Cervical cancer knowledge and attitude among a cohort of female schoolteachers in Salem city – A cross-sectional survey

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Abstract

The present study aimed to assess the knowledge and attitude of female schoolteachers toward cervical cancer. **Materials and Method:** A cross-sectional study was conducted among 256 Government female schoolteachers aged 22–60 years in Salem city, Tamil Nadu. A self-administered questionnaire which assessed the levels of knowledge (6 items) and attitude (4 items) regarding cervical cancer was employed and responses were recorded on a three-point Likert scale. Data were analysed using Statistical Package for Social Sciences (SPSS) software version 20.0. **Results:** Overall adequate knowledge and good attitude regards to cervical cancer was observed among 60% and 66.8% of schoolteachers, respectively. Participants in the age range of 31–45 years (p = 0.007), primary schoolteachers (p = 0.004) and Hindus (p = 0.001) displayed significantly adequate levels of knowledge compared to their respective counterpart. Likewise, based on attitude subjects possessing postgraduation (p = 0.001) and middle schoolteachers (p = 0.009) had significant good attitude scores. Significant linear correlation was observed knowledge with class teacher (r = 0.136, P = 0.03) and religion (r = 0.208, P = 0.001) whereas attitude with qualification (r = 0.165, P = 0.008) and class teacher (r = 0.206, P = 0.001) which are positive predictors. Moreover, knowledge had a significant positive correlation with attitude (r = 1.000, P = 0.000). **Conclusion:** Primary care physicians partnering network with schoolteachers having adequate knowledge and good attitude acts as a workforce to support cervical cancer screening and human papillomavirus vaccination.

Keywords: Attitude, cervical cancer, India, knowledge, schoolteachers

Introduction

Globally out of 4.1 million female cancer deaths, nearly 311,000 accounts for cervical cancer per year. It is estimated that close to 570,000 new cases were diagnosed worldwide each year ranking it as the fourth most common cancer.¹,² Statistical data of cervical cancer deaths skewed toward developing countries in which India constitutes one-third of the disease burden on a global scale.³,⁴ Sexually transmitted human papillomavirus (HPV) 16, 18 are the key etiological agents for cervical cancer infecting young females with an age-standardized incidence rate of 21.99 (per 100,000) in India.⁵ The low median age of marriage, lack of routine screening in the vulnerable female population, inadequate knowledge of cervical cancer, and its prevention pooled together...
spiked the risk and incidence rates especially in transitioning economies.

Cancer of the cervix has a multifaceted negative impact on the health and failure to treat active infection outweighs women's life. To combat the situation, regular screening and timely HPV vaccination are acknowledged as key approaches for effective cancer control. World Health Organization (WHO) recommended multiple age cohort HPV vaccine targeting 9-14 years prepubertal girls, further catch up to the 26 years of age prior to sexual debut as a primary preventive measure. Currently, epidemiological survey data provide important insight since the time of vaccine licensed in the country less than 20% of females have been vaccinated against HPV downplaying the benefits of the vaccination. Furthermore suboptimal uptake of screening among Indian women.

At this standpoint, it is paramount important to associate with people to instigate changes. As Universal structures, schools act as the ideal setting to inculc knowledge on reproductive health. Therefore, collaborating with teachers as an informational piece acts as a powerful means in reaching a large proportion of young adolescent girls and their parents. As echoed from a literature review, school-based education programs enriched knowledge of teenage schoolgirls in turn parents, enhancing vaccine uptake reducing the lifetime risk of invasive cervical cancer. Additionally, in low resource setting teachers play a central role in linking primary care physicians with the neighbouring community in navigating women to undergo cervical cancer screening and to shed light on importance of HPV vaccination. Hence, the present study aimed to assess the knowledge and attitude of female schoolteachers toward cervical cancer.

Materials and Method

A cross-sectional descriptive study was conducted among Government female schoolteachers aged 22–60 years in Salem city, Tamil Nadu, India. The study was carried out for about four months dated from August 2019 to November 2019 which encompassed a minimal sample of 255 subjects. In the Salem Urban, out of 30 Government schools ten schools were selected by simple random sampling technique. Using Epi Info software with 95% confidence level, 5% margin of error, and 50% response distribution minimum sample size required is 255 out of a total 750 female schoolteachers. Ethical approval was obtained from the institutional ethical committee (VMSDC/IEC/Approval No: 177). After explaining the purpose of the survey permission to carry out the study was sought from the respective school principal. Primary, middle, and high schoolteachers who were willing were enrolled in the study. Teachers who do not wish to participate and not present on the day of data collection were excluded. Data were collected using a 10 item self-administered close-ended questionnaire which was developed based on previous studies.

Before the commencement of the study, the questionnaire was pretested on this group and validated with Cronbach’s α value of 0.86. The first section of the study proforma collected information on the demographic details (age, qualification, class teacher, religion). The second (Q 1-6) and third (Q7-10) sections assessed knowledge and attitude with regards to cancer cervix. The responses were recorded on three-point Likert scale. For knowledge questions score of “1” was given for a correct response and “0” for an incorrect response. Whereas for attitude questions score 0, 1, 2 were assigned for Not sure, No, Yes responses, respectively. The cut-off point for an individual level of cervical cancer knowledge and attitude was set at 3 and 4, respectively. Those who scored above the cutoff were considered as having adequate knowledge and a good attitude. Incompletely filled questionnaires were not utilized in the study. Data was entered in the spreadsheet and analysed by Statistical Package for Social Sciences (SPSS) software version 20. Kolmogorov–Smirnov, Shapiro–Wilk tests were used to check the normality of the data. Student’s t-test and one-way analysis of variance (ANOVA) were used for comparing levels of knowledge and attitude based on variables. The correlation of knowledge and attitude with demographic variables was analysed using Karl Pearson’s Correlation Coefficient. $P < 0.05$ was set assignificance level.

Results

The study comprised 268 female schoolteachers, out of which 256 completed the questionnaire with a response rate of 95.5%. The mean age of the study participants was 33.6 ± 4.09 and the majority of them are married 229 (89.4%). When education was considered, 120 (47%) subjects possessed an undergraduate degree whereas 136 (53%) respondents had postgraduate qualification. In the study, 102 (39.8%) primary school, 91 (35.5%) middle and 63 (24.6%) high schoolteachers took part with the teaching experience ranging from 4 to 35 years. Majority of study subject were Hindus (n = 181, 70.7%) followed by Christian (n = 65, 25.3%) and Muslims (n = 10, 3.9%).

When knowledge regarding cervical cancer was considered nearly half of the respondents (42%) were not aware of marriage at an early age increases the risk of developing cervical cancer. About three-fourth (72%) of participants knew cervical cancer when detected early in its course can be easily cured. On the other hand, surprisingly almost half (45%) of the study subjects were not cognizant that Pap smear screening test is used to detect cancer cervix. Knowledge based on vaccination age displayed merely one-third (36%) of the participants knew the recommended age for HPV vaccination. Similarly, on analysing attitude responses 45% of respondents assumed that it is not a major problem. Furthermore, virtually half (47%) of the subjects perceived their risk of getting cervical cancer was low paving to suboptimal uptake of screening. The majority (61%) of the partaker teachers were not aware of their role in educating students and their parents, friends, relatives about cervical cancer and its vaccination [Table 1].

Comparison of correct responses to knowledge questions in Table 1 illustrate that age revealed a significant difference for
Q1 (p = 0.001), Q5 (p = 0.007) whereas qualification showed significance for Q1 (p = 0.002) and Q6 (p = 0.001). Based on class teacher significant difference was noted for Q 1 (p = 0.02), Q4 (p = 0.000), while religion displayed significance for Q1 (p = 0.01), Q4 (p = 0.005), and Q5 (p = 0.05). Likewise, when the attitude was taken into account qualification and class teacher revealed a significant difference for Q8 (p = 0.000, 0.01) and Q9 (p = 0.01, 0.001), respectively.

When levels of knowledge scores were considered, participants in the range of 31–45 years of age (p = 0.007), primary schoolteachers (p = 0.004), and Hindus (p = 0.001) displayed significantly adequate levels of knowledge compared to their respective counterpart. Likewise, based on attitude subjects possessing postgraduation (p = 0.001) and middle schoolteachers (p = 0.009) had significant good attitude scores [Table 2].

Significant linear correlation was observed knowledge with class teacher (r = 0.136, \( P = 0.03 \)) and religion (r = 0.208, \( P = 0.001 \)) whereas attitude with qualification (r = 0.165, \( P = 0.008 \)) and class teacher (r = 0.206, \( P = 0.001 \)) which are positive predictors. Furthermore, knowledge had a significant positive correlation with attitude (r = 1.000; \( P = 0.000 \)) [Table 3].

Discussion

As cervical cancer is preventable, the challenge is to trail opportunity and circumstances across the vulnerable female population to infuse preventive health behaviour. Generating resources through the people around is an effective public health approach in developing countries like India. Being a woman, mother, socially committed mentor teacher enact as an impactful vehicle to underscore knowledge regarding cervical cancer and HPV vaccination.

### Table 1: Comparison of responses to cervical cancer knowledge and attitude questions among study participants stratified based on demographic variables

| Knowledge questions                                                                 | Correct n (%) | Incorrect n (%) | Age | Qualification | Class teacher | Religion |
|-------------------------------------------------------------------------------------|---------------|-----------------|-----|---------------|---------------|----------|
| Cervical cancer affect reproductive system of the body                                | 180 (70)      | 76 (30)         | 0.001* | 0.002*         | 0.02*         | 0.01*    |
| Risk of cervical cancer is most often in middle-aged women                           | 210 (82)      | 46 (18)         | 0.17 | 0.42          | 0.63          | 0.60     |
| Marriage under 18 years of age increases the risk of developing cervical cancer       | 148 (58)      | 108 (42)        | 0.99 | 0.70          | 0.73          | 0.11     |
| Pap smear screening test helps to detect cervical cancer                              | 141 (55)      | 115 (45)        | 0.08 | 0.61          | 0.000*        | 0.005*   |
| Cervical cancer when detected early in its course can be easily curable               | 185 (72)      | 71 (28)         | 0.007* | 0.12          | 0.11          | 0.05*    |
| HPV vaccine is recommended for females aged 9 years and above                         | 93 (36)       | 163 (64)        | 0.30 | 0.001*        | 0.07          | 0.54     |

| Attitude questions                                                                 | Correct n (%) | Incorrect n (%) | Age | Qualification | Class teacher | Religion |
|-------------------------------------------------------------------------------------|---------------|-----------------|-----|---------------|---------------|----------|
| Do you think cervical cancer is a major problem                                     | 141 (55)      | 115 (45)        | 0.39 | 0.24          | 0.16          | 0.96     |
| Do you think you are at risk and should undergo a cervical cancer screening test     | 135 (53)      | 121 (47)        | 0.50 | 0.000*        | 0.01*         | 0.23     |
| Do you think cervical cancer can be prevented                                       | 172 (67)      | 84 (33)         | 0.74 | 0.01*         | 0.001*        | 0.48     |
| Do you think school teachers play a vital role in educating students/parents/friends | 102 (39)      | 154 (61)        | 0.86 | 0.89          | 0.24          | 0.75     |

Statistically significant (\( P<0.05 \))

### Table 2: Comparison of the levels of knowledge and attitude based on demographic variables

| Variables   | Knowledge          | Attitude          |
|-------------|--------------------|-------------------|
| Inadequate  | Adequate n (%)     | Poor n (%)        |
| Age         |                    | Good n (%)        | P    |
| ≤30 years   | 37 (14.4)          | 25 (9.8)          | 0.007* | 41 (16) | 0.59 |
| 31-45 years | 48 (18.7)          | 46 (18)           | 0.50  | 96 (37.5) | 0.001* |
| 46 years and above | 17 (6.6) | 14 (5.4) | 0.54 |
| Qualification |                    |                   | 0.41 |
| UG         | 51 (19.9)          | 52 (20.3)         | 0.004* | 68 (26.6) | 0.009* |
| PG         | 51 (19.9)          | 33 (12.9)         | 0.001* | 103 (40.2) | 0.638 |
| Class teacher |                    |                   | 0.001* |
| Primary    | 48 (18.8)          | 45 (17.6)         | 0.001* | 57 (22.3) | 0.638 |
| Middle     | 40 (15.6)          | 25 (9.8)          | 0.001* | 66 (25.8) | 0.001* |
| High       | 14 (5.5)           | 15 (5.9)          | 0.001* | 48 (18.8) | 0.001* |
| Religion   |                    |                   | 0.001* |
| Hindu      | 85 (33.2)          | 62 (24.2)         | 0.001* | 119 (46.5) | 0.638 |
| Christian  | 14 (5.5)           | 21 (8.2)          | 0.001* | 44 (17.2) | 0.001* |
| Muslim     | 3 (1.2)            | 2 (0.8)           | 0.001* | 8 (3.1)  | 0.001* |
| Total      | 102 (40)           | 85 (33.2)         | 0.001* | 171 (66.8) | 0.001* |

Statistically significant (\( P<0.05 \))
Table 3: Pearson’s correlation of knowledge and attitude scores with demographic variables

| Variables | Age | Qualification | Classteacher | Religion | Attitude |
|-----------|-----|---------------|--------------|----------|----------|
| Knowledge | 0.115 | 0.009 | 0.136* | 0.208* | 1.000* |
| Attitude  | 0.044 | 0.165* | 0.206* | 0.099 | - |

Statistically significant (P<0.05)

As a catalyst in mobilizing vaccine uptake among target groups. Hence, the present study was designed to ascertain the knowledge and attitude of female schoolteachers toward cervical cancer.

Overall adequate knowledge regards to cervical cancer was observed among 60% of respondents that constitute a substantial proportion of the sample corroborating with Toye et al. study. As the study population is an educated group having better access to healthcare information materials might be inclined to better knowledge scores. In contrast, Masika et al., Enbe et al. studies in Kenya and Nigeria revealed a low to moderate level of knowledge about cervical cancer among schoolteachers. In the existing study, though a good number of respondents had adequate knowledge scores, it was noted considerable proportion (42%) of them were not aware that the early age of family forming increases the risk for cancer cervix. This finding was quite high compared to Shankar et al. study among schoolteachers in India (11.9%).

In a study by Toye et al., among Nigerian secondary schoolteachers, 91.4% acknowledged pap smear is used for screening cervical cancer which is comparatively lower (55%) in the present study. On the other hand, our study finding was in accordance with Abdullah et al. and Shankar et al. studies, respectively. Furthermore, the majority (64%) of the study participants were unaware of the recommended age for HPV vaccination. The above findings were probably due to the dearth of in-depth knowledge spectating the fact that adequate public education is essential to lit knowledge in minds for safeguarding oneself and their families.

In the study, the significant number (66.8%) of subjects had a good attitude toward cancer cervix. Regardless of the perceived good attitude, a substantial percentage (45%) of the study population deemed cervical cancer is not a major health issue. Moreover, perceived susceptibility to cervical cancer (47%) was low curtailing to screening intent in the study subject’s concerning with Kileco et al. and Shankar et al. studies. Indicating the need to organize screening camps drive to instigate behavioural change from pre-contemplation to active change phase.

Schoolteacher’s inclination toward cervical cancer education for students, parents, friends, relatives was quite alarmingly low (39%) in the present study and was in accordance with Kamada et al. study among Japanese schoolteachers (29%). Of note Masika et al. studies reported 89%, 93.6% of schoolteachers capitalized the opportunity to educate and recommend the vaccine to their daughter and close relatives after receiving structured training programme. Additionally, introspecting the knowledge about cervical cancer and vaccination status among different Indian population clusters medical and paramedical students (44.9%, 6.8%) parents of adolescents school students (15%, 13%) prospects low levels of awareness and vaccination uptake. Thus, overwhelming majority of them missed opportunities for timely cancer prevention in general.

Primary schoolteachers had significantly (p = 0.004) higher levels of adequate knowledge scores compared to their respective counterparts. It is noteworthy majority of them were less than 35 years exposing the fact age-based technological divide is inextricably linked in accessing health care information. When religion was taken into account, Hindus (p = 0.001) had adequate knowledge scores compared to others. This finding was in agreement with Doshi et al. study as reported pursuit of religious beliefs on the severity of the disease and deceive role in vaccination acceptance. It was found subjects possessing postgraduation, the middle school followed by primary schoolteachers had good attitude compared to their respective counterparts consistent with Abdullah et al. study.

In the study, remarkably high schoolteachers depicted a lower level of adequate knowledge and attitude. Need of the hour to equip the high schoolteachers with critical thinking and attitudinal orientation toward cervical cancer prevention as they allied with the representative group of young adolescents. Moreover, knowledge had a significant positive correlation with attitude (correlation coefficient, 1.000; P = 0.000) which was in line with Masika et al. study. Henceforth, cementing knowledge and attitude together can ignite the drive as of thoughts to actions toward cervical cancer preventive approaches.

Furthermore, the study emphasizes inadequate knowledge and attitude among two-fifths of the study population which is equally important to acquaint them with facts. Looking at the grey areas and illuminating them pays rich dividends in the long run to nail out the situation.

The study acknowledges certain limitations, as the study participants were educated group results may not be generalized to other population groups in various settings. Moreover, self-report data might be a source of bias. Further, the sample is limited to government schoolteachers only. Hence, it is recommended to conduct further studies involving private schoolteachers, large population-based encompassing adolescent girls, and parents in India to mend decline in screening and vaccine uptake.

Conclusion

The study emphasis adequate knowledge and good attitude regards to cancer cervix among three-fifth of the respondents. As majority of the respondents were sexually active age group participation in the study aids as a drive to undergo screening. Instead of singular approach tackled solely by primary care physicians partnering network with schoolteacher’s holds...
strong promise to reinforce preventive health messages allied to reproductive health, maintaining electronic health records and instituting timely reminders for vaccine uptake among adolescent girls. Moreover, association with this cluster can act as a torch bearer for their young ones and teenage schoolchildren yielding great difference in the years to come.

Key points
1. The study participants had adequate knowledge and good attitude regards to cervical cancer.
2. Schoolteachers with adequate knowledge and good attitude acts as a workforce to support cervical cancer screening and HPV vaccination.
3. Collaboration of primary care physician with schoolteachers is an effective public health approach in developing countries like India to upsurge vaccine uptake.

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Conflicts of interest
There are no conflicts of interest.

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