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Study On The Usage And Effect Of Digital Communication Among Pregnant Women Regarding Maternity Care Through The Mobile Application

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ABSTRACT

Mobile application as Digital media tools are one of the booming platform globally. Pregnant women have started accessing the mobile application for their purposes. From an outlook of health care, and health information provided in the application is encouraging. The main objective of the study is to observe pregnant women access digital media communication for their maternity information and prefer mobile applications for their health information. For the research, 75 pregnant women and included women after delivery were used as samples. The respondents were based on convenience sampling. The study was accomplished with the research objectives. Questionnaires were collected for the analysis and proved on hypothesis testing. The study gave an approach to digital technology on maternity for health information. Concluded with Women during their maternity period spend most of their time on the mobile application for their pregnancy updates and essential communication.

KEYWORDS Digital Communication, pregnancy app, maternity care, mobile application, Pregnant women.

1. INTRODUCTION

Communication is our routine in everyday life; when the day starts, we communicate, and until it ends, communication becomes a backbone to our living. At present, communication is a multi-target for people to access digital media. Digital media message reaches an enormous audience and plays a crucial role in today's electronic world. The information travelled depends upon its specific features and its availability. Digital communication performed through the internet medium saves a lot of time. All information is in a small device that fits our palm. Present days communication technology threatens many of the audience. With the evolution of technology, a mobile store's broad information in our pocket and is accessed any time anywhere we travel.

The mobile has entirely transformed communication by developing opportunities for mobile applications exclusive to an individual's imagination. The mobile phone has dominated the history of the fastest numerous communication technologies with over 6 billion subscribers. Today, experts have heeded mobile transmission as society's backbone. All mobile operation technologies have enhanced the lifestyle of human living. The internet has improved the global civilization at an alarming rate, with mobile as a tool supporting its rapid acceleration. Digital media improves life by making information and other significant benefits available with a single click. Digital media helps audiences to communicate efficiently with latest news, and enhancing their education, and accessing more health information.

Pregnancy is a memorable, exciting, and lively time in a women's life. Apart from staying in touch with family and friends in real life, digital communication enhance multiple browsers to access their need. Mobile applications are emerged for women to access information about maternity and childbirth during pregnancy. Mobile applications on pregnancy make women aware of the information provided is a valuable and effective way to gather information. During pregnancy, women come across many health issues at an unexpected time. The only mode for their access is the mobile search in the browser for their information and get updated. Pregnancy information is nowadays available in many parts like websites and mobile applications. All information on maternity is in a single tap. The pregnancy information is in the form of videos, blogs, content, illustrations, etc. so, the women feel easy to choose their option for their better understanding.

2. REVIEW OF LITERATURE

Higgins et al (2014) in their study said high quality healthcare information about pregnancy is important to women and to healthcare professionals and it is driven to improve clinical outcome. The study concluded women using the maternity services in Ireland in 2012-2013 reported high usage of digital media to obtain pregnancy information and the women with adequate literacy skills using traditional communication channel for their health information. Content for digital communication can be made available over a long time, globally as well as locally and in different languages.

Julia (2014) in her article said unsurprisingly, mobile health projects have seen an explosion in popularity over last few years, with thousands of mhealth pilot programs launching every year. But are all these mhealth projects truly empowering people. She concluded only a handful with the potential to deliver actionable health information directly to parents, families and children.

Lupton (2016) in his study said many women in countries in the global North access digital media information sources during pregnancy and the early years of motherhood. These include websites, blogs, online discussion forums, apps and social media platforms. He concluded Pregnant women and those with young children place a high value on the information and support they receive from and sharing using online sources and apps.

They are accustomed to ready and immediate access to information using digital technologies and want better access to that offered by professionals.

Hughson et al (2018) in their study narrated pregnancy apps were principally used to access pregnancy health and fetal development information. Data storage capability, Web-based features or personalized tools, and social media features were also popular app features sought by women. Lower rates of the pregnancy app uptake were indicated among lower-income and non-English-speaking women. They concluded the popularity of pregnancy apps, such apps have enormous potential to be used for the provision of accurate, evidence-based health information.

Chan and Chen (2019) in their studies analysed Social media and mHealth apps are increasingly used in pregnancy care with emerging promising findings. The interventions were useful with moderate to large effect sizes in regard to maternal health, mental health, and knowledge about pregnancy. We conclude that social media and mHealth apps have the potential to be widely used in improving maternal well-being during the prenatal and postnatal periods. More large-scale clinical trials with comprehensive aims are suggested for future studies.

Wang et al (2019) in their study said Hospital-based health promotion resources to assist pregnant women in adopting a healthy lifestyle and optimizing gestational weight gain are important, but with limited effects. Increasingly, women are using mobile apps to access health information during the antenatal period.The study suggests that apps were widely used by many Chinese women during pregnancy to monitor fetal development, to obtain diet and physical activity information, and to track their body changes. The women highly appreciated the evidence-based information, expert opinions, and tailored advice available on apps. Smartphone apps have the potential to deliver health information for pregnant women.

Frid et al (2021) in their research said many pregnant women use the internet to obtain information about pregnancy and childbirth. Over 50% of pregnant women use pregnancy apps and must search through thousands of pregnancy or women's health-related apps available on app stores. The COVID-19 pandemic is changing how women receive prenatal care. They concluded many high-scoring apps, but few contained all desired components and features. The rated apps can lessen the burden on pregnant women and providers to find available apps on their own. The findings also highlight that a Google search is a successful way for patients and providers to find useful and comprehensive pregnancy apps.

2.1 RESEARCH GAP

Numerous literature is available about maternity care and the access to digital media for pregnant women. However, there are very few studies focusing on the usage of mobile applications during pregnancy to understand the nuances and difficulties of the maternity journey. Mobile apps guides mothers to feel secure and safe by assisting and giving tips on how to deal with pregnancy-related changes which the female has been overcoming in her journey. There are no studies initiated so far to find the effectiveness of digital media for pregnant women to understand their maternity care which makes the research gap of the present study.

2.2 OBJECTIVES OF THE STUDY

i. To observe how far the pregnant women access digital media for their maternity information.

ii. To find the effectiveness of digital media for pregnant women during their maternity care.

iii. To analyze the amount of time spend on the internet for their maternity information.

iv. To analyze the pregnant women lack information and suggestions from elders.

2.3 HYPOTHESIS OF THE STUDY

Null Hypothesis

H_{01} - Pregnant women gather their maternity information through digital media than that of their elderly suggestions.

H_{02} - Pregnant women prefer mobile apps than the websites to maternity information.

3. METHODOLOGY

The present study adopted exploratory research with 75 pregnant women as the respondents on the basis of convenience sampling technique. A structured questionnaire was circulated by way of Google forms and the primary data was collected from the respondents. Secondary data was collected through magazines, journals, etc. Data was analyzed using SPSS v22.0.

4. DATA ANALYSIS & FINDINGS

Data is collected and analyzed using SPSS software. Data analysis is the systematic process to find the statistical and logical techniques on evaluating the data.

The research data is analyzed between the pregnant woman and parenting woman of age group 18 – 39 years. The sample size of the data collected is 75 women.

Table 4.1: Demographic variables of the study

Parameters	Sub Categories	Frequency	Percentage
Age	18 - 25 years	30	40.0
	26 - 35 years	19	25.3
	36 - 39 years	26	34.7
Educational Status	10^{th}	3	4.0
	12^{th}	2	2.7
	Bachelor's Degree	36	48.0
	Master's Degree	29	38.7
	Others	5	6.7
Month of Pregnancy	1 - 3 months	13	17.3
	4 - 6 months	26	34.7
	7 9 months	21	28.0
	Parenting	15	20.0
Using Mobile Apps during pregnancy	Yes	60	80.0
	No	15	20.0
Frequency of Internet Access	1-5 times a day	2	2.7
	5-10 times a day	60	80.0
	Through out the day	13	17.3

Preferred Mode of Information	Website	28	37.3
	Mobile Apps	47	62.7
Average Amount of Time Spent on Mobile App	5 mins or less	17	22.7
	More than 5-15 mins	16	21.3
	More than 15 mins	21	28.0
	More than 30 mins	21	28.0
Mobile App Used	Mylo	2	2.7
	Ovia	32	42.7
	Pregnancy Due Date Tracker	26	34.7
	Others	15	20.0
Preferred Reasons for Usage of Mobile Apps	Pregnancy Stages and Growth	15	20.0
	Stages of Labour	32	42.7
	Feeding	28	37.3
Preferred Mode of Gathering Information Related to Pregnancy Issues	Doctors	60	80.0
	Elderly Persons	15	20.0
Perception About Lack In Elder Suggestion	Yes	60	80.0
	No	15	20.0
Total		75	100.0

From table 4.1 it is explicit that majority of the women respondents are from the age group 18 – 25 years, having a bachelor's degree, pregnant between 4 to 6 months, using mobile apps for their pregnancy with a frequency of 5 – 10 times a day, preferring mobile apps to website for their doubts, spending an average amount in mobile apps to an extent of 15 to 20 minutes every time.

From the data collected, it is evident that Ovia is the mobile app preferred by majority of the respondents of the study. Most of the respondents use mobile apps to understand about the stages of labour and they use the apps to get data from the doctors and most of the respondents use mobile apps as they perceive that they are lacking in elders suggestion during their pregnancy tenure.

Table 4.2: Information useful in Mobile Apps

Information	Frequency	Rank
Pregnancy stages and growth	45	1
Stages of labour	41	2
Soothing and sleeping	37	3
Diet and lifestyle	32	4
Feeding	25	5

Table 4.2 signifies that mobile apps are being used by pregnant females primarily for understanding about pregnancy stages and growth, followed by stages of labour, soothing and sleeping, diet and lifestyle and feeding.

Table 4.3: Preferred Information in Mobile Apps

Preferred Information	Frequency	Rank
Indepth Info on pregnancy health	38	1
C-section / normal delivery/ labour pains	32	2
Weight gain, sex, excercise, labour and delivery.	29	3
Expert Replies	24	4
Blog	21	5

Table 4.3 signifies that preferred information by a pregnant female to use mobile apps can be ranked as Indepth Info on pregnancy health, C-section / normal delivery/ labour pains, Weight gain, sex, excercise, labour and delivery, expert replies and blog.

Table 4.4: Perception of the respondents about the information of internet data

Perception about the information of internet data	Frequency	Percentage
Strongly Disagree	6	8.0
Disagree	12	16.0
Neutral	15	20.0
Agree	24	32.0
Strongly Agree	18	24.0
Total	75	100.0

Table 4.4 explains the perception of the respondents with regard to the information of internet data. 24 % of the total study population strongly agree that the digital media information is useful & 32 % agree for the same. This proves that digital media helps an individual to have a better understanding related to her pregnancy.

A null hypothesis is a form of a statement whether it can be true or it can be rejected after the experimental observation of the data

Null Hypothesis H_{01} : Month of Pregnancy of an individual does not influence their frequency of access to internet.

4.2 Statistical Tool Used : Chi Square test

The Chi-square test is a one-way test that shows the relationship between two categories of variables that exist in the study. The chi-square test applied on one or more variables of frequency required to interrelate between two tables.

Table 4.2.1: Month Of Pregnancy Vs Frequency Of Access To Internet

Month Of Pregnancy	Frequency Of Access To Internet			Total	Chi Square Value	P Value
	1-5 times a day	5-10 times a day	Through out the day			
1 - 3 months	0	11	2	13	2.993	0.810
4 - 6 months	1	19	6	26		
7 - 9 months	0	18	3	21		
Parenting	1	12	2	15		
Total	2	60	13	75		

Since P value > 0.05, null hypothesis is accepted.

Inference: Month of Pregnancy of an individual does not influence their frequency of access to internet.

Table 4.2.1 proves the observation of the respondents that the pregnant women who fall under 4-6 months access the internet 5-10 times a day for their search of maternity information. The least preference goes to the parenting mother who uses the internet 1-5 times a day for their info on parenting.

Null Hypothesis: H_{02} Perception about the digital media data informative of an individual does not have an effect of the mode of gathering information.

Table 4.2.2: Perception about the digital media data informative Vs Mode of Gathering Information

Perception about the digital media data informative	Mode of Gathering Information			Chi Square Value	P Value
	Doctors	Elderly Persons	Total		
Strongly Disagree	5	1	6	1.493	0.000
Disagree	9	3	12		
Neutral	13	2	15		
Agree	20	4	24		
Strongly Agree	13	5	18		
Total	60	15	75		

Since P value < 0.05, null hypothesis is rejected.

Inference: Perception about the digital media data informative of an individual has an effect of the mode of gathering information.

Table 4.2.2 strongly proves that the information provided in the digital media is informative, and the women during their maternity period consult doctors for their needs. The narrowest preference goes to the elder's suggestions in case of their requirement.

Null Hypothesis: H_{02} Perception about the digital media data informative of an individual does not have an effect of the mode of gathering information.

4.3 Statistical Tool Used: One way ANOVA

ANOVA Test is a way to find out the experiment result are signfcant from one another.

Table 4.3.1: Average Amount Of Time Spent On Mobile App

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.422	2	1.211	.954	.390
Within Groups	91.365	72	1.269		
Total	93.787	74			

Since P value > 0.05, null hypothesis is accepted.

Table 4.3.1(a): Average Amount of Time Spent on Mobile App

Descriptives								
Average_Amount_Of_Time_Spent_On_Mobile_App								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Website	28	2.61	1.197	.226	2.14	3.07	1	4
Mobile Application	47	2.62	1.095	.160	2.30	2.94	1	4
Total	75	2.61	1.126	.130	2.35	2.87	1	4

Inference: Perception about the digital media data informative of an individual does not have an effect of the mode of gathering information.

Table 4.3.1 & 4.3.1(a) it is obvious; pregnant women 18-25 years of age spend most of their time on mobile applications rather than searching on their websites. The fewer preferences to the age group of 26-35 years.

Null Hypothesis: H_{01} Frequency of access to internet does not signify lack in elder suggestion.

Table 4.3.2: Perception About Lack In Elder Suggestion Vs Frequency Of Access To Internet

Perception About Lack In Elder Suggestion	Frequency Of Access To Internet			Total	Chi Square Value	P Value
	18 - 25 years	26 - 35 years	36 - 39 years			
Yes	30	17	13	60	23.191	0.000
No	0	2	13	15		
Total	30	19	26	75		

Since P value < 0.05, null hypothesis is rejected.

Inference: Frequency of access to internet signifies lack in elder suggestion.

It is evident that women under the age of 18-25 years access the internet frequently for their maternity information and suggest they lack information on the elderly news on pregnancy. The least preference on accessing the internet belongs to the age group 36-39 years, and they also lack information on elder's suggestions.

5. FINDINGS AND CONCLUSIONS

The research findings were interpreted with the support of a literature review. The internet access among pregnant women and the parenting mothers are under the age of 18-25 years, womens lack elderly information related to traditional concepts, and access to the internet signifies a lack of elder suggestions. Higgins et al (2014) in their study said the information with adequate literacy skills using traditional communication channel for their health information. The research is compared with the perception about the digital media and the data provided were agreed by the samples while gathering the information on maternity. Chan and Chen (2019) social media and mHealth apps have the potential to be widely used in improving maternal well-being during the prenatal and postnatal periods. Hughson et.al (2018) pregnancy apps were principally used to access pregnancy health and fetal development information. The research found mobile apps rated first for the pregnancy stages and growth. In depth info on pregnancy health.

The research concluded with several findings; that information provided in the mobile application is valuable, and women prefer digital media for their maternity information. Women under 4-6 months frequently access the internet 5-10 times a day for their queries on the pregnancy. It was evident that almost all the samples prefer doctors' suggestions for any information necessary to them regarding their pregnancy care. Women during their maternity period spend most of their time on the mobile application for their pregnancy updates. They lack information on elderly communication.

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