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A Study to Assess the Knowledge on Cervical Cancer Among Women in Selected Institutes of Bengaluru

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ABSTRACT:

BACKGROUND:

Cervical cancer is the most common malignancy among women worldwide and a leading cause of cancer-related mortality. Early detection and timely intervention significantly improve survival rates, yet awareness about risk factors, early signs, and preventive measures remains inadequate, particularly in developing regions. This study aimed to evaluate the level of knowledge among Women in a selected institute, identify gaps in awareness, and recommend strategies for enhancing Cervical Cancer education and prevention efforts. The findings will contribute to developing effective health promotion initiatives and improving early detection rates, ultimately reducing cervical cancer-related morbidity and mortality.

Statement of the problem:

A study to assess knowledge on cervical cancer among women in selected institutes of Bengaluru.

Objectives of the study were:

1. To assess the knowledge on Cervical cancer among women.
2. To find the association between the level of knowledge on cervical cancer with selected socio demographic variables of the women.

Methodology:

A descriptive research approach was used for the study. Non-probability convenient sampling technique was used to obtain 100 Women samples from Ramaiah College of Arts, Science and Commerce, Bengaluru. Data was collected using structured knowledge questionnaires to assess knowledge regarding cervical cancer after obtaining permission from institution dean Duration of the study was one month.

Data was collected and analysed using descriptive and inferential statistics in terms of frequency, percentage, mean, mean percentage, standard deviation, and chi-square test.

Result:

Results show that out of 100 Women, 51% had inadequate knowledge, 40% had moderate level of knowledge on cervical cancer meanwhile and only 9% had adequate knowledge about the cervical cancer with a mean score of 9.5 with standard deviation of +- 3.765.

Chi-square test for the association between the knowledge scores and selected socio demographic variables like current age, age at marriage, number of children, family income, screening status and vaccination status was performed. There was no statistically proven association of socio-demographic variables with the knowledge score ($P<0.05$).

Conclusion:

The study reveals a significant deficiency in women's knowledge regarding cervical cancer, encompassing its risk factor, symptoms and preventive measures. This lack of awareness poses a substantial barrier to curly detection and timely intervention potentially exacerbating health outcons. The finding underscores the urgent need for comprehensive citational initiatives and community-based awareness programmes aimed at enhancing understanding of cervical cancer and proactive health behaviour among women.

Introduction

"Cancer is a journey, but you will walk the road alone. There are many places to stop along the way and get nourishment – you just have to be willing to take it."

— Emily Hollenberg

"Cancer" the word still evokes deep fear as a silent killer that creeps up without warning, becoming a metaphor for grief and pain that challenges our intellectual and emotional resources. Health refers to the functional and metabolic efficiency of living beings, encompassing a person's mind, body, and

spirit, generally meaning the absence of illness. The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." [1]

The causes of ill health and disease are often known. Each individual may have unique factors contributing to illness, including genetics, lifestyle changes, and harmful habits. Diseases, defined as abnormal conditions with specific symptoms, fall broadly into communicable and non-communicable categories. Cancer is a leading non-communicable disease globally.

Currently, over 20 million people live with cancer worldwide, the majority in developing countries. Cancer ranks as the second leading cause of death, responsible for an estimated 9.6 million deaths globally in 2018 (WHO)[37] Without rigorous control measures, cancer is projected to become the leading cause of death, with expected new cases reaching 30 million and 20 million deaths within 25 years. Developing countries are estimated to bear two-thirds of these deaths, with new cancer cases expected to increase fivefold by 2025 (WHO, 1995). [38]

Cervical cancer is a malignant neoplasm originating from the cervix uteri, primarily caused by persistent infection with high-risk human papillomavirus (HPV) strains. It is characterized by abnormal cell growth, potential invasion of adjacent tissues, and metastasis to distant organs (WHO, American Cancer Society).

Cervical cancer remains a significant public health issue, causing high morbidity and mortality among women worldwide.[11] The main causative agent is HPV, a group of viruses commonly infecting the reproductive tract of sexually active young adults. Over 150 HPV types have been identified, with HPV 16 and 18 being most strongly linked to cervical cancer. Vaccines targeting these strains have become available and offer hope for reducing cervical. Additional risk factors include early sexual activity, multiple sexual partners, prolonged use of oral contraceptives, immunosuppression, and smoking.[7] Clinically, malignant cervical cancer manifests through symptoms such as vaginal bleeding between menstrual periods, pelvic pain, bleeding during or after intercourse, and abnormal vaginal discharge. Despite its severity, cervical cancer is one of the most preventable female cancers. Key prevention strategies include identifying premalignant lesions via cervical screening and HPV vaccination [6]'

However, numerous barriers impede effective prevention in developing countries, including limited facilities, underutilization of screening services, and lack of awareness. [9]
According to India's National Cancer Registry Program, cervical and breast cancers are the most common malignancies among Indian women. The high incidence of cervical cancer in developing countries is largely attributable to inadequate knowledge and ineffective programs aimed at early detection of precancerous conditions. [5]

As of 2022, cervical cancer ranks as the fourth most common cancer among women worldwide,[10] with approximately 604,000 new cases and 342,000 deaths annually. It poses a significant health challenge, especially in low- and middle-income countries where access to preventive healthcare is limited. [3]
In India, it remains the second most common cancer among women, contributing substantially to morbidity and mortality. Despite advances in medical science enabling early detection and prevention, many women remain unaware of cervical cancer's importance.[4]

A community-based study conducted by Yadav, et al., (2024) on awareness, attitude, and practice towards cervical cancer prevention among rural women in southern India reported that while 67% had heard of cervical cancer, only 35.7% demonstrated adequate knowledge about screening. Although 99% held favourable attitudes towards prevention, actual screening uptake was very low. This study highlights the disparity between awareness and action and stresses the need for continuous education and accessible screening services to enhance prevention [34]

Similarly, a cross-sectional study conducted by Patel et al., (2022) on women's knowledge on cervical cancer risk factors and symptoms, reported around only 40.1% had good knowledge of risk factors and 45.5% were aware of symptoms. Importantly, education level significantly influenced awareness, with more educated women demonstrating better understanding. This underlines the importance of targeted health education campaigns to bridge knowledge gaps, especially in urban populations where awareness is often assumed to be higher but remains insufficient.

In this context, assessing the knowledge of women regarding cervical cancer is critical. Understanding their awareness, misconceptions, and attitudes can provide insights into existing educational and healthcare delivery gaps. Such assessments can guide the design of targeted interventions to improve prevention, early detection, and ultimately reduce cervical cancer burden.

This study aims to comprehensively evaluate women's knowledge about cervical cancer by exploring their awareness, beliefs, and practices. Identifying areas requiring focused educational interventions and improved access to screening and vaccination services will inform strategies to enhance cervical cancer prevention and early detection among women attending this healthcare institution

Materials and Methods

2.1 RESEARCH APPROACH

In view of the nature of the problem selected and objectives to be accomplished, a quantitative research approach was considered as an appropriate one for present study.

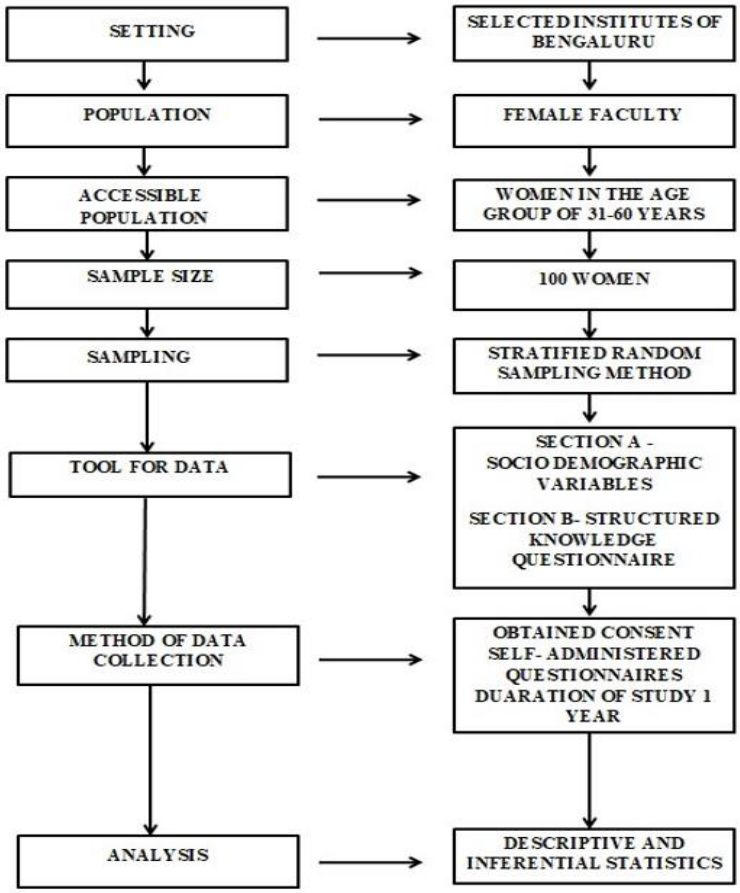

Figure 1: Schematic representation of study design

TABLE 1: Scoring interpretation of structured knowledge questionnaire

SL.NO	Score	PERCENTAGE	LEVEL OF KNOWLEDGE
1	Above 15	75-100%	Adequate knowledge
2	Between 10-14	50-74 %	Moderate knowledge
3	Below 9	<50%	Inadequate knowledge

Table 1: Depicts the interpretation of the scores of the structured knowledge questionnaire categorising them into adequate knowledge, moderate knowledge and inadequate knowledge.

Section A: SOCIO-DEMOGRAPHIC VARIABLES OF THE PROSPECTIVE WOMEN

Table 2: Frequency and percentage distributions of subjects with regards to age at marriage, number of children, monthly family income.

n= 100

Variable	Range	Frequency	Percentage%
Age at marriage	16-20 years	0	0
	21-25 years	63	**63**
	26-30 years	37	37
	>30 years	0	0
Number of children	0	27	27
	1	53	53
	2 or more	20	20
Monthly family income	<10,000	0	0
	10,001-30,000	37	37
	30,001-50,000	51	**51**
	>50,001	12	12

Table 2 represents that most participants (63%) were married between 21–25 years, while 37% married between 26–30 years, with none marrying before 21 or after 30. Over half (53%) had one child, 20% had two or more, and 27% had no children. In terms of monthly family income, the majority (51%) earned ₹30,001–50,000, followed by 37% earning ₹10,001–30,000, and 12% above ₹50,001, with no respondents in the below ₹10,000 category.

Figure 2: Frequency and Percentage distribution of the age of the women

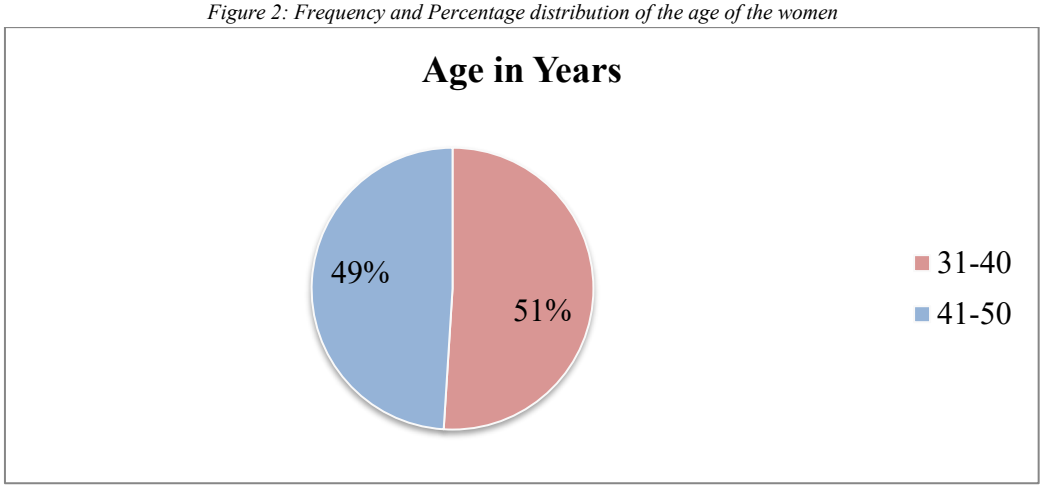

Figure 2 depicts the distribution of women based on the age groups: 31-40 years and 41-50 years. 51% of the women fall under the age group ranging between 31-40 years and 49% of the women fall under the age group ranging between 41-50 years.

Figure 3: Frequency and Percentage distribution of women according to marital status

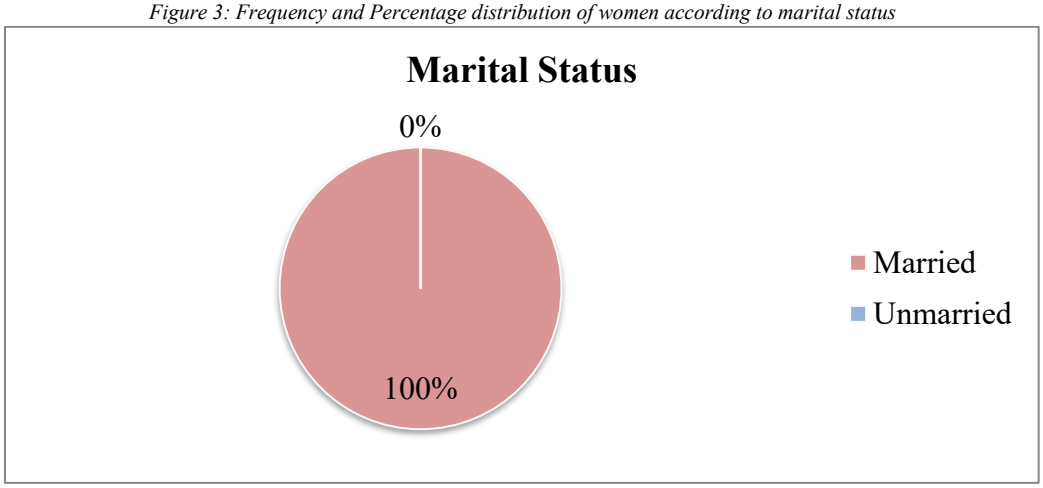

Figure 3 represents the frequency and percentage distribution of women based on their marital status. According to the distribution, 100% of the women are married.

Figure 4 Frequency and percentage distribution of the educational qualification among the women

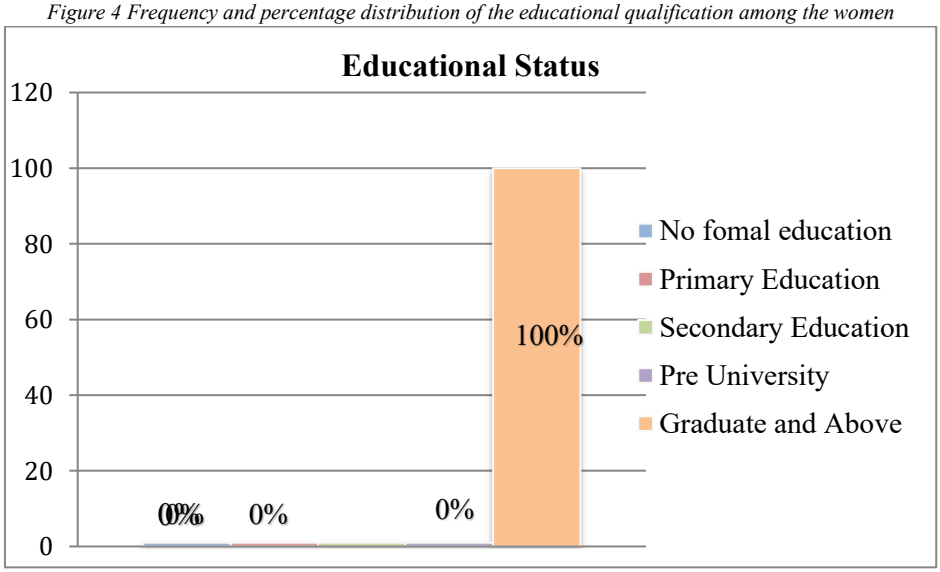

Figure 4 represents the frequency and percentage distribution of women categorised into their education qualifications. 100% of the women were of graduate degree level and above

Figure 5 Frequency and percentage distribution of the occupational status of the women

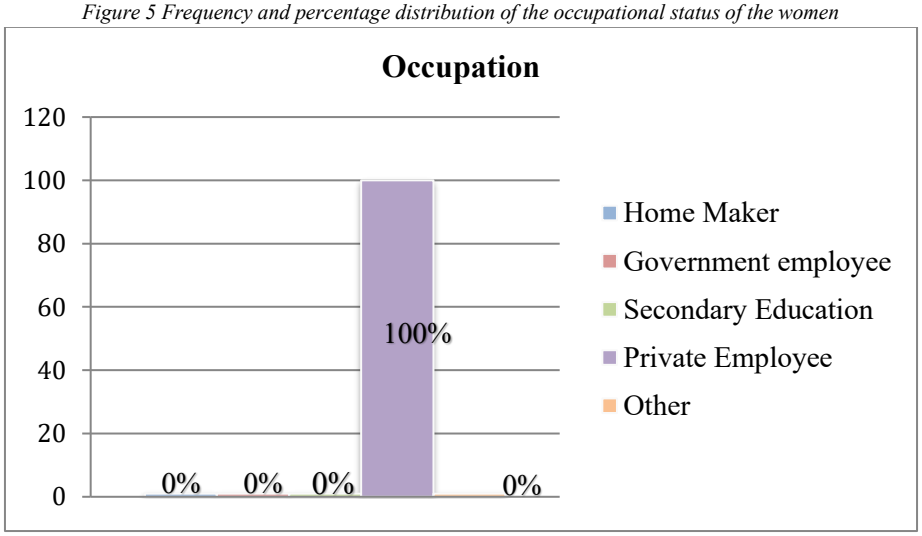

Figure 5 represents the frequency and percentage distribution of women categorised into their occupational status. 100% of the women are private employees.

Figure 6: Frequency and percentage distribution of women according to their awareness on cervical cancer

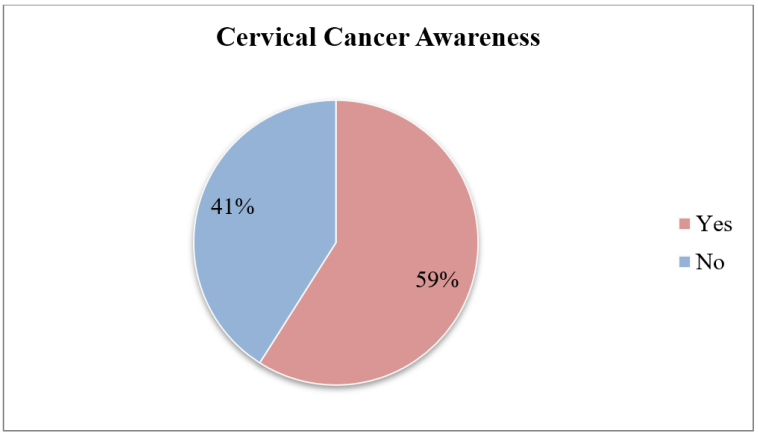

Figure 6 represents the frequency and percentage distribution of women based on their awareness on cervical cancer. 59% of the women are aware, whereas 41% state that they are not aware of cervical cancer.

Figure 7: Frequency and percentage distribution of women according to source of information on cervical cancer

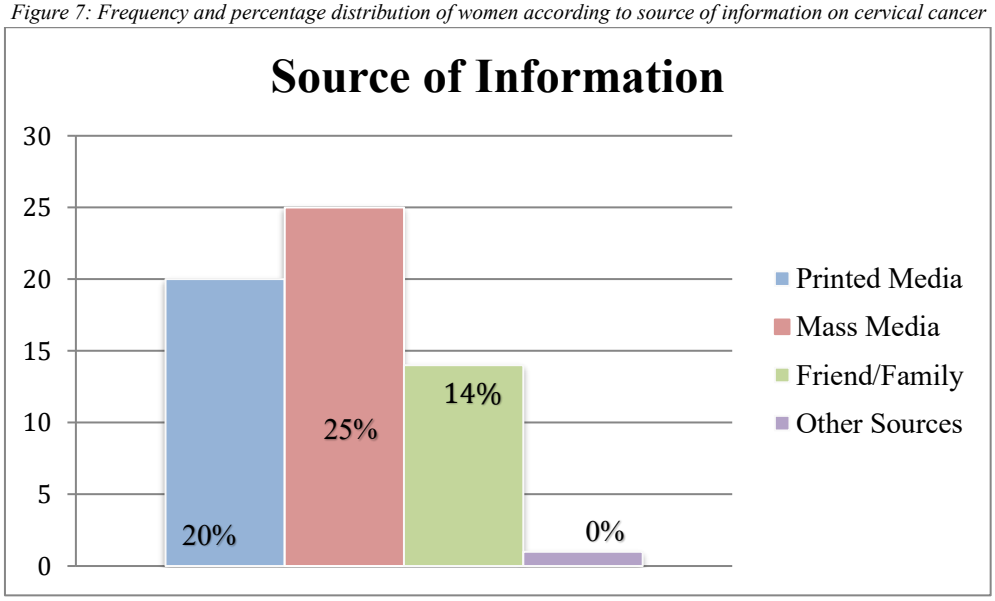

Figure 7 represents the frequency and percentage distribution of women based on their sources of information regarding cervical cancer. 20% of the women gained their awareness on cervical cancer through printed media, 25% of the women through mass media and 14% through friends/family.

Figure 8: Frequency and percentage distribution of women according to their screening status

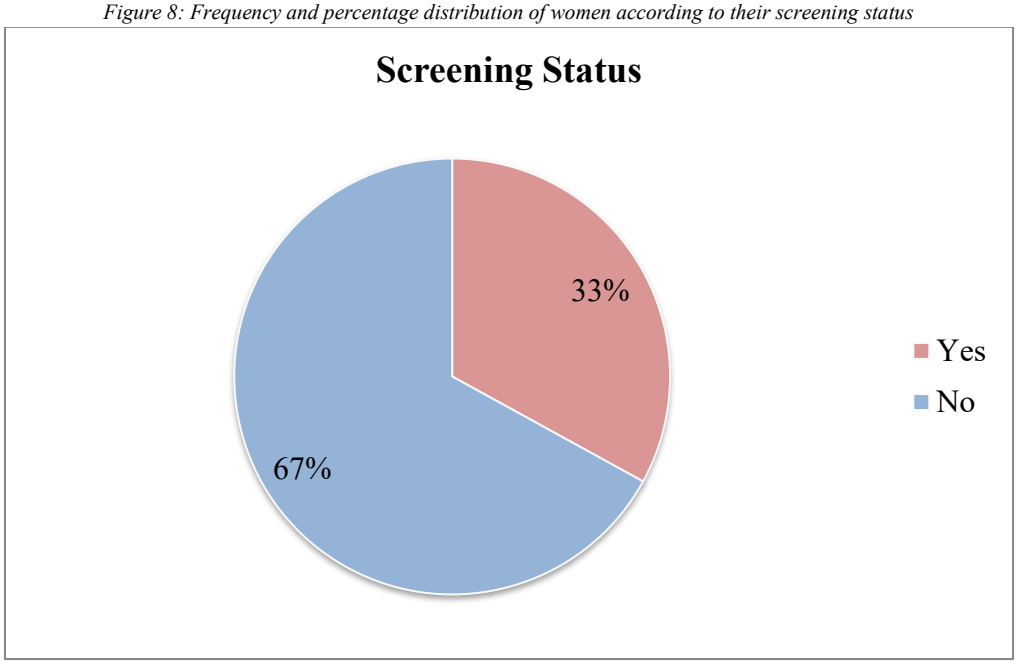

Figure 8 represents the frequency and percentage distribution of women based on their cervical cancer screening status. 33% of the women have undergone screening and a majority of 67% have not undergone screening.

Figure 9: Frequency and percentage distribution of women according to their HPV vaccination status

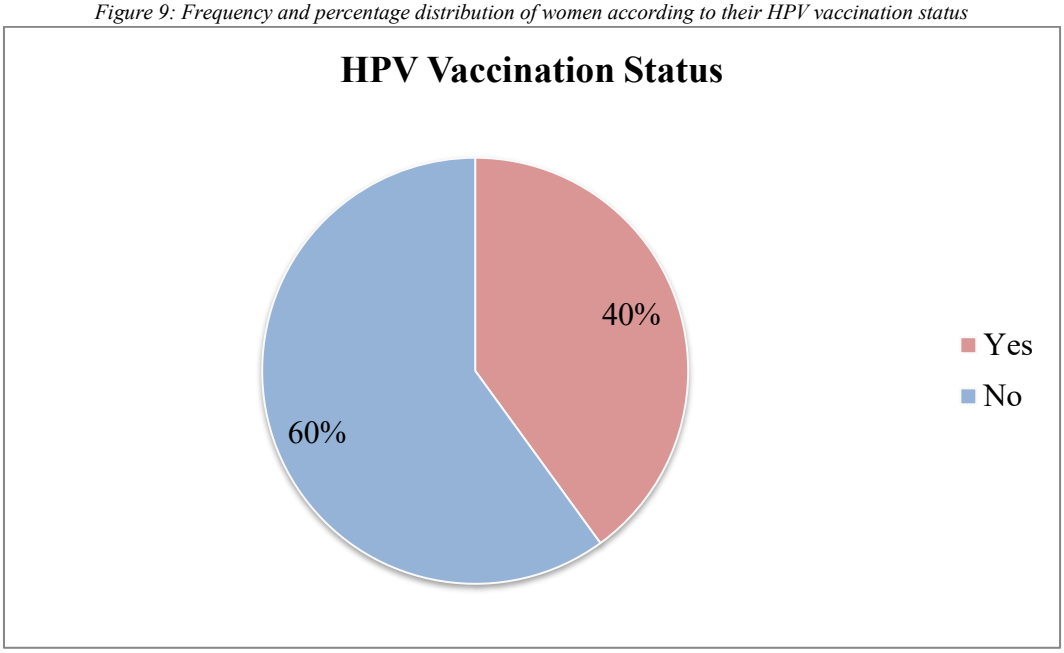

Figure 9 represents the frequency and percentage distribution of women based on their cervical cancer screening status. 33% of the women have undergone screening and a majority of 67% have not undergone screening.

Section B: Assessment of Knowledge regarding Cervical Cancer among women.

Table 3: Frequency, percentage, mean and standard deviation of the knowledge levels of women on Cervical Cancer.

n= 100

SL.NO	Score	Frequency	Percentage	Minimum Score	Maximum Score	Mean	Standard Deviation
1	Adequate knowledge >15 75-100%	9	9%	4	15	9.5	±3.765
2	Moderate knowledge between 10-14 50-74 %	40	40%				
3	Inadequate knowledge <9 <50%	51	51%				

Table 3 represents the frequency and percentage distribution of women based on their level of knowledge regarding cervical cancer. 51% of the women had inadequate level of knowledge, 40% of the women had moderate level of knowledge and only 9% of women had adequate level of knowledge on cervical cancer based on the assessment through the structured questionnaire.
The mean of overall Knowledge on cervical cancer was 9.5 with standard deviation of ±3.765.

Section C: Association between knowledge with selected socio-demographic variables among Women.

Table 4: Depicts association between knowledge and selected socio demographic variables of women such as current age, age at marriage, number of children, family income, screening status and vaccination status.

n= 100

Sl. No	Socio-demographic variables	Knowledge			Chi square value χ^2	P value
		Adequate Knowledge	Moderate knowledge	Inadequate Knowledge		
1.	1. Age in years				2.915 df=2	0.233 NS
a)	31-40 years	7	24	20		
b)	41-50 years	2	27	20		
2.	Age at marriage					
a)	16-20 year	0	0	0	1.436 df=2	0.488 NS
b)	21-25 years	5	30	28		
c)	26-30 years	4	21	12		
d)	More than 30 years	0	0	0		
3. Number of children					8.880 df=4	0.064 NS
a)	0	1	16	10		
b)	1	8	21	24		
c)	2 or more	0	14	6		
4. Monthly family income						
a)	<10,000	0	0	0	6.041 df=4	0.196 NS
b)	10,001-30,000	1	21	15		
c)	30,001-50,000	8	24	19		
d)	>50,001		6	6		

5.	Undergone screening for cervical cancer					
a)	Yes	6	29	24	0.332 df=2	0.847 NS
b)	No	3	22	16		
6.	HPV Vaccine status					
a)	Yes	9	19	25	2.931	0.231 NS
b)	No	0	32	15		
7.	Awareness on cervical cancer					
a)	Yes	4	18	12	0.699 df=2	0.075 NS
b)	No	5	34	28		

$P < 0.05$
(NS: Not significant)

Table 4: Chi-square was used to identify the association between knowledge of women regarding cervical cancer with socio-demographic variables .The result found out that there is no statistical significant association between knowledge with socio-demographic variables such as to age, marital status, age at marriage , number of children, monthly family income, educational status, occupation of the women, aware of cervical cancer, if yes source of information, undergone screening for cervical cancer and HPV vaccine status. Therefore H_1 hypothesis is rejected.

DISCUSSION:

OBJECTIVE 1: To assess the knowledge regarding cervical cancer among women.

In the present study, the overall knowledge regarding cervical cancer among 100 women aged 31–60 years from Ramaiah College of Arts Science and Commerce, Bengaluru was assessed using a structured knowledge questionnaire. The findings revealed that 51% had inadequate knowledge (score <9), 40% had moderate knowledge (score 10–14) and 9% of women had adequate knowledge (score >15).

This shows that although a majority of participants had a moderate understanding of cervical cancer, there is still a substantial gap in achieving adequate knowledge among all women in the study group. The findings reflect a general lack of awareness, particularly on early detection methods and preventive strategies such as HPV vaccination. [13]

These findings are consistent with a descriptive survey study on knowledge and practices of cervical cancer screening among women conducted in Malaysia which showed that 52.4% of participants had low knowledge and only 6.2% had utilized the Pap smear test, highlighting the persistent issue of underutilization of screening despite its availability [40]

Another community-based study conducted on knowledge, attitudes, and practice related to cervical cancer screening among women in Kuwait, 2009. Among 864 women reported that while 48% knew about Pap smears, only 22.6% had undergone screening, underscoring a disconnect between awareness and practice—similar to the findings of this study. [36]
The study emphasizes the urgent need for targeted educational interventions to improve women's knowledge about cervical cancer, especially in the context of early detection and prevention.

OBJECTIVE 2: To find an association between knowledge score with selected socio-demographic variables

The study also aimed to examine the relationship between women's knowledge about cervical cancer and socio-demographic variables such as age, marital status, age at marriage, number of children, income, education, prior awareness of cervical cancer, and HPV vaccination status.

Using chi-square tests, no statistically significant association between knowledge level and the following socio-demographic variables age, marital status, age at marriage, number of children, monthly family income, educational status, occupation of the women, awareness on cervical cancer, screening status and HPV vaccine status.

This is in agreement with a descriptive cross-sectional study conducted in Eastern Uganda, which concluded that most women (88.2%) had heard of cervical cancer, primarily via radio (70.2%). While 62.4% knew at least one preventive measure and 82.6% recognized at least one symptom, specific knowledge about screening remained low. Perceived risk and severity were high (76.0% and 94.6% respectively). Factors linked to better knowledge included living in urban/peri-urban areas, higher income, and prior HIV testing. Despite generally positive attitudes, misconceptions persist. Expanded education and screening outreach are needed to close knowledge gaps and improve uptake.

The data from this study indicate that there was no statistically significant association between women's knowledge of cervical cancer with socio-demographic factors such as age, education, marital status, or prior awareness. This suggests that low knowledge levels are prevalent across different groups, regardless of background. These findings highlight the importance of implementing universal cervical cancer education programs that reach all

women, not just specific demographic segments. This also suggests that other factors beyond demographic characteristics—such as accessibility of information and health system outreach—may play a more critical role in shaping knowledge and behaviour.

These findings therefore do not support the hypothesis that demographic factors do not significantly influence knowledge levels. Hence, based on the analysis H_1 is not accepted.

CONCLUSION

The present study assessed knowledge among women aged 31–60 years in selected institutions of Bengaluru regarding early detection, risk factors, and prevention of cervical cancer. It was found that among 100 women, **51 (51%) had inadequate knowledge**, **40 (40%) had moderate level of knowledge** and only **9 (9%) had adequate knowledge**. These findings reveal a considerable gap in knowledge and highlight the urgent need for targeted educational and preventive interventions to address the issue.

Cervical cancer remains a preventable disease if detected early; however, the study findings reveal that a majority of women still lack knowledge about its risk factors, signs, screening methods, and preventive measures. The study concludes that strategic and culturally sensitive educational programs, especially within institutions and community settings, are essential for improving awareness and promoting preventive practices like regular Pap smear tests and HPV vaccination.

IMPLICATIONS OF THE STUDY

A. Nursing Practice

Nurses should be proactive in initiating and delivering cervical cancer awareness and screening education within communities.
Integrating cervical cancer education into routine care visits can significantly improve health outcomes.

B. Nursing Education

The curriculum for nursing students should include comprehensive content on cervical cancer, focusing on risk factors, early detection, and patient education.
Workshops and continuing education programs for healthcare providers can enhance their ability to educate patients effectively.

C. Nursing Administration

Hospital administrators and institutional leaders should support and implement cervical cancer awareness campaigns within schools, colleges, and workplaces.
Provision of resources such as pamphlets, visual aids, and mobile screening units can facilitate outreach.

D. Nursing Research

This study provides a foundation for future research to explore in-depth behavioural and cultural factors affecting women's knowledge and practices related to cervical cancer.
Further interventional studies can assess the effectiveness of educational strategies over time.

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