

A Quantitative Analysis on the Importance of Giving Knowledge Regarding Cervical Cancer among Doctors to Pregnant Women and to Assess the Knowledge of Pregnant Women regarding Cervical Cancer at Delhi NCR Hospital

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Abstract: Background: Cancer of the cervix occurs when the cells of cervix multiply unchecked. They grow to a pre - cancerous stage and replicate rapidly. In certain circumstances, cancer cells proliferate rapidly within a year, while in other cases it may take considerable time. Cervical cancer is the most frequently diagnosed gynaecological malignancy during pregnancies. Incidence levels range between 0.1 and 12 for every 10, 000 pregnancies [Al - Halal et al.2012]. Incidence levels reported for Cervical Intraepithelial Neoplasia (CIN) range from 1.30 to 2.7 per 1000 pregnancies. Because of the disease's unusual existence and the uncertainty of all variables that need to be addressed, care standardization is very complicated. Materials and Methods: Study participants were 200 pregnant women who were visiting the hospital and the 60 Doctors who were directly involved in the management of such patients. The researcher collected and analysed data without manipulation. Two different questionnaires have been used for respective qualitative and quantitative studies. Closed ended questionnaires have been used for conducting the quantitative analysis with the patients whereas open ended questions have been used for conducting qualitative analysis with the doctor's interview responses. Thus this study has utilized abductive method which is a combination of inductive and deductive method. The primary data has been utilized in this study, which is the first - hand data collected in both qualitative and quantitative analysis from doctors and patients respectively. The questionnaires were hand delivered to the study participants/respondents. Duly filled questionnaires were collected the same day. The study aimed at analysing data available to come up with critical conclusions. Likert Scale was included in questionnaires for assessment of attitude and opinions. The collected data was analysed through the package IBM SPSS with frequency distribution graph and table, standard deviation, central tendency, ANOVA, chi - square, correlation and regression. Results: The qualitative study involving 60 doctors in Delhi NCR hospitals aimed to assess pregnant women's awareness of cervical cancer during pregnancy. The study emphasized the role of healthcare providers in offering comprehensive information and addressing misconceptions. Proposed improvements included mobile apps and dedicated workshops for providers, and collaborative efforts between healthcare institutions and public health organizations for enhanced awareness. The quantitative analysis involving 200 pregnant women visiting Delhi NCR hospitals has attained following insights. For the first objective, a frequency and percentage analysis was performed, revealing gaps in awareness among pregnant women about cervical cancer prevention and treatment during pregnancy. These analyses revealed that a considerable proportion of pregnant women are lacking sufficient knowledge regarding cervical cancer and its prevention during pregnancy. The second objective was addressed through correlation and ANOVA analyses, highlighting the influence of socio - economic factors on knowledge acquisition. These analyses revealed that the socio - economic conditions including age, educational status, occupation and monthly income has influence on the knowledge acquisition regarding cervical cancer during pregnancy. The results of correlation and ANOVA studies obtained P - values less than 0.05 indicating that the results are significant. Lastly, the third objective involved a frequency and percentage analysis, indicating the need for improved awareness programs. The results of these analyses suggested on targeted awareness campaigns, information dissemination through digital platforms, prenatal educational integration and community engagement. Conclusion: Overall, the study emphasized the role of healthcare providers in offering comprehensive information and addressing misconceptions and underscores the importance of tailored education, strategies and modern approaches like mobile apps and websites to bridge knowledge gaps among pregnant women regarding cervical cancer prevention during pregnancy.

Keywords: Assess, Knowledge, Awareness, Cervical Cancer, Pregnant women

1. Introduction

Cervical cancer is a disease that only affects females. Though cervical cancer incidence has gradually decreased owing to widespread availability of screening and vaccinations, developing countries like India continue to bear a heavy toll. There are over 100 different kinds of HPVs that have been identified, but only a small subset is linked to cancer, while the remainder cause benign growths on the skin or in the vaginal area. Men may get penile cancer from malignant HPVs, and both sexes can develop anus, mouth, and throat cancer from cancerous HPVs, in addition to cervical cancer. Cervical cancer during pregnancy is a rare but challenging condition that requires careful

management. This malignancy, typically caused by human papillomavirus (HPV) infection, can progress rapidly during pregnancy due to hormonal changes and increased blood flow to the cervix. Diagnosis often involves a colposcopy and biopsy. Treatment decisions must balance the need to protect the mother's health while safeguarding the developing fetus. Options may include cervical cerclage to prevent premature labor, chemotherapy in select cases, or postponing treatment until after delivery. A multidisciplinary approach involving obstetricians, oncologists, and neonatologists is crucial to optimize outcomes for both mother and child. Timely and individualized care is essential in navigating this complex clinical scenario.

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2. Need for the Study

The need for the proposed study on the awareness and understanding of cervical cancer prevention and treatment during pregnancy among pregnant women in Delhi NCR hospitals is underscored by the significant public health implications associated with cervical cancer. Existing literature indicates a lack of comprehensive knowledge among pregnant women about cervical cancer prevention and treatment, particularly in the context of pregnancy. A fact sheet from the HPV Information Centre states that cervical cancer ranks as the 2nd most frequent cancer among women in India and the 2nd most frequent cancer among women between 15 and 44. The same source reports that every year 123, 907 women are diagnosed with cervical cancer and 77, 348 die from the disease (centre, 2023). However, the specific awareness levels and factors influencing knowledge acquisition during pregnancy in the Delhi NCR region remain underexplored. Early detection strategies, including immunization against human papillomavirus (HPV), have proven to be effective in preventing cervical cancer. Given the socio - cultural diversity and healthcare access disparities in Delhi NCR, a focused investigation into the awareness gaps and factors affecting knowledge acquisition can inform tailored interventions. By providing evidence - based recommendations, this study aims to contribute to the development of targeted awareness programs that emphasize early detection methods and immunization, ultimately reducing the burden of cervical cancer among pregnant women in the region.

2.1 Problem Statement

A quantitative study to assess the importance of giving knowledge regarding cervical cancer among doctors to pregnant women and to assess the knowledge of pregnant women regarding cervical cancer at Delhi NCR hospital.

2.2 Research Objectives

- 1) To evaluate the awareness and understanding of cervical cancer prevention and treatment during pregnancy among pregnant women at Delhi NCR hospitals.
- 2) To analyse the factors influencing knowledge acquisition among pregnant women regarding cervical cancer prevention and treatment during pregnancy.

- 3) To provide recommendations for improving awareness programs on cervical cancer prevention and treatment during pregnancy.

2.3 Research Questions

- 1) Is awareness and understanding of cervical cancer prevention and treatment during pregnancy among pregnant women at Delhi NCR hospitals satisfactory?
- 2) What are the factors influencing knowledge acquisition among pregnant women regarding cervical cancer prevention and treatment during pregnancy?
- 3) What are the recommendations for improving awareness programs on cervical cancer prevention and treatment during pregnancy?

2.4 Research Hypothesis

H₁₁ - The awareness and understanding of cervical cancer prevention and treatment during pregnancy is satisfactory among pregnant women at Delhi NCR hospitals.

H₁₀ - The awareness and understanding of cervical cancer prevention and treatment during pregnancy is not satisfactory among pregnant women at Delhi NCR hospitals.

H₂₁ - There is a significant relationship between socio - economic factors (including marital status, financial difficulties, and educational status) and the knowledge acquisition of pregnant women regarding cervical cancer prevention and treatment during pregnancy in Delhi NCR hospitals.

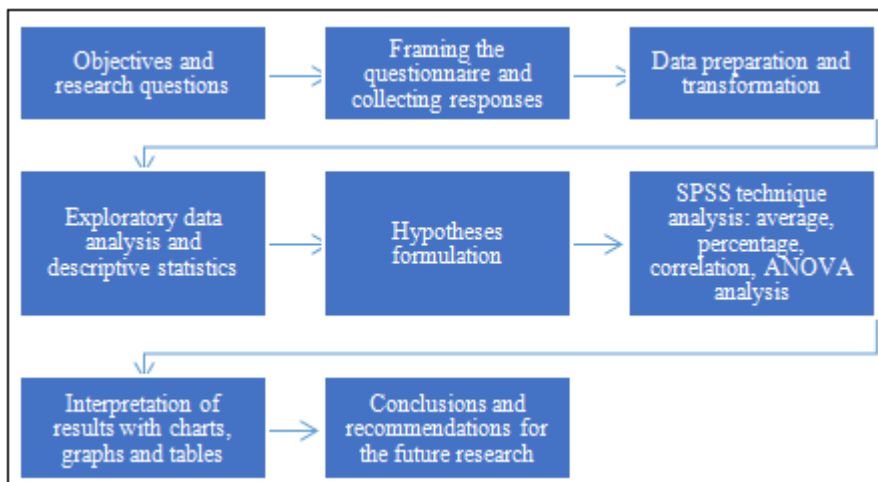
H₂₀ - There is no relationship between socio - economic factors (including marital status, financial difficulties, and educational status) and the knowledge acquisition of pregnant women regarding cervical cancer prevention and treatment during pregnancy in Delhi NCR hospitals.

H₃₁ - Strategies such as dedicated workshops during prenatal classes and the use of mobile apps and websites for disseminating information about cervical cancer prevention are effective.

H₃₀ - Strategies such as dedicated workshops during prenatal classes and the use of mobile apps and websites for disseminating information about cervical cancer prevention are not effective.

3. Research Methodology

3.1 Research Design



3.2 Qualitative analysis

Work introduction

60 doctors from the Delhi NCR hospitals have been selected for the qualitative study and surveyed through an interview method. Their perspectives and suggestions have been analyzed with thematic analysis method. The analysis has been performed to fulfil the study objectives and to get information regarding critical incidence of cervical cancer during pregnancy.

Aim of the study

This study has intended to analyse the awareness level of pregnant women regarding cervical cancer during pregnancy. This study is also interested to analyse the factors influencing knowledge acquisition regarding cervical cancer during pregnancy. This study also intended to suggest recommendations for the improvement for improving the awareness programs on cervical cancer prevention and treatment during pregnancy

Quantitative analysis

The quantitative analysis has been conducted with 200 pregnant women visiting the Delhi NCR hospitals. The quantitative analysis has been conducted through the closed ended survey questions and the responses have been analysed with SPSS. Initially the demographic characteristics and the distribution of the study participants have been analysed with frequency and percentage calculations. Secondly, the reliability and validity of the questionnaire were analysed with KMO test. Then the objectives and hypotheses have been analysed with various tests including frequency, mean, median, mode, chi square test, ANOVA and correlation. Finally, the conclusions and recommendations have been derived from the results of various analysis.

Statistical analysis

The information obtained by the survey was processed using SPSS software. The objectives and study variables are correlated through statistical means. The hypothesis can be validated and the objectives' significance is recognized through this connection. The study utilized five different statistical analysis methods, including validity, reliability, correlation, one - way ANOVA and chi square test (where

each method was independently chosen through the subjects).

Validity and Reliability test

The study must prioritize the establishment of reliability and validity by guaranteeing that the data is both reproducible, accurate, and reliable. To ensure the reliability and authenticity of a measurement device, it is necessary to provide evidence that it can be used.

Table 4.8: Kaiser - Meyer - Olkin and Bartlett's Test

KMO estimation of Sampling Adequacy.		.870
Bartlett's Test of Sphericity	Approx. Chi - Square	62570.109
	Df	6328
	Sig.	.000

The degree of the partial correlation among the variables is examined through the Kaiser - Meyer - Olkin (KMO) Measurement of Sampling Adequacy. The questions are not acceptable if the KMO value is less than 0.50; it is mediocre if it is between 0.50 and 0.70; good if it is between 0.70 and 0.80; fantastic if it is between 0.80 and 0.90; and excellent if it is over 0.90. Table 4.7 shows the KMO results for the current investigation. The KMO for the current study was determined to be 0.870, which is excellent; the questions are genuine and will be used in the main analysis. The significance level is less than 0.05, and the Chi square value is 62570.109.

Table 4.9: Reliability Statistics

Cronbach's Alpha	N of Items
.957	113

Based on the responses of 200 participants, the reliability test was analyzed using SPSS version 23.0. Scaling analysis is used to determine the outcome of the reliability test. If the value of Cronbach's alpha is less than 0.59, the questions in the questionnaire are not acceptable. If the value falls between 0.5 and 0.59, the considered questions are poor. If the value is between 0.6 and 0.69, it is questionable. If the value is between 0.70 and 0.79, the questions are good. Finally, if the value is more than 0.90, the considered questions are excellent. In the present study, the Cronbach's alpha value for overall participants is 0.957 from table 4.8, which states that the questions are excellent and can be considered for the main analysis.

Addressing objective 1

This section evaluates the awareness and understanding of cervical cancer prevention and treatment during pregnancy among pregnant women at Delhi NCR hospitals.

The chi - square tests indicate a statistically significant relationship between age and awareness of cervical cancer risks during pregnancy. Both the Pearson Chi - Square (20.543) and the Likelihood Ratio (28.066) tests yield p - values less than 0.05, suggesting that age and awareness are not independent variables. The overall chi - square tests indicate that age is associated with differences in awareness of cervical cancer risks during pregnancy among the surveyed respondents.

The chi - square tests reveal a highly statistically considerable relationship between occupation and awareness of cervical cancer risks during pregnancy. Both the Pearson Chi - Square (77.020) and the Likelihood Ratio (86.808) tests yield p - values less than 0.05, indicating a significant association between occupation and awareness. Overall, the data suggests that occupation is associated with differences in awareness of cervical cancer risks during pregnancy among the surveyed respondents, with employed and unemployed individuals showing higher awareness compared to students and homemakers.

The chi - square test indicates a highly statistically significant relationship between education level and awareness of preventive measures or screening tests for cervical cancer during pregnancy. Both the Pearson Chi - Square (143.371) and the Likelihood Ratio (112.569) tests yield p - values less than 0.05, demonstrating a significant association between education level and awareness. Overall, the data indicates that education level is strongly associated with differences in awareness of preventive measures or screening tests for cervical cancer during pregnancy among the surveyed respondents, with individuals holding postgraduate degrees being the most aware.

The chi - square test indicates a statistically significant relationship between occupation and whether respondents have discussed cervical cancer prevention or treatment with their healthcare provider during this pregnancy. Both the Pearson Chi - Square (88.889) and the Likelihood Ratio (74.581) tests yield p - values less than 0.05, indicating a significant association between occupation and discussions with healthcare providers.

The chi - square test demonstrates a highly statistically significant relationship between education level and respondents' confidence in their knowledge about cervical cancer and its management during pregnancy. Both the Pearson Chi - Square (130.505) and the Likelihood Ratio (142.038) tests yield p - values less than 0.05, indicating a significant association between education level and confidence.

The chi - square tests reveal a statistically significant relationship between the number of children respondents have and their beliefs about whether pregnant women should receive more information about cervical cancer prevention and treatment. Both the Pearson Chi - Square (30.423) and the Likelihood Ratio (33.042) tests yield p - values less than

0.05, demonstrating a significant association between the number of children and beliefs.

Addressing objective 2

This section analyses the factors influencing knowledge acquisition among pregnant women regarding cervical cancer prevention and treatment during pregnancy. Correlation and ANOVA analyses have been performed to analyse the influence of individual factors on knowledge acquisition among pregnant women regarding cervical cancer prevention and treatment during pregnancy.

The correlation data examines the relationships between various factors: control variables, sources of information sought during pregnancy, and encountering barriers in accessing information about cervical cancer prevention and treatment during pregnancy.

First, there is a considerable negative correlation ($r = -0.207$, $p = 0.003$) between respondents' occupations and the sources of information they rely on when seeking health - related information during pregnancy. The negative correlation indicates that certain occupations may be associated with a preference for specific information sources, while others may favour different sources.

Second, there is a considerable negative correlation ($r = -0.207$, $p = 0.003$) between encountering barriers in accessing information about cervical cancer prevention and treatment during pregnancy and the sources of information relied upon during pregnancy. The negative correlation suggests that those who encounter more barriers may rely on different sources compared to those who face fewer obstacles.

Overall, these correlations indicate that there are associations between respondents' occupations, information sources sought during pregnancy, and encountering barriers in accessing information about cervical cancer prevention and treatment during pregnancy.

The correlation data examines the relationships between control variables, including perceptions of healthcare system support and cultural or social factors influencing knowledge about cervical cancer during pregnancy, and the respondents' monthly household income.

First, there is a considerable negative correlation ($r = -0.353$, $p = 0.000$) between respondents' perceptions of whether the healthcare system provides enough support and education about cervical cancer for pregnant women and their monthly household income. The negative correlation indicates that individuals with higher monthly household incomes may have different perceptions compared to those with lower incomes regarding the healthcare system's support and education.

Second, there is also a considerable negative correlation ($r = -0.353$, $p = 0.000$) between the presence of cultural or social factors influencing knowledge about cervical cancer during pregnancy and monthly household income. The negative correlation suggests that individuals with higher monthly household incomes may be influenced differently by cultural or social factors compared to those with lower incomes.

Overall, these correlations indicate that there are associations between monthly household income, perceptions of healthcare system support and education, and the influence of cultural or social factors on knowledge about cervical cancer during pregnancy.

The correlation data explores the relationships between control variables, including whether respondents have ever discussed cervical cancer and its prevention with friends, family, or peers, and whether they have specific concerns or fears affecting their interest in learning about cervical cancer during pregnancy. These variables are further examined in relation to the respondents' education level.

First, there is a considerable negative correlation ($r = -0.338$, $p = 0.000$) between whether respondents have discussed cervical cancer and its prevention with friends, family, or peers and their education level. The negative correlation indicates that individuals with higher education levels may have different patterns of discussing cervical cancer compared to those with lower education levels.

Second, there is also a considerable negative correlation ($r = -0.338$, $p = 0.000$) between whether respondents have specific concerns or fears affecting their interest in learning about cervical cancer during pregnancy and their education level. The negative correlation suggests that individuals with higher education levels may be influenced differently by concerns or fears compared to those with lower education levels.

In summary, these correlations indicate that there are associations between education level, discussions about cervical cancer with friends and family, and the presence of concerns or fears affecting interest in learning about cervical cancer during pregnancy.

1) Occupational Status and Its Influence

- **Sources of Information during Pregnancy** - The mean ratings for participants' reliance on sources of health-related information during pregnancy ranged from 1.50 to 2.58. Unemployed individuals reported the highest reliance ($M = 2.58$), while employed individuals had the lowest reliance ($M = 1.50$). The ANOVA results suggest a statistically significant difference between the groups ($F = 27.019$, $p < 0.001$), indicating that employment status influences the sources of information sought during pregnancy.
- **Barriers in Accessing Information** - The mean ratings for encountering barriers in accessing information about cervical cancer prevention and treatment during pregnancy ranged from 2.50 to 2.83. Unemployed individuals reported the highest level of barriers ($M = 2.83$), while employed individuals had the lowest level of barriers ($M = 2.50$). The ANOVA results also show a significant difference between the groups ($F = 9.503$, $p < 0.001$), suggesting that employment status affects the perception of barriers.
- **Healthcare System Support and Education** - The mean ratings for the perception of healthcare system support and education about cervical cancer for pregnant women ranged from 2.00 to 3.00. Students

reported the highest level of support and education ($M = 3.00$), while employed individuals had the lowest ($M = 2.00$). The ANOVA results once again demonstrate a significant difference between the groups ($F = 13.067$, $p < 0.001$), indicating that employment status impacts participants' views on the healthcare system's support and education.

- In all three cases, the p - values associated with the ANOVA results are less than 0.001, indicating highly significant differences between the groups. This suggests that participants' employment status plays a significant role in their attitudes and perceptions regarding these aspects of cervical cancer information and healthcare system support during pregnancy.

2) Education Level and Its Influence

The data categorizes participants into five groups based on their education level: Less than high school ($n = 20$), High school graduate or equivalent ($n = 40$), Vocational training ($n = 90$), Bachelor's degree ($n = 30$), and Postgraduate degree ($n = 20$). For each group, the data in table 4.27 shows mean ratings, standard deviations, standard errors, and CIs for the following questions:

- **Cultural or Social Factors Influencing Knowledge** - Participants with less than a high school education reported the highest level of influence of cultural or social factors on their knowledge about cervical cancer during pregnancy ($M = 3.00$), while those with a bachelor's degree had the lowest influence ($M = 2.00$). The ANOVA results reveal a highly significant difference between the education groups ($F = 11.829$, $p < 0.001$), indicating that the level of education significantly impacts how cultural and social factors influence knowledge.
- **Discussions about Cervical Cancer** - Participants with a high school education or equivalent degree reported the lowest frequency of discussions about cervical cancer ($M = 2.25$), while those with a bachelor's degree reported the highest ($M = 2.67$). The ANOVA results are highly significant ($F = 30.312$, $p < 0.001$), demonstrating that education level influences the frequency of discussions about cervical cancer.
- **Concerns or Fears Affecting Interest** - Participants with a high school education or equivalent degree reported the highest level of specific concerns or fears affecting their interest in learning about cervical cancer during pregnancy ($M = 3.00$), while those with less than a high school education had the lowest level ($M = 2.00$). The ANOVA results indicate a significant difference between the education groups ($F = 21.296$, $p < 0.001$), showing that education level impacts the presence of concerns or fears.

In all three cases, the p - values associated with the ANOVA results are less than 0.001, highlighting the significance of education level in shaping participants' responses to these

3) Income Levels and Their Influence

The data classifies participants into two income groups: "Less than 20, 000" ($n = 170$) and "20, 000 - 40, 000" ($n = 30$). For each group, the data in table 4.29 displays the mean ratings, standard deviations, standard errors, and CIs for the following questions:

- **Sources of Information during Pregnancy** - Participants with an income "Less than 20, 000" reported a mean rating of 2.53 for their reliance on specific sources of health - related information during pregnancy, while those with an income "20, 000 - 40, 000" had a mean rating of 2.00. The ANOVA results show a highly significant difference between the income groups ($F = 22.695$, $p < 0.001$), indicating that income levels significantly influence the choice of information sources during pregnancy.
- **Barriers in Accessing Information** - Participants with an income "Less than 20, 000" reported a mean rating of 2.76 for encountered barriers in accessing information about cervical cancer during pregnancy, while those with an income "20, 000 - 40, 000" had a mean rating of 2.33. The ANOVA results are highly significant ($F = 25.219$, $p < 0.001$), demonstrating that income levels have a significant impact on the perception of barriers in accessing information.
- **Healthcare System Support and Education** - Participants with an income "Less than 20, 000" reported a mean rating of 2.47 regarding the healthcare system's support and education about cervical cancer for pregnant women, whereas those with an income "20, 000 - 40, 000" had a mean rating of 2.00. The ANOVA results also reveal a significant difference between the income groups ($F = 17.932$, $p < 0.001$), indicating that income levels play a significant role in shaping the perception of healthcare system support and education.

In all three cases, the p - values associated with the ANOVA results are less than 0.001, underlining the statistical significance of income level in influencing participants' responses to these questions.

4) Age Groups and Their Influence

Participants are divided into four age groups: "Under 20" ($n = 10$), "20 - 29" ($n = 110$), "30 - 39" ($n = 70$), and "40 - 49" ($n = 10$). For each group, the data in table 4.31 displays the mean ratings, standard deviations, standard errors, and CIs for the following questions:

- **Cultural or Social Factors Influencing Knowledge** - Participants "Under 20" and "40 - 49" reported the highest influence of cultural or social factors on their knowledge about cervical cancer during pregnancy, both with a mean rating of 3.00. Participants "20 - 29" and "30 - 39" had lower mean ratings of 2.36 and 2.43, respectively. The ANOVA results indicate a significant difference between the age groups ($F = 5.639$, $p = 0.001$), suggesting that age plays a role in how cultural and social factors influence knowledge.
- **Discussions about Cervical Cancer** - Participants "Under 20" and "40 - 49" reported the lowest frequency of discussions about cervical cancer and its prevention ($M = 2.00$), while those "20 - 29" and "30 - 39" had higher mean ratings of 2.36 and 2.43, respectively. The ANOVA results show a significant difference between the age groups ($F = 4.452$, $p = 0.005$), indicating that age influences the frequency of discussions.
- **Concerns or Fears Affecting Interest** - Participants "Under 20" and "40 - 49" reported the highest level of

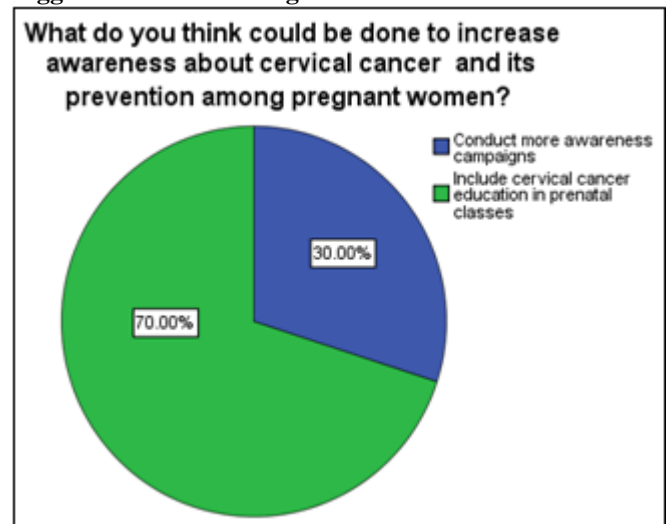
specific concerns or fears affecting their interest in learning about cervical cancer during pregnancy ($M = 3.00$), while participants "20 - 29" and "30 - 39" had slightly lower mean ratings of 2.64 and 2.57, respectively. The ANOVA results also indicate a significant difference between the age groups ($F = 4.452$, $p = 0.005$), demonstrating that age impacts the presence of concerns or fears.

- In all three cases, the p - values associated with the ANOVA results are less than 0.01, highlighting the statistical significance of age groups in shaping participants' responses to these questions.

Addressing objective - 3

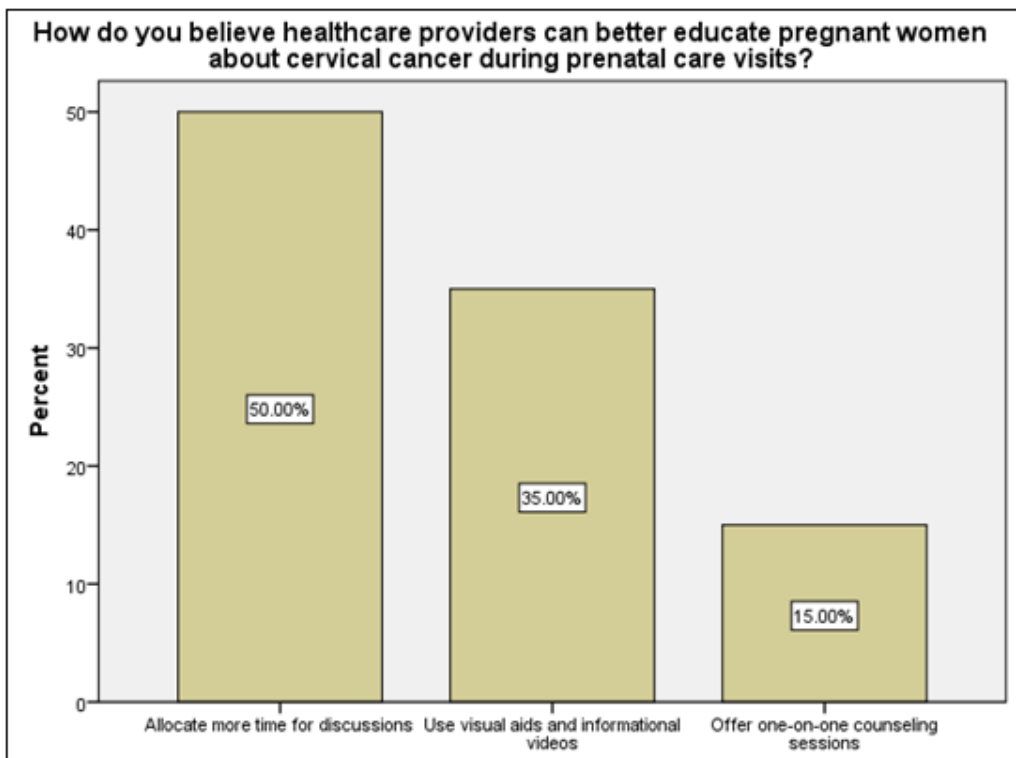
This section provides recommendations for improving awareness programs on cervical cancer prevention and treatment during pregnancy. For this purpose, the frequency and percentage of different educational options of generating awareness regarding cervical cancer prevention and treatment during pregnancy are calculated and analysed.

Suggestions on increasing awareness



A significant 70% of the participants, representing 140 individuals, expressed a preference for including cervical cancer education in prenatal classes as the most effective method to raise awareness about cervical cancer and its prevention among pregnant women. This indicates strong support for integrating education about cervical cancer into prenatal care programs. In contrast, none of the participants chose the option of providing pamphlets and educational materials as the most effective approach, signifying a lack of consensus on the effectiveness of this method within the sample. Finally, 30% of the participants, or 60 individuals, supported the idea of conducting more awareness campaigns. While not as favoured as the prenatal class option, it still represents a substantial portion of the respondents who believe in the potential impact of awareness campaigns in increasing knowledge about cervical cancer and its prevention among pregnant women.

Suggestions for healthcare workers

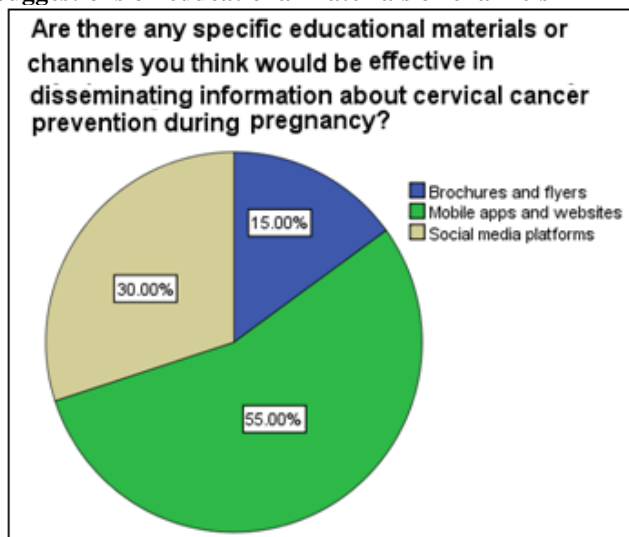


A significant 50% of the participants, representing 100 individuals, emphasized the importance of allocating more time for discussions during prenatal care visits as the most effective way for healthcare providers to educate pregnant women about cervical cancer. This suggests that participants value in - depth conversations and information sharing as a key component of prenatal care. Another 35% of the participants, or 70 individuals, supported the use of visual aids and informational videos as a means to enhance education about cervical cancer. This method is seen as a valuable tool to complement verbal communication and provide a visual understanding of the topic. Lastly, 15% of the participants, or 30 individuals, advocated for offering one - on - one counselling sessions as a means of education. While this approach was chosen by a smaller percentage of respondents, it still underscores the significance of personalized and individualized education during prenatal care.

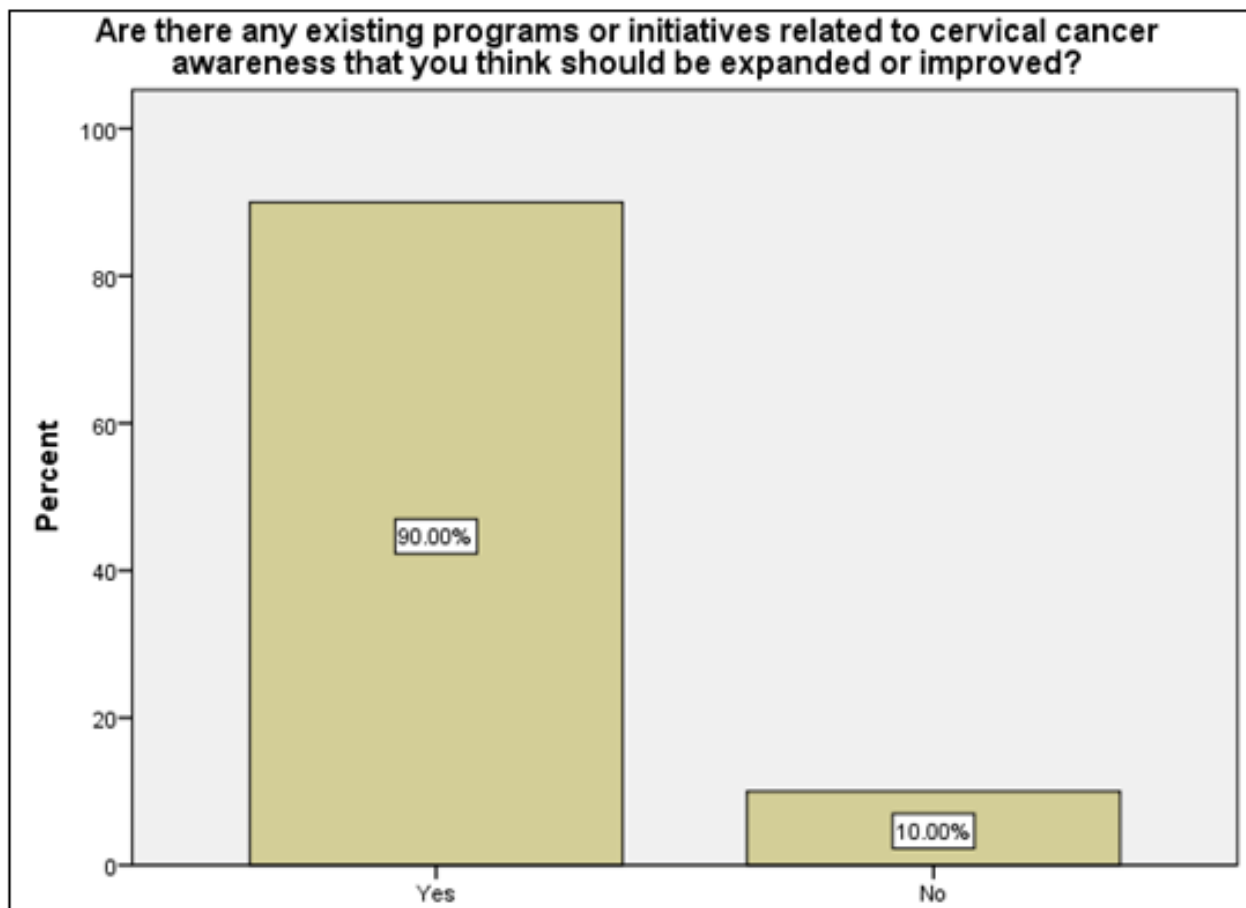
Among the participants, 55% (110 individuals) believed that mobile apps and websites are effective tools for disseminating information about cervical cancer prevention during pregnancy. Additionally, 30% of the participants (60 individuals) suggested that social media platforms can be effective channels for disseminating such information. Social media's widespread use and outreach make it a popular choice for reaching a broad audience, especially among younger and tech - savvy individuals. While less popular, 15% of the participants (30 individuals) still acknowledged the value of traditional educational materials such as brochures and flyers. These printed materials, though less prevalent in today's digital age, are considered a useful channel for information dissemination.

The data highlights a preference for digital platforms, specifically mobile apps and websites, as the most effective means of disseminating information about cervical cancer prevention during pregnancy among the surveyed participants. Social media platforms also garnered support as a viable channel. However, the findings demonstrate that there is still a place for traditional educational materials like brochures and flyers. This underscores the importance of utilizing a mix of digital and print materials to effectively reach and educate pregnant women about cervical cancer prevention.

Suggestions on educational materials or channels



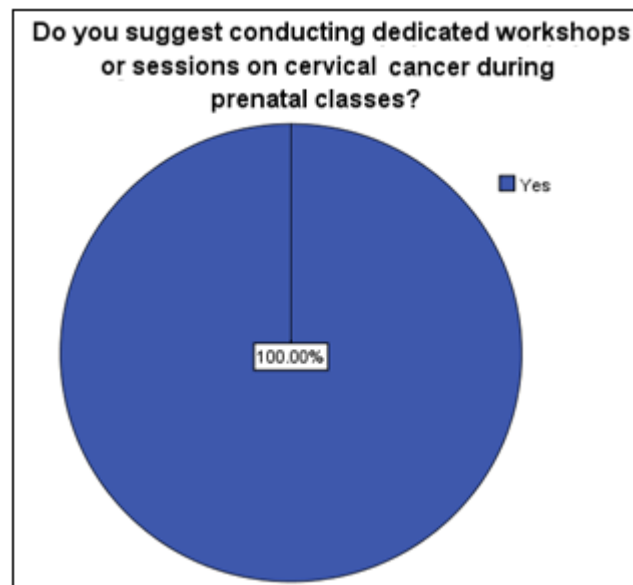
Existing programs and initiatives



A substantial 90% of the participants, which amounts to 180 individuals, expressed the belief that existing programs or initiatives related to cervical cancer awareness should be expanded or improved. This overwhelming majority suggests a strong call for enhancing and extending current efforts in raising awareness about cervical cancer. On the other hand, 10% of the participants, or 20 individuals, indicated that they do not think these programs need expansion or improvement. While this is a smaller percentage, it's worth noting that a minority of respondents believe the existing initiatives are sufficient in addressing cervical cancer awareness.

The data indicates that the vast majority of participants support the expansion and improvement of existing programs and initiatives related to cervical cancer awareness. This underscores the importance of continuous efforts to enhance education and awareness campaigns about cervical cancer and its prevention, reflecting the desire for more comprehensive and effective initiatives to combat this health issue.

Suggestion on dedicated workshops



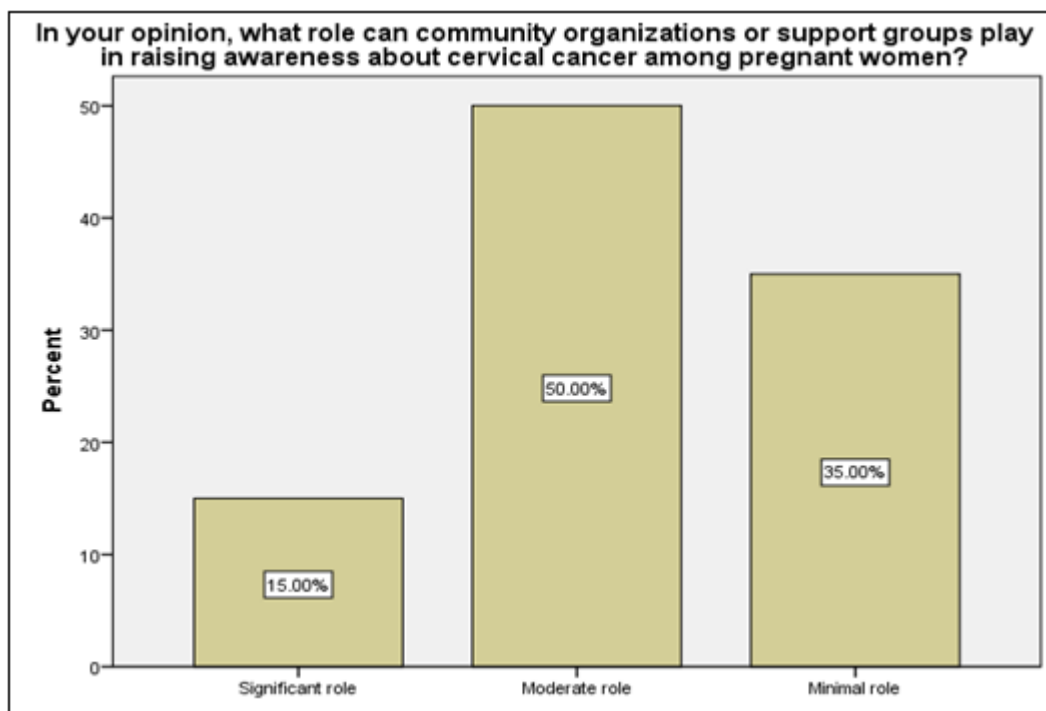
The data presented clearly demonstrates the unanimous response from 200 participants regarding the suggestion of conducting dedicated workshops or sessions on cervical cancer during prenatal classes. The findings reveal that 100% of the participants, which accounts for the entire sample, strongly support the idea of conducting dedicated workshops or sessions on cervical cancer during prenatal classes.

This resounding consensus among the participants emphasizes the importance and need for educational efforts specifically tailored to addressing cervical cancer awareness

and prevention within the context of prenatal care. The unanimous "yes" responses highlight the recognition of the prenatal care setting as a crucial platform for disseminating information and knowledge about cervical cancer to pregnant women. This data underscores a strong endorsement of the proposal and emphasizes the

significance of incorporating cervical cancer education into prenatal classes as a proactive and valuable step in enhancing healthcare and awareness for pregnant women.

The role of community organizations or support groups



Among the respondents, 50% (100 individuals) believe that community organizations or support groups can play a "moderate role" in raising awareness about cervical cancer among pregnant women. Meanwhile, 35% of participants (70 individuals) hold the view that community organizations or support groups should play a "minimal role." Lastly, 15% of participants (30 individuals) believe that community organizations or support groups should have a "significant role" in raising awareness. This minority suggests that community organizations and support groups can play a pivotal role in promoting awareness and education about cervical cancer within the context of pregnancy.

The data reflects a range of opinions among participants regarding the roles of community organizations and support groups in raising awareness about cervical cancer among pregnant women. While a significant portion sees a moderate role for these entities, others view their contribution as minimal. A smaller, yet notable, group emphasizes the significance of community organizations and support groups in this regard. This diverse set of opinions underscores the need for a multifaceted approach to cervical cancer awareness efforts, acknowledging the potential contributions of different entities and tailoring strategies to address varying levels of impact within the community.

4. Summary

The present study has successfully achieved its objectives by comprehensively evaluating the awareness and understanding of cervical cancer prevention and treatment during pregnancy among pregnant women in Delhi NCR

hospitals. The findings provide critical insights that can guide the development of public health initiatives and healthcare practices in the region.

Firstly, the study emphasized the pivotal role of education level and occupation in shaping awareness levels regarding cervical cancer prevention and treatment during pregnancy, echoing existing research. Furthermore, it highlighted the influence of monthly household income on perceptions of healthcare support and education, shedding light on the significance of socioeconomic factors in healthcare decision-making. Surprisingly, the negative correlation between the number of children and awareness of cervical cancer risks during pregnancy challenges conventional assumptions.

The study underlines the substantial knowledge gap among pregnant women, reinforcing the need for improved awareness and education programs. Additionally, it underscores the impact of income levels on the choice of information sources, with implications for the design of targeted information dissemination strategies.

The findings also emphasize the importance of tailoring education strategies to suit different age groups and individual preferences, with a strong endorsement for modern, accessible approaches such as mobile apps and websites. Finally, the varied opinions regarding the role of community organizations and support groups underscore the need for flexibility in awareness campaigns.

5. Outcome of the study

Hypothesis- 1

H₁1 - The awareness and understanding of cervical cancer prevention and treatment during pregnancy is satisfactory among pregnant women at Delhi NCR hospitals.

H₁0 - The awareness and understanding of cervical cancer prevention and treatment during pregnancy is not satisfactory among pregnant women at Delhi NCR hospitals. The frequency and percentage analyses shows that the awareness and understanding of cervical cancer prevention and treatment during pregnancy is not satisfactory among pregnant women at Delhi NCR hospitals. Thus the null hypothesis - H₁0 is accepted; the alternative hypothesis - H₁1 is rejected.

Hypothesis- 2

H₂1 - There is a significant relationship between socio - economic factors (including marital status, financial difficulties, and educational status) and the knowledge acquisition of pregnant women regarding cervical cancer prevention and treatment during pregnancy in Delhi NCR hospitals.

H₂0 - There is no relationship between socio - economic factors (including marital status, financial difficulties, and educational status) and the knowledge acquisition of pregnant women regarding cervical cancer prevention and treatment during pregnancy in Delhi NCR hospitals.

The correlation and ANOVA tests revealed that the socio - economic factors such as age, marital status, occupation and financial status has significant influence on knowledge acquisition. The chi - square test is used to analyse the relationship between two variables. The obtained P - values for chi - square test are less than 0.05. Thus the null hypothesis - H₂0 is rejected; the alternative hypothesis - H₂1 is accepted.

Hypothesis- 3

H₃1 - Strategies such as dedicated workshops during prenatal classes and the use of mobile apps and websites for disseminating information about cervical cancer prevention are effective.

H₃0 - Strategies such as dedicated workshops during prenatal classes and the use of mobile apps and websites for disseminating information about cervical cancer prevention are not effective.

The frequency and percentage analyses indicates that the strategies such as dedicated workshops during prenatal classes and the use of mobile apps and websites for disseminating information about cervical cancer prevention are effective in creating awareness against cervical cancer during pregnancy. Thus the null hypothesis - H₃0 is rejected; the alternative hypothesis - H₃1 is accepted.

6. Discussion

The findings of the study conducted to assess awareness and perceptions of cervical cancer prevention and education among pregnant women reveal important insights that can inform public health initiatives and healthcare practices. In

relation to **Awareness and Knowledge**, the present study indicated a strong association between education level and awareness of cervical cancer prevention and treatment during pregnancy. The present study demonstrated a significant correlation between occupation and awareness of cervical cancer risks during pregnancy. The survey data indicates that a considerable proportion of pregnant women may lack sufficient knowledge regarding cervical cancer and its prevention during pregnancy. In relation to **Socioeconomic Factors and Information Sources**, the survey suggests that income levels play a substantial role in determining the sources of information that pregnant women rely on for health - related information. Higher - income participants tend to prefer digital sources, while lower - income individuals favour more traditional sources, such as healthcare providers. In relation to **Age and Perception** the survey data reveals that younger participants express more concerns about cultural and social factors influencing their knowledge about cervical cancer during pregnancy, while older participants tend to have specific concerns and fears. In relation to **Strategies for Education** the survey results indicate strong support for strategies such as dedicated workshops during prenatal classes and the use of mobile apps and websites for disseminating information about cervical cancer prevention. In relation to **Community Organizations and Support Groups**, the opinions of survey participants regarding the role of community organizations and support groups in raising awareness about cervical cancer among pregnant women vary. Some believe in a significant role, while others see a more moderate or minimal role for these entities.

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