

# Awareness on Cervical Cancer and Its Prevention among Students of a Professional College: A Cross-Sectional Study

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## Abstract:

**Background:** Cervical cancer is one of the most common cancers that affect women and is an important public health challenge. There were an estimated 6,04,000 new cases and about 3,42,000 women died of cervical cancer in 2020. There are several associated risk factors that have been identified and most of them are modifiable, making cervical cancer a preventable problem. College students are at an impressionable age and assessing their awareness regarding cervical cancer and its prevention would serve as a first step in identifying gaps in knowledge and sensitizing them to play an important role in cancer prevention.

**Materials and Methods:** Questionnaire based cross-sectional study among the students of a professional college after taking their consent.

**Results:** 439 students participated in the survey consisting of 209 males (47.61%) and 230 females (52.39%). Only 159 (36.21%) heard about cervical cancer. 184 students (41.91%) believed cervical cancer is preventable. Only 105 students (23.92%) knew that having infections in cervix such as Human Papilloma Virus (HPV) Infection is a risk factor for cervical cancer. The knowledge regarding at least one screening test for cervical cancer was present in only 45 students (10.25%). Only 101 students (23.01%) knew about availability of a vaccine for prevention of cervical cancer.

**Conclusion:** Suboptimal levels of knowledge regarding cervical cancer and its prevention in this professional college students is observed which needs to be addressed effectively.

**Key Word:** cervical cancer; awareness; college students; risk factors; prevention;

Date of Submission: 09-10-2022

Date of Acceptance: 22-10-2022

## I. Introduction

Cervical cancer is the fourth most common cancer among women globally, with an estimated 604 000 new cases (6.6 per cent of all female cancers) and 342 000 deaths in 2020 (3.1 per cent of all women deaths). About 90% of the new cases and deaths worldwide in 2020 occurred in low- and middle-income countries<sup>1</sup>. Women living with HIV are 6 times more likely to develop cervical cancer compared to women without HIV, and an estimated 5% of all cervical cancer cases are attributable to HIV<sup>2</sup>.

In India: incidence per 100 000 women is 18 in 2020; HPV vaccination is not included in the national vaccination schedule; Fewer than 1 in 10 women have been screened for cervical cancer in the last 5 years<sup>3</sup>. Comprehensive cervical cancer control includes primary prevention (vaccination against HPV), secondary prevention (screening and treatment of pre-cancerous lesions), tertiary prevention (diagnosis and treatment of invasive cervical cancer) and palliative care. In low-and middle-income countries, there is limited access to these preventative measures and cervical cancer is often not identified until it has further advanced and symptoms develop; resulting in a higher rate of death from cervical cancer in these countries<sup>4</sup>.

High prevalence of risk factors and low rates of screening and vaccination Awareness and enhanced knowledge is critical in combating cervical cancer. Hence a study was undertaken:

1. To assess the knowledge about cervical cancer among students.
2. To study the sociodemographic factors in relation to their knowledge
3. To assess the awareness about risk factors and prevention.

## II. Material And Methods

This is a Descriptive cross-sectional study which was carried out at a professional college in Vizianagaram. Total study participants who could be contacted is 467 and consented to participate is 439

**Study Design:** A Descriptive cross-sectional study

**Study area and settings:** Data collection was done in a professional college in Vizianagaram, Andhra Pradesh.

**Study Duration:** April 2022–June 2022

**Selection of Study subjects:** students of a professional college were selected purposively based on the inclusion and exclusion criteria.

**Inclusion criteria:** All the college students present on the day of data collection and willing to participate in the study.

**Exclusion criteria:** Those who did not give consent

**Study procedure:** A pretested predesigned questionnaire was used to obtain the data from those who had given the consent to participate in the study. The data collected included basic demographics and questions regarding awareness of cervical cancer and its risk factors, screening and prevention

**Procedure Methodology:** After convincing the authorities of the professional college where study was to be carried out regarding importance of this study, necessary permissions were taken from the authorities of MIMS. The management and the administrators of the professional college were contacted and dates of data collection were planned.

**Statistical Data:** Data was collected on the scheduled dates as per the plan and entered into a template created in Microsoft Excel (MS Office 2019) and analysed statistically using EPI INFO 7.

## III. Result

Total study participants who could be contacted is 467 and consented to participate is 439 in that females are 52% and males are 48% and most of them are urban residents i.e., 56% and rural is 44%.

Table no 1 shows sociodemographic details with majority of them belong to age up to 20 years (74.03%); with study stream of BTech students are (94.07%), MTech (1.37%), MBA (4.56%); most of them are first year students with (61.73%), 2nd year students are (16.86%), 3rd year (14.81%), final year (6.61%); majority of them are Hindus (87.47%), Christian (5.47%), Muslim (5.69%); most of them are nuclear type of family (81.09%), joint family (18.91%); white ration card holders are (68.11%), pink card (31.89%).

**Table no 1:** Sociodemographic details

S. No	Characteristics	Category	Total (%)
1	Age (In Years)	Up to 20 years	325 (74.03)
		Above 20 years	114 (25.97)
2	Study Stream	B.Tech	413 (94.07)
		M.Tech	6 (1.37)
		MBA	20 (4.56)
3	Year of Study	1st year	271 (61.73)
		2nd year	74 (16.86)
		3rd year	65 (14.81)
		4th year	29 (6.61)
4	Religion	Hindu	384 (87.47)
		Christian	24 (5.47)
		Muslim	25 (5.69)
		Others	6 (1.37)
5	Type of Family	Nuclear	356 (81.09)
		Joint	83 (18.91)
6	Type of Ration Card	White	299 (68.11)
		Pink	140 (31.89)

Table no 2 shows sociodemographic factor like sex in relation to their knowledge on cervical cancer with females having good knowledge compared to males; regarding heard about cervical cancer (F- 41.74%, M- 30.14%); usual age of occurrence ( F- 42.17%, M- 9.13%); an important public health problem( ); virus is a etiological factor ( ); is preventable disease ( ); can be identified in early stages ( ) risk factors like, multiple pregnancies( ), cervical infections-HPV ( ), presence of STD ( ), poor personal hygiene ( ); vaccine available for prevention( ); above parameters showing statistical significance.

**Table no 2:**Sociodemographic factor

S. No	Knowledge	Answers	Male (n=209)	Female (n=230)	Total (%)	P-value
1	Have you heard about cervical cancer?	Yes	63 (30.14%)	96 (41.74%)	159 (36.22)	0.0116
2	Usual age of occurrence of Cervical Cancer?	20-60 Years	70 (9.13)	97 (42.17)	167 (38.04)	0
3	Is cervical cancer an important public health problem?	Yes	103 (49.28)	139 (60.43)	242 (55.13)	0.019
4	What is the main etiological factor for cervical cancer?	Virus	38 (18.18)	61 (26.52)	99 (22.55)	0.0367
5	Is cervical cancer preventable?	Yes	77 (36.84)	107 (46.52)	184 (41.91)	0.0401
6	Can cervical cancer be identified in the early stages?	Yes	57 (27.27)	87 (37.83)	144 (32.8)	0.0187
7	Early age of sexual activity (early age of marriage) is a risk factor for cervical cancer?	Yes	61(29.19)	85(36.96)	146(33.26)	0.0844
8	Low consumption of fruit/vegetable is a risk factor for cervical cancer?	Yes	68(32.54)	87(37.83)	155(35.31)	0.2467
9	Use of intra-uterine device is a risk factor for cervical cancer?	Yes	42 (20.10)	60 (26.09)	102 (23.23)	0.1377
10	Having multiple pregnancies is a risk factor for cervical cancer?	Yes	42 (20.10)	65 (28.26)	107 (24.37)	0.0465
11	Having infections in cervix such as Human Papilloma Virus (HPV) Infection is a risk factor for cervical cancer?	Yes	52 (24.88)	93 (40.43)	145 (33.03)	0.0005
12	Presence of Sexually Transmitted Diseases (STD) is a risk factor for cervical cancer?	Yes	49 (23.44)	98 (42.61)	147 (33.49)	0
13	Long term use of hormonal contraceptives is a risk factor for cervical cancer?	Yes	53 (25.36)	76 (33.04)	129 (29.38)	0.0775
14	Smoking is a risk factor for cervical cancer?	Yes	69 (33.01)	84 (36.52)	153 (34.85)	0.4416
15	Having sex with multiple partners is a risk factor for cervical cancer?	Yes	58 (27.75)	78 (33.91)	136 (30.98)	0.1632
16	Poor personal hygiene is a risk factor for cervical cancer?	Yes	60 (28.71)	89 (38.70)	149 (33.94)	0.0273
17	Is Family History of cervical cancer a risk factor for cervical cancer?	Yes	40 (19.14)	58 (25.22)	98 (22.32)	0.1266
18	Is there any vaccine available for prevention of cervical cancer?	Yes	33 (15.79)	68 (29.57)	101 (23.01)	0.0006

Table no 3 shows sociodemographic factor like place of residence in relation to their knowledge on cervical cancer with urban subjects having good knowledge compared to rural subjects with some of the parameters showing statistical significance.

**Table no 3:** Sociodemographic factor

S. No	General Knowledge	Answers	Urban n= 240	Rural/tribaln = 199	Total (%)	P-value
1	Have you heard about cervical cancer?	Yes	101 (42.08)	58 (29.15)	159 (36.22)	<b>0.0049</b>
2	Usual age of occurrence of Cervical Cancer?	20-60 Years	98 (40.83)	69 (34.67)	167 (38.04)	<b>0.015</b>
3	Is cervical cancer an important public health problem?	Yes	143 (59.58)	99 (49.75)	242 (55.13)	<b>0.0392</b>
4	What is the main etiological factor for cervical cancer?	Virus	54 (22.5)	45 (22.61)	99 (22.55)	0.978
5	Is cervical cancer preventable?	Yes	105 (43.75)	79 (39.70)	184 (41.91)	0.3917
6	Can cervical cancer be identified in the early stages?	Yes	83 (34.58)	61 (30.65)	144 (32.8)	0.3826
7	Early age of sexual activity (early age of marriage) is a risk factor for cervical cancer?	Yes	83 (34.58)	63 (31.66)	146 (33.26)	0.5173
8	Low consumption of fruit/vegetable is a risk factor for cervical cancer?	Yes	88 (36.67)	67 (33.67)	155 (35.31)	0.5129
9	Use of intra-uterine device is a risk factor for cervical cancer?	Yes	58 (24.17)	44 (22.11)	102 (23.23)	0.6116
10	Having multiple pregnancies is a risk factor for cervical cancer?	Yes	62 (25.83)	45 (22.61)	107 (24.37)	0.434
11	Having infections in cervix such as Human Papilloma Virus (HPV) Infection is a risk factor for cervical cancer?	Yes	85 (35.42)	60 (30.15)	145 (33.03)	0.2429
12	Presence of Sexually Transmitted Diseases (STD) is a risk factor for cervical cancer?	Yes	92 (28.33)	55 (27.64)	147 (33.49)	0.0181
13	Long term use of hormonal contraceptives is a risk factor for cervical cancer?	Yes	84 (35)	45 (22.61)	129 (29.38)	<b>0.0046</b>
14	Smoking is a risk factor for cervical cancer?	Yes	93 (38.75)	60 (30.15)	153 (34.85)	<b>0.0598</b>

15	Having sex with multiple partners is a risk factor for cervical cancer?	Yes	86 (35.83)	50 (25.13)	136 (30.98)	0.0157
16	Poor personal hygiene is a risk factor for cervical cancer?	Yes	95 (39.58)	54 (27.14)	149 (33.94)	<b>0.0061</b>
17	Is Family History of cervical cancer a risk factor for cervical cancer?	Yes	50 (20.83)	48 (24.12)	98 (22.32)	0.4103
18	Is there any vaccine available for prevention of cervical cancer?	Yes	59 (24.48)	42 (21.11)	101 (23.01)	0.3887

Table no 4 shows study of subject's father's education in relation to their knowledge on cervical cancer with father's education above 10th class having good knowledge compared to father's education up to 10th class which is not statistically significant.

**Table no 4: Subject's father's education**

S. No	Knowledge	Answers	Fathers education Above 10 <sup>th</sup> class(n=279)	Father education Up to 10 <sup>th</sup> class(n=160)	Total (%)	P-value
1	Have you heard about cervical cancer?	Yes	108 (38.71)	51 (31.82)	159 (36.22)	0.1516
2	Usual age of occurrence of Cervical Cancer?	20-60 Years	108 (38.71)	59 (36.88)	167 (38.04)	0.2613
3	Is cervical cancer an important public health problem?	Yes	156 (55.91)	86 (53.75)	242 (55.13)	0.6609
4	What is the main etiological factor for cervical cancer?	Virus	61 (21.86)	38 (23.75)	99 (22.55)	0.6467
5	Is cervical cancer preventable?	Yes	121 (43.37)	63 (39.38)	184 (41.91)	0.4143
6	Can cervical cancer be identified in the early stages?	Yes	96 (34.41)	48 (30.00)	144 (32.8)	0.3437
7	Early age of sexual activity (early age of marriage) is a risk factor for cervical cancer?	Yes	98 (35.13)	48 (30.00)	146 (33.26)	0.2726
8	Low consumption of fruit/vegetable is a risk factor for cervical cancer?	Yes	100 (35.84)	55 (34.38)	155 (35.31)	0.7569
9	Use of intra-uterine device is a risk factor for cervical cancer?	Yes	62 (22.22)	40 (25.00)	102 (23.23)	0.5072
10	Having multiple pregnancies is a risk factor for cervical cancer?	Yes	64 (22.94)	43 (26.88)	107 (24.37)	0.3553
11	Having infections in cervix such as Human Papilloma Virus (HPV) Infection is a risk factor for cervical cancer?	Yes	95 (34.05)	50 (31.25)	145 (33.03)	0.5483
12	Presence of Sexually Transmitted Diseases (STD) is a risk factor for cervical cancer?	Yes	95 (34.05)	52 (32.50)	147 (33.49)	0.7405
13	Long term use of hormonal contraceptives is a risk factor for cervical cancer?	Yes	82 (29.39)	47 (29.38)	129 (29.38)	0.9972
14	Smoking is a risk factor for cervical cancer?	Yes	99 (35.48)	54 (33.75)	153 (34.85)	0.7137
15	Having sex with multiple partners is a risk factor for cervical cancer?	Yes	89 (31.90)	47 (29.36)	136 (30.98)	0.5819
16	Poor personal hygiene is a risk factor for cervical cancer?	Yes	99 (35.48)	50 (31.25)	149 (33.94)	0.3672
17	Is Family History of cervical cancer a risk factor for cervical cancer?	Yes	64 (22.94)	34 (21.25)	98 (22.32)	0.6825
18	Is there any vaccine available for prevention of cervical cancer?	Yes	64 (22.94)	37 (23.13)	101 (23.01)	0.9645

Table no 5 shows study subjects mother's education in relation to their knowledge on cervical cancer with mother's education above 10th class having good knowledge compared to mother's education up to 10th class which is not statistically significant.

**Table no 5: Subject's mother's education**

S. No	General Knowledge	Answers	Mothers education Above 10 <sup>th</sup> class(n=217)	Mother education Up to 10 <sup>th</sup> class(n=222)	Total (%)	P-value
1	Have you heard about cervical cancer?	Yes	91 (41.94)	68 (30.63)	159 (36.22)	0.0137
2	Usual age of occurrence of Cervical Cancer?	20-60 Years	91 (41.94)	76 (34.23)	167 (38.04)	0.0827
3	Is cervical cancer an important public health problem?	Yes	118 (54.38)	124 (55.86)	242 (55.13)	0.7556
4	What is the main etiological factor for cervical	Virus	52 (23.96)	47 (21.17)	99 (22.55)	0.4839

	cancer?					
5	Is cervical cancer preventable?	Yes	100 (46.08)	84 (37.84)	184 (41.91)	0.08
6	Can cervical cancer be identified in the early stages?	Yes	78 (35.94)	66 (29.73)	144 (32.8)	0.1655
7	Early age of sexual activity (early age of marriage) is a risk factor for cervical cancer?	Yes	72 (33.18)	74 (33.33)	146 (33.26)	0.9728
8	Low consumption of fruit/vegetable is a risk factor for cervical cancer?	Yes	77 (35.48)	78 (35.14)	155 (35.31)	0.9391
9	Use of intra-uterine device is a risk factor for cervical cancer?	Yes	50 (23.04)	52 (23.42)	102 (23.23)	0.9245
10	Having multiple pregnancies is a risk factor for cervical cancer?	Yes	49 (22.58)	58 (26.13)	107 (24.37)	0.387
11	Having infections in cervix such as Human Papilloma Virus (HPV) Infection is a risk factor for cervical cancer?	Yes	79 (36.41)	66 (29.73)	145 (33.03)	0.137
12	Presence of Sexually Transmitted Diseases (STD) is a risk factor for cervical cancer?	Yes	77 (35.43)	70 (31.53)	147 (33.49)	0.3803
13	Long term use of hormonal contraceptives is a risk factor for cervical cancer?	Yes	65 (29.95)	64 (28.83)	129 (29.38)	0.7958
14	Smoking is a risk factor for cervical cancer?	Yes	75 (34.56)	78 (35.14)	153 (34.85)	0.8997
15	Having sex with multiple partners is a risk factor for cervical cancer?	Yes	66 (30.41)	70 (31.53)	136 (30.98)	0.8003
16	Poor personal hygiene is a risk factor for cervical cancer?	Yes	79 (36.41)	70 (31.53)	149 (33.94)	0.2809
17	Is Family History of cervical cancer a risk factor for cervical cancer?	Yes	53 (24.42)	45 (20.27)	98 (22.32)	0.296
18	Is there any vaccine available for prevention of cervical cancer?	Yes	49 (22.58)	52 (23.42)	101 (23.01)	0.8339

Table no 6 shows sources of information about cervical cancer and screening test; internet () as the major source of information followed by friends(), TV(), hospital(), family members();

**Table no 6: Sources of information**

S. No	Parameter	Category	Total (%)
1	From what all sources did you get information about cervical cancer?	Radio	20 (4.56)
		Tv	54 (12.30)
		Internet	87 (19.82)
		Hospital	45 (10.25)
		Newspaper	30 (6.83)
		Magazine	12 (2.73)
		Friends	56 (12.76)
		Relatives	23 (5.24)
		Family Members	44 (10.02)
		Others	31 (7.06)
		2	From what all sources did you get information about cervical cancer?
Tv	54 (12.30)		
Internet	87 (19.82)		
Hospital	45 (10.25)		
Newspaper	30 (6.83)		
Magazine	12 (2.73)		
Friends	56 (12.76)		
Relatives	23 (5.24)		
Family Members	44 (10.02)		
Others	31 (7.06)		

#### IV. Discussion

This study was mainly undertaken to know about the knowledge on cervical cancer and its prevention among students of a professional college.

**Table no 7: Comparison with other studies**

S. No	Parameters	Our study	K V Bharathi et al [5]	Jyoti singh et al [6]	A Saha et al [7]
1	Heard of cervical cancer	Total 36.22% (M-30.14%) (F-41.74%)	M-16.58% F-11.9%	-	-
2	Causitive Agent	Total 22.55% (M-18.18%) (F-26.52%)	M-63.09% F-58.33%	Total-57.57%	-
3	Usual age of occurrence of Cervical cancer	Total-38.04% (M-9.13%) (F-47.17%)	-	-	F- 43%

4	Is cervical cancer preventable	Total-41.91%	-	Total-82.8%	-
5	Early age of sexual activity is a risk factor for cervical cancer	Total-33.26% (M-29.19%) (F-36.96%)	-	Total-43.77%	F-13%
6	multiple pregnancies is a risk factor for cervical cancer	Total-24.37% (M-20.10%) (F-28.26%)	-	-	F-15%
7	Having infections in cervix is a risk factor for cervical cancer	Total-33.03% (M-24.88%) (F-40.43%)	-	-	F-4%
8	Long term use of hormonal contraceptives is a risk factor for cervical cancer	Total-29.38% (M-25.36%) (F-33.04%)	M-31.75% F-11.5%	Total-63.97%	F-12%
9	Smoking is a risk factor for cervical cancer	Total-34.85% (M-33.01%) (F-36.52%)	M-32.14% F-25%	Total-45.45%	F-29%
10	Sexually Transmitted Diseases (STD) is a risk factor for cervical cancer	Total-33.49% (M-23.44%) (F-42.61%)	M-45.23% F-53.57%	-	-
11	Multiple sex partners is a risk factor for cervical cancer	Total-30.98% (M-27.75%) (F-33.91%)	-	Total-72.05%	F-3%
12	Poor personal hygiene is a risk factor for cervical cancer	Total-33.94% (M-28.71%) (F-38.70%)	-	Total-80.80%	F-14%
13	Family History of cervical cancer is a risk factor for cervical cancer	Total-22.32% (M-19.14%) (F-25.22%)	M-13.09% F-14.28%	-	-
14	Screening test for Cervical cancer (pap test)	Total-9.34%	M-78.26% F-66.67%	Total-78.78%	F-11%
15	Is there any vaccine available for prevention of cervical cancer	Total-23.01% (M-15.79%) (F-29.57%)	M-23.81% F-17.86%	Total-79.79%	-

### V. Conclusion

- Suboptimal levels of knowledge and awareness regarding risk factors, screening and prevention of this important preventable public health challenge of cervical cancer is observed in this young population which needs to be addressed as a priority.

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