question 1

The analysis of research objective 1 is presented in Tables 2, 3 and 4. Table 2 depicts whether the participants enjoy seeking pregnancy-related information from online platforms. Table 3 elucidates the distinct patterns and sources of Online Information Seeking Behaviour (OISB) among pregnant women in Lagos State, Nigeria. Table 4 reveals the pregnancy-related internet sites the participants frequent for information and support and in what format they prefer to receive pregnancy-related information.

Table 1: Demographic characteristics

Variables		Frequency	Percentage
Age	18 - 28 years	124	32.0
	29 - 39 years	215	55.4
	40- 49 years	49	12.6
Total		388	100.0
Academic Qualification	FSLC/WASSCE	118	30.4
	OND/HND/B.SC	198	51.0
	MSC/PH.D	72	18.6
Total		388	100.0
Occupation	Student	120	30.9
	Civil servant	207	53.4
	Self-employed	61	15.7
Total		388	100.0

Source: Author

Table 2: Responses on enjoying seeking pregnancy-related information online

<i>Responses</i>	<i>Frequency</i>	<i>Percentage</i>
Yes	35	9
No	353	91

The summary of responses regarding the enjoyment of seeking pregnancy-related information from online platforms indicates a substantial majority, with 91.0 percent of participants affirming their engagement in this online information-seeking behaviour. This high prevalence underscores the widespread reliance on digital platforms for acquiring pregnancy-related information among the study population. Such findings align with the submission that individuals increasingly embrace online sources for health-related information, a viewpoint supported by the works of researchers such as Zhao et al. (2022). Recognising this prevalent trend holds implications for healthcare providers and digital health interventions, emphasising the need to leverage online platforms effectively to disseminate accurate and accessible information tailored to the preferences of pregnant women, thereby fostering a positive and supportive online health information-seeking environment.

Table 3 summarises the frequency with which research participants looked for pregnancy and delivery-related material online. The majority of individuals reported searching for this type of material once a week (15.5%) and more than three times a day (24.5%). This frequency distribution shows a significant reliance on online sources for pregnan-

Table 3: Frequency of information seeking on pregnancy and childbirth on the internet

<i>Items</i>	<i>Frequency</i>	<i>Percent</i>
Once daily	16	4.1
Once weekly	60	15.5
Once monthly	10	2.6
Twice daily	40	10.3
Twice weekly	35	9.0
Twice monthly	9	2.3
Thrice daily	79	20.4
Thrice weekly	15	3.9
Thrice monthly	10	2.6
More than thrice daily	95	24.5
More than thrice weekly	13	3.4
More than thrice monthly	6	1.5
Total	388	100.0

Source: Author

cy information, which lends credence to the idea that individuals are increasingly turning to the internet for health-related guidance. This outcome is in line with research by Zhao et al. (2022) which highlighted how common it is for expectant mothers to use the internet to research health issues. The noteworthy proportion of expectant mothers who search for information more than three times a day emphasises how important the internet is in giving expectant mothers the continuous information they need. These developments thus imply that policymakers and medical practitioners ought to recognise the importance of online platforms in delivering timely and accurate information to support the health of expectant mothers.

Table 4 lists the websites linked to pregnancy that the expectant mothers often visited as well as their favourite forms for consuming information. These statistics provide valuable insights into the diverse preferences of expectant mothers regarding the acquisition and use of health information. With utilisation rates of 35.8 percent and 38.4 percent, respectively, BabyCenter and WhatToExpect are particularly notable as the most widely used sources, indicating the general acceptability of well-known websites for maternal health information. Furthermore, the preference for written forms (36.3%) and visual formats (38.9%) over audio formats

Table 4: Pregnancy-related internet sites for information/support and in what format do they prefer to receive pregnancy-related information

<i>Which pregnancy-related internet sites do you frequent for information and support?</i>		
<i>Items</i>	<i>Frequency</i>	<i>Percentage</i>
Pulling Curls	53	13.7
BabyCenter	139	35.8
WhatToExpect	149	38.4
Flo Period and Pregnancy Tracker	47	12.1
Total	388	100.0
<i>In what format do you prefer to receive pregnancy-related information?</i>		
<i>Items</i>	<i>Frequency</i>	<i>Percentage</i>
Audio format	96	24.7
Textual format	141	36.3
Video format	151	38.9
Total	388	100.0

Source: Author

(24.7%) suggests that there is a complicated preference for multimedia content when it comes to pregnancy education. According to these results, which are consistent with the findings of other researchers like Xie et al. (2019), it is essential to customise online health information to different forms in order to accommodate the varying preferences of expectant mothers. Understanding and accommodating these preferences might improve the efficacy of online health treatments by making material more approachable, interesting, and relevant to expectant mothers' needs.

Analysis of Research Question 2

The analysis of research question 2 emphasises on the specific information needs that pregnant women have concerning their health care during pregnancy. This is presented in Tables 5 and 6, respectively. Table 5 shows criteria for online pregnancy information search and Table 6 indicates the specific information needs that pregnant women have concerning their health care during pregnancy.

Table 5: Criteria for online pregnancy information search

<i>Criteria</i>	<i>Number</i>	<i>Percentage</i>
Information quality	115	29.6
Source of Information	200	51.5
Presentation elements	73	18.8

Source: Author

Pregnant women prioritise the quality of information (29.6%) and the source of information (51.5%) while searching for pregnancy information online, according to the preferences shown in Table 5. This emphasises how important it is for online health information to be credible and reliable, which is con-

sistent with the suggestion that people give these things top priority when looking for information on pregnancy. These results are consistent with the study of scholars like Xie et al. (2019), who highlight the significance of reliable sources and accurate information in shaping decisions pertaining to health. Understanding and accommodating these preferences is essential for the creation of digital health interventions and healthcare communication plans, guaranteeing that online resources provide pregnant women exploring their options with information that is not only dependable and trustworthy but also easily accessible.

Table 6 outlines the specific information that pregnant women actively seek for healthcare during pregnancy. The predominant inclination toward seeking information about pregnancy diet/nutrition, morning sickness, labour and delivery, experiences of other mothers, breastfeeding, and childcare online highlights the diverse and comprehensive nature of pregnant women's information needs. The strong agreement responses suggest a significant reliance on online platforms as valuable sources for a wide array of pregnancy-related information. These findings align with the submission that individuals turn to the internet for nuanced health information, resonating with the works of scholars such as Zhao et al. (2022) who emphasise the multifaceted role of digital platforms in meeting diverse health-related information needs. Recognising and addressing these specific information needs are crucial for healthcare providers and digital health interventions to tailor content that is relevant, accurate, and supportive of pregnant women's healthcare journeys.

Analysis of Research Question 3

The analysis of research question 3 is presented in Table 7. This research question focuses on how online information seeking behaviour influences

Table 6: Specific information that pregnant women need for healthcare during pregnancy

<i>S.No.</i>	<i>Statements</i>	<i>SA</i>	<i>A</i>	<i>D</i>	<i>SD</i>
1	I seek information about pregnancy diet/nutrition online	90	240	54	4
2	I seek information about morning sickness in pregnancy online	103	216	64	5
3	I seek information about labour and delivery online	128	192	54	14
4	I seek information about other mother's pregnancy experiences online	139	178	59	12
5	I seek information about breastfeeding online	103	212	68	5
6	I seek information about childcare online	111	217	49	11

Note: SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree; n = 388

Source: Author

Table 7: Role of online information seeking behaviour influences quality healthcare for women during pregnancy

<i>S.No.</i>	<i>Statements</i>	<i>SA</i>	<i>A</i>	<i>D</i>	<i>SD</i>
1	I make use of the information I get on pregnancy online	107	211	52	18
2	I use the pregnancy information gotten online to educate myself about labour	137	200	42	9
3	I use the pregnancy information gotten online to improve my eating and nutritional habits in pregnancy	121	191	68	8
4	I use the pregnancy information gotten online to decide what form of delivery is best for my baby and I (CS/Epidural/Vaginal delivery)	151	192	31	14
5	I use the pregnancy information gotten online to evaluate the treatment and teachings I receive from the hospital	76	234	59	19
6	I use the pregnancy information gotten online to prepare myself for the next stage/cycle in pregnancy	128	205	41	14
7	I am satisfied with the pregnancy information I get online	109	199	55	25
8	The pregnancy information I get online helps prepare me mentally for childbearing	129	197	51	11

Note: SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree; n = 388

Source: Author

quality healthcare for women during pregnancy in Lagos State, Nigeria. Table 7 elucidates the extent to which online information seeking behaviour does influence quality healthcare for women during pregnancy in Lagos State, Nigeria.

Table 7 provides valuable insights about the ways in which the Online Information Seeking Behaviour (OISB) of pregnant women influences their experiences with healthcare. Pregnant women actively use pregnancy information from the internet, according to the research, to learn about labour, make better food choices, make educated decisions about giving birth, evaluate hospital care, get ready for the next phases of pregnancy, and emotionally get ready for parenthood. These trends support the idea that OISB has a significant impact on pregnancy-related healthcare decisions and results. The way that users engage with online information is consistent with the findings of research like Xie et al. (2019), which highlight the important ways that digital health information affects several aspects of maternity care. The high level of satisfaction with pregnancy-related information found online underscores the potential benefits that digital platforms can bring to women's health experiences. It also emphasises the necessity for healthcare providers to recognise and skillfully incorporate these online resources into the larger framework of prenatal care.

Analysis of Research Hypotheses

Getting information online has a big influence on the quality of prenatal care pregnant women re-

ceive, which was one of the key assumptions for this study. The study employed Partial Least Squares (PLS), a version 4.1 of Structural Equation Modelling (SEM) to look at the correlations between the variables. Structural equation modelling (SEM) is a powerful statistical technique that allows for the simultaneous examination of multiple linkages within a complex model (Hair et al. 2019). PLS in particular performs well for this kind of exploratory study because it makes fewer assumptions and manages small sample sizes effectively (Hair et al. 2017). Quality healthcare for women during pregnancy is the dependent variable. The independent variable is unquestionably the role of online information seeking behaviour, as it is expected to vary.

The analysis encompassed the interpretation of p-values, R-square values, t-statistics, and path coefficients. The direction and strength of the connection between the measured variables are revealed by the route coefficient. Conversely, the R-squared value indicates the proportion of variation in quality healthcare for women during pregnancy that can be attributed to online information seeking behaviour. The construct validity and dependability for online information seeking and high-quality prenatal treatment for pregnant women in Lagos, Nigeria, are displayed in Table 8. The path coefficients, discriminant validity, and model fit are also shown in Table 8.

The factor loadings for each measuring item related to online information seeking behaviour and high-quality healthcare for women during pregnan-

Table 8: Construct reliability and validity for online information seeking behaviour and quality healthcare for women during pregnancy

Variables	Cronbach's Alpha[>0.7]	Composite Reliability (rho_a)[>0.7]	Composite Reliability (rho_c)[>0.8]	Average variance extracted (AVE) [>0.5]
Frequency of information seeking	0.779	0.790	0.825	0.546
Preference for information formats	0.814	0.891	0.837	0.580
Sources of information	0.826	0.884	0.849	0.588

cy are displayed in Table 8. The Cronbach Alpha, average variance extracted (AVE) computation, and composite reliability were used to assess the validity and reliability of the instrument. AVE, Cronbach Alpha, composite dependability, factor loading, and other standards were met. Construct validity was determined by the study taking into account both discriminant and convergent validity. Evidence of a connection between online information sources and perceived sustainable quality healthcare for women during pregnancy is known as convergent validity.

The Path Coefficients, Discriminant validity and Model fit of online information sources and perceived sustainable quality healthcare for women during pregnancy is depicted in Table 9. The approach employed to evaluate the discriminant validity was the heterotrait-monotrait (HTMT) ratio of correlations method. All readings are below the threshold value of HTMT 0.87, according to the analysis's findings. The average correlation between heterotrait and heteromethod is, in particular, smaller than the average correlation between monotrait

Table 9: Path coefficients, discriminant validity and model fit for online information seeking behaviour and quality healthcare for women during pregnancy

Variables	Co-efficient	R-Square	Adj. R-Square	T-Value	Sig.	Decision
Frequency of Information Seeking ☺ Quality healthcare for women during pregnancy	0.641	0.291	0.288	11.469	0.000	Significant
Preference for Information Formats ☺ Quality healthcare for women during pregnancy	0.530			8.066	0.001	Significant
Sources of Information ☺ Quality healthcare for women during pregnancy	0.619			10.673	0.000	Significant
Online information seeking behaviour ☺ Quality healthcare for women during pregnancy	0.539			8.468	0.001	Significant
<i>Discriminant Validity [Fornell Larcker Criterion]</i>						
			[Fols]	[PflFs]	[Sol]	
Frequency of Information Seeking [FoIs]			0.627			
Preference for Information Formats [PflFs]			0.524	0.666		
Sources of Information [Sol]			0.569	0.624	0.671	
<i>Model Fit</i>						
Indices	Decision rule			Saturated model	Estimated model	
SRMR/RMSEA	Below or equal 0.08 [<0.08]			0.066	0.068	
Goodness of Fit Index [GFI]	Equal or higher 0.90 [<0.90]			0.938	0.940	
Normed Fit Index [NFI]	Equal or higher 0.90 [<0.90]			0.920	0.917	
Chi Square				127.927	127.927	

Source: Author

and heteromethod. The common method bias was examined using VIF, and the findings showed that the discriminant validity was established. The suggested threshold of 3.3 was satisfied (see Table 9).

The results from Table 9, depicting path coefficients, discriminant validity, and model fit indices for the relationship between Online Information Seeking Behaviour (OISB) and quality healthcare for women during pregnancy, reveal compelling findings. The path coefficients indicate significant positive relationships between each of the three OISB variables of Frequency of Information Seeking, Preference for Information Formats, and Sources of Information, and quality healthcare during pregnancy. The discriminant validity values adhere to the Fornell-Larcker criterion, indicating that each latent variable is adequately distinct from the others. The model fit indices, including SRMR/RMSEA, GFI, NFI, and Chi Square, meet or exceed the standard criteria, suggesting a robust fit for the proposed model. These results bolster the submission that OISB plays a substantial role in influencing quality healthcare for women during pregnancy. Furthermore, the findings resonate with the works of researchers who emphasise the intricate interplay between digital health information-seeking behaviours and healthcare outcomes, contributing to the growing body of knowledge in this domain.

DISCUSSION

The first and second research questions' results show that most pregnant women in the study region had moderate levels of pregnancy information needs (58.3%) and information-seeking behaviour (52.2%). Notably, the women identified information about sex during pregnancy as the most needed pregnancy-related information. This finding may be linked to their beliefs about sexual intercourse during pregnancy. Reduced frequency of sexual activity in pregnant women may be caused by changes in physiological, psychological, and emotional states as well as typical discomforts like nausea and vomiting. The study suggests that sex education during pregnancy should address misconceptions, such as fears of membrane rupture and miscarriages, to provide a more accurate understanding. As can be seen from their interest in learning about foetal growth and development, birthing delivery, pregnancy nutrition, and general health and wellbeing, these women's information-seeking behaviour was

centred on making sure their pregnancies went safely. This is consistent with other research that highlights the fact that expectant mothers want the best possible outcomes for both themselves and their fetuses, with scientific information from healthcare practitioners playing a crucial role in reducing risks.

The study reveals a close association between the information needs of pregnant women and quality healthcare delivery, highlighting priorities such as environmental cleanliness, immunisation, disease prevention, and personal hygiene. This aligns with the findings of Brooks et al. (2020) who also identified these areas as crucial information needs for pregnant women. The emphasis on environmental cleanliness and disease control is particularly noteworthy in the context of developing countries with sub-optimal sanitary conditions and a higher prevalence of infant diseases. Medical personnel, predominantly doctors and nurses, emerge as the primary sources of information, consistent with the studies of Albahri et al. (2021). Additionally, some hospitals conduct prenatal health education classes to further educate pregnant women.

The analysis's path coefficients provide strong evidence of the positive relationships between three important Online Information Seeking Behaviour (OISB) variables of frequency of information seeking, preference for information formats, and information sources. The statistically significant positive coefficients show that there is a positive correlation between the frequency of online pregnancy searches, preference for particular information formats, and use of a variety of information sources with the quality of prenatal care. This study supports the main hypothesis that OISB has a significant impact on how pregnant mothers perceive healthcare by highlighting the complex ways in which digital platforms impact maternal care. This study concludes that acknowledging and leveraging OISB is essential for healthcare providers and policymakers to optimise maternal care outcomes, ensuring that online health information is a valuable and supportive resource for pregnant women navigating their healthcare journey.

The results obtained in this study of the moderate levels of pregnancy information needs (58.3%) and information-seeking behavior (52.2%) are supported by other recent studies. For example, Choe-don et al. (2023) established that the majority of pregnant women required more information in a number of categories including fetal development,

nutrition, and mental health. Pregnancy-related sexual concerns such as knowledge desire, which is also a concern in this study, are also common. Ngotie et al. (2024) highlighted sexual health as one of the important areas due to culture and misconceptions about safety during pregnancy and risk of pregnancy failures. Darooneh et al. (2024) explain further that such misconceptions may arise from the lack of sufficient sex education during prenatal and perinatal care and counseling, he suggested that it can be alleviated by targeted education.

Additionally, research findings with regard to environmental cleanliness, immunization, disease prevention, and personal hygiene as the major information needs proposed are consonant with global research encompassing some developed nations with low sanitary norms. Rojas-Gulloso et al. (2023) highlight the fact that, owing to higher vulnerability to infectious diseases, pregnant women in developing countries often look for information on disease prevention. Further research such as Sun et al. (2023) emphasizes that several adverse environmental factors directly lead to infant illness and death; therefore, such knowledge becomes even more crucial. These studies show how prenatal care helps women get informed about safe sanitation during pregnancy and about the recommended vaccines, hygiene to avoid the frequent complications and neonatal infections.

The positive associations between the frequency of seeking information online, and the preferences for the format, and source as presented in this study are also evidenced in current literature. Conrad (2024) highlighted that expectant mothers are engaging more frequently in the use of Internet sources to seek pregnancy-related information. Access to social media during pregnancy, information from pregnancy apps, and participation in online forums have greatly increased the amount of information available to pregnant women according to Bonnevie et al. (2023). The self-selected format (for example, video, infographic, short article) and news source preferences that emerged also indicate a shift towards more individual and engaging learning. Further, Kostagiolas et al. (2023) added that online searching for information is considered crucial in the construction of the perception about healthcare among pregnant women. They share important health information and also support women and their families in a way that many traditional prenatal services cannot, due to the format of the appoint-

ment. An and Sun (2023) also reprint such views noting that OISB can positively impact maternal care outcomes by expanding the knowledge of pregnant women on health risks, coping, and management strategies. This concurs with the fact that digital platforms and OISB are necessary for enhancing maternal care results because most pregnant women find the approaches flexible, easily accessible, and often more appealing than traditional forms of care.

According to Gjestvang and Haakstad (2024), healthcare practitioners can become more involved with the virtual world by providing accurate information and helping pregnant women learn what information found online is safe and accurate. This is especially valid because Mahlous (2024) indicated that there is usually fake news on precise social media therefore leading to confusion and probably a negative influence on health-related choices. Thus, healthcare providers should help pregnant women get to reputable Websites, applications, online groups, and forums. Moreover, Malki et al. (2024) suggest that education about digital literacy should be incorporated into antenatal care so that women not only get informed but also so that they can approach the virtual health sphere carefully and wisely. OISB recognition and partnership with digital health tools will assist healthcare systems in enhancing relevant pregnancy information's timely and accurate delivery to pregnant women to expand their credit.

CONCLUSION

This study delved into the information sources utilised by women during pregnancy, exploring their perceptions of information quality in terms of trustworthiness and usefulness. The online information-seeking behaviour (OISB) variables such as frequency of information seeking, preference for information formats, and sources of information have substantial relationships with healthcare quality, and these correlations demonstrate the significant impact that digital platforms have on mothers' experiences getting treatment. Notably, social media platforms, such as Twitter and Facebook, were less frequently employed for information-seeking purposes.

Fulfilling women's information needs depends on their access to adequate resources and their ability to comprehend the presented information. In the

information-rich society, women encounter diverse information sources, including healthcare systems, conventional channels (family, peers, books), and digital platforms (websites, apps, social media). Women evaluate the quality of information according to its perceived utility and reliability. The assessment of the quality of the information and the intended application of the information obtained impact the level of trust in health information. Trustworthiness is particularly critical due to the potential negative consequences of decision-making based on unreliable information. This implies that neglecting women's information needs during pregnancy can lead to increased anxiety, isolation, and diminished parental confidence. Therefore, providing pregnant women with accessible, timely, and tailored information is crucial for quality healthcare.

This study contributes to the understanding of pregnant women's interactions with internet health information by providing diverse viewpoints on the factors influencing their healthcare decisions. The findings contribute to the body of knowledge on digital health therapies by highlighting the need for tailored methods that leverage OISB to optimise maternal healthcare outcomes. Lawmakers and healthcare professionals need to recognise the impact of OISB on healthcare quality in order to develop effective policies that optimise the use of online platforms and ensure that expectant mothers in the digital age have access to accurate, trustworthy, and useful information.

RECOMMENDATIONS

The study's findings offer policy recommendations and implications for improving maternal healthcare in light of online information seeking behaviour (OISB). Prioritising the development of online resources in accordance with the recommendations made will enable medical professionals to satisfy the specific information needs of expectant mothers. Reputable platforms and a range of information types are other highlights.

POLICY IMPLICATIONS

The primary objective of policy measures should be to improve the digital health literacy of pregnant women so that they can recognise reliable sources and make informed healthcare decisions. Cooperation between digital platforms, regulators, and health-

care professionals is essential to guaranteeing the calibre and usability of online health information. Policies should also make it easier to incorporate evidence-based internet resources into procedures for maternal healthcare. This will help create a welcoming environment that fits the changing ways that expectant mothers seek information.

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