

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

CERVICAL CANCER KNOWLEDGE AND SCREENING AMONG

SCHOOLING AND UNEDUCATED FEMALES WITHIN TAMALE-GHANA

ABSTRACT

Background: Cervical cancer, one of the gynecological cancers, is a serious health concern in Ghana. To improve the chances of survival and treatment outcomes for this condition, early screening and detection is the best remedy. Comprehensive knowledge and positive attitude highly influence acceptability and uptake of screening methods.

Objective: To assess the knowledge about cervical cancer and screening practice among females in secondary and tertiary institutions and uneducated females in Tamale-Ghana.

Methods: Females (n = 300) between the ages of 15 and 49 years, comprising 100 participants in three categories (senior high school, tertiary institution and the non-educated) were recruited into the study. Data was gathered through a semi-structured questionnaire, and analyzed by descriptive statistical methods.

Results: Approximately 61.3% of the participants have heard about cervical cancer, 33.1% and 29.9% of who got the information from school and the media respectively. Of those who have heard about cervical cancer, only 19.3% had considerable general knowledge about the condition. A significant association ($p = 0.02$) was observed between educational level and knowledge about cervical cancer. Meanwhile, only 5.3% of the 300 participants were previously screened for cervical cancer. Lack of information about cervical cancer was the most reported reason (46.6%) for not attending cervical cancer screening.

24 **Conclusion:** Proactive intervention is required in the study area towards preventing new
25 diagnosis through mass education, establishment of cervical cancer control programs, as
26 well as screening and treatment centers.

27 **Keywords:** *Cervical cancer, knowledge, perception, practice, screening, education, Tamale.*

28 INTRODUCTION

29 Gynecological cancers continue to be a public health challenge worldwide. The Union for
30 International Cancer Control estimates that globally, 7.6 million lives are lost annually to cancer,
31 more than HIV/AIDS, tuberculosis, and malaria combined [1]. A new report [2] by the World
32 Health Organization's International Agency for Cancer Research (IARC) suggests that the
33 incidence of cancer worldwide will grow by 75% by the year 2030, nearly doubling in some
34 developing countries. Those increases will put a more burden on the poorly developed healthcare
35 systems in such countries because cancer care is much more expensive than care for infectious
36 diseases [3].

37 Cancer of the cervix is one of the most common cancers among females, accounting for 12% of
38 all cancers in women and is ranked second among cancers in women globally [2]. It is estimated
39 that 528,000 new cases were reported globally in 2012, with the largest burden occurring in less
40 industrialized countries – around 85% of the global prevalence [4]. The main challenge in less
41 developed countries is the absence of accurate population and health statistics. This makes it
42 difficult to reliably estimate with accuracy the actual burden of cervical cancer. In sub-Saharan
43 Africa, approximately 35 new cases of cervical cancer are diagnosed per 100,000 women
44 annually, and about 23 per 100,000 women die from the disease [3].

45 In Ghana, cervical cancer is the leading cause of cancer deaths among women, and 8.57 million
46 women who are currently above 15 years of age are at risk of developing cervical cancer. While
47 approximately 3,000 women are diagnosed annually with cervical cancer, at least 2,000 of them
48 die from the disease [4]. According to a report by the World Health Organization [1] cited in [5], by

49 2025, there will be over 5,000 new cases of cervical cancer annually in Ghana with at least 3,361
50 of the victims dying.

51 Cancer of the cervix is preventable if discovered at a very early stage by screening tools [2]. The
52 World Health Survey has indicated very low uptake of cervical cancer screening in rural and
53 urban areas with respective rates estimated at 2.2% and 3.2% [6]. There is also an observed
54 widening inequality in cancer survival rates globally between the rich and the least deprived
55 groups for 19 out of 33 cancer types [7]. Although the Human Papilloma Virus (HPV) vaccine has
56 been licensed for use in Ghana, it is limited to only a few health facilities in the country. This
57 response to the prevention of cervical pre-cancer has already many challenges with its
58 implementation [8]. Awareness about cervical cancer by young adolescents and adult women is
59 therefore a key preventive and management measure. However, how well women know about
60 cervical cancer and the rate of screening for the condition in the Tamale metropolis had not been
61 previously assessed. Furthermore, it has not been established whether young adolescents in
62 school may be more informed about the condition and/or practice screening for it compared to
63 women who have no formal education. The purpose of this study was therefore to assess and
64 compare cervical cancer knowledge and screening rates between these two female groups.

65

66 **METHODS**

67 **Study Location and Setting**

68 The study was conducted in the Tamale metropolis which is one of the 26 districts in the Northern
69 region of Ghana. The metropolis has a total estimated land size of 646.90 km² [9], comprising
70 115 communities. The population of the metropolis is estimated at 233,252 (males/females =
71 49.7%/50.3%), representing 9.4% of the population of the Northern region (Population and
72 Housing Census, 2010). The proportion of the population living in urban localities (80.8%) is
73 higher than that living in rural localities (19.1%) of the metropolis. The population of the
74 metropolis is youthful, with almost 36.4% of the population reportedly below 15 years [9].

75 Participants were drawn from one randomly selected senior high school (Ghana Senior High
76 School), one randomly selected tertiary education institution (Tamale College of Education), and
77 one randomly selected community (Dungu community) within the Tamale metropolis.

78

79 **Study Design**

80 The study was a cross-sectional survey that recruited two categories of females: those in school
81 (at senior high and tertiary levels) and those who have had no formal education.

82

83 **Target population and Sample size**

84 The study targeted only females within the age range of 15-49 years, who were in senior high and
85 tertiary schools, and those who did not have formal education. The required sample size was
86 determined using the formula for sample size in sampling for proportions [10] with the following
87 assumptions: 95% confidence level, 5% margin of error, 26.5% cervical cancer prevalence rate in
88 Ghana [11], and a corresponding undiagnosed rate of 73.5%. Thus, an estimated 300
89 participants were recruited into the study.

90 **Inclusion/Exclusion criteria**

91 Only women aged between 15 and 49 years who were either resident in the Dungu community or
92 were schooling at either the Ghana Secondary School or Tamale College of Education were
93 recruited. Furthermore, only those who consented and were willing to participate in the study
94 were included. Any other person who did not satisfy any of these criteria was excluded from the
95 study.

96 **Sampling procedure**

97 By the simple random sampling method, 300 participants were selected from the Tamale
98 metropolis. The total sample size was stratified into three sub-groups of 100 participants: girls in a

99 senior high school, young adult women in a tertiary education institution, and uneducated women
100 in a community

101 **Data collection technique**

102 Guided interviews were conducted by using a semi-structured questionnaire that contained both
103 closed and open-ended questions. The questionnaire was initially pre-tested and refined to
104 enhance accuracy and completeness of data collected. All questions contained in the
105 questionnaire have been presented in various Tables, under the respective results subsections,
106 with the frequency of responses to each question.

107 The questionnaire was used to gather information in three thematic areas: knowledge about
108 cervical cancer, perception about cervical cancer and screening, and practice of cervical cancer
109 screening. Knowledge about cervical cancer was assessed based on respondents' general
110 awareness about the condition (6 questions), its risk factors (7 questions) and screening practices
111 (5 questions). Therefore, an 18-item question list was used to assess participants' level of
112 knowledge about cervical cancer. Participants who correctly answered 15-18 questions were
113 regarded as having "adequate" knowledge about cervical cancer; those who scored less than 15
114 were considered to have "limited/poor" knowledge about cervical cancer.

115 **Data analysis and presentation**

116 Data analysis was conducted using the Statistical Package for the Social Sciences, SPSS
117 software (version 20, IBM Corp., USA). Data were analysed by descriptive statistical methods,
118 and presented in frequency/percentage distribution Tables and charts. Associations were
119 explored using Chi-squared cross-tabulation. Significance level was set at $p < 0.05$.

120 **Ethical considerations**

121 An Introductory Letter was obtained from the Head of the Department of Nursing which was
122 submitted to the Heads of the two selected educational institutions, for permission to be granted
123 to engage their students in the study. The assembly member for the Dungu community was also

124 contacted for permission to conduct the study in the community. Each participant gave informed
125 verbal or written consent, as appropriate, and had the choice to opt out of the study if they wanted
126 to do so at any time during the study. Participants were assured of confidentiality and anonymity
127 throughout the study.

128

129 RESULTS

130 Socio-demographic characteristics of respondents

131 A total of 200 female students and 100 non - educated females were included in the study with
132 response rate of 96.8%. Among the total participants (300), 184(61.3%) were between 15-24
133 years followed by 69(23.0%) between 25 – 34 years. More than half of the respondents were
134 single 189(63.0%) in terms of marital status and 183(61.0%) were Dagombas in ethnicity.
135 Regarding religion, two-thirds of the respondents 202(67.3%) were Muslims followed by
136 Christians 84(28.0%).

137 Table 1 shows the frequency distributions of the study participants by various socio-demographic
138 characteristics.

139

140 **Table 1: Socio-demographic characteristics of the study participants**

Variable	Categories	Frequency	Percentage
Age (<i>in years</i>)	15-24	184	61.3
	25-34	69	23.0
	35-44	24	8.0
	45-49	23	7.7
Marital status	Married	91	30.3
	Not married	189	63.0
	Divorced	9	3.0
	Separated	11	3.7
Occupation*	Student	200	66.7
	Unemployed	11	3.7
	Trading	46	15.3
	Farming	17	5.7

	Hairdressing	20	6.6
	Dressmaking	6	2.0
Religion	Islam	202	67.3
	Christianity	84	28.0
	African Traditional	13	4.3

141 *The “Student” category comprised of those in senior secondary and tertiary schools; all other
 142 employment categories did not have formal education

143

144 **Knowledge about cervical cancer**

145 Background knowledge of the respondents about cervical cancer was assessed; the
 146 frequency of their responses is shown in Table 2.

147 **Table 2: Assessment of the knowledge of respondents about cervical cancer**

<i>Question item</i>	<i>Answer category</i>	<i>Frequency</i>	<i>Percentage</i>
Have you ever heard about cervical cancer?	Yes	184	61.3
	No	118	38.7
Source of information about cervical cancer	School	61	33.1
	Mass media	55	29.9
	Hospital	38	20.6
	Relative/Friends	15	8.2
	Social media	15	8.2
Main cause of cervical cancer	Human immunodeficiency virus	37	12.3
	Hepatitis B virus	25	8.3
	Human papilloma virus	114	38.0
	I don't know	123	41.0
Cervical cancer is sexually transmitted	Yes	118	39.3
	No	72	24.0
	I don't know	110	36.7
Body part affected by cervical cancer	Cervix	114	38.0
	Vagina	93	31.0
	Breast	30	10.0
	Neck	3	1.0
	I don't know	60	20.0
Is cervical cancer curable?	Yes	153	51.0

No	38	12.7
I don't know	109	36.3

148

149 **Knowledge about the risk factors of cervical cancer**

150 Following the general knowledge assessment about cervical cancer, specific questions about its
 151 risk factors were asked. The frequency distributions of the responses to the respective questions
 152 are indicated in Table 3.

153 **Table 3: Assessment of respondents' knowledge about cervical cancer risk factors**

<i>Question item</i>	<i>Answer category</i>	<i>Frequency</i>	<i>Percentage</i>
Sexually transmitted infection (HPV)	True	134	44.7
	False	26	8.7
	I don't know	140	46.7
Early onset of sexual intercourse	True	119	39.7
	False	42	14.0
	I don't know	139	46.3
Smoking	True	79	26.3
	False	66	22.0
	I don't know	155	51.7
A weak immune system	True	89	29.7
	False	61	20.3
	I don't know	150	50.0
Multiple sexual partners	True	152	50.7
	False	31	10.3
	I don't know	117	39.0
Poor diet (low fruits/vegetables)	True	48	16.0
	False	87	29.0
	I don't know	165	55.0
Wearing nylon panties	True	83	27.7
	False	62	20.7
	I don't know	154	51.3

154

155 **Knowledge about cervical cancer screening.**

156 In assessing participants' knowledge about cervical cancer screening, they were
 157 presented with five questions that required answers in various categories (Table 4).

158 **Table 4: Respondents' knowledge about cervical cancer screening**

<i>Question item</i>	<i>Answer category</i>	<i>Frequency</i>	<i>Percentage</i>
Have you heard about cervical cancer screening?	Yes	111	37.0
	No	189	63.0
Are there any cervical cancer screening programmes in Ghana?	Yes	78	26.0
	No	62	20.7
	I don't know	160	53.3
At what age should women be first screened for cervical cancer?	Adolescent (12-19 years)	50	64.0
	Young women (20-50 years)	25	32.0
	Old women (60 years and over)	3	6.3
Is cervical cancer screening important, and is it a preventable condition?	Yes	220	73.3
	No	11	3.7
	I don't know	69	23.3
Who should be screened for cervical cancer?	Married women	56	18.7
	Any female	194	64.6
	Unmarried women	50	16.7

159

160 Based on frequencies of responses gathered from the participants about their levels of
 161 knowledge about cervical cancer (Tables 2-4), 184 (61.3%) of them had 'adequate' and 116
 162 (38.7%) of them had 'limited' knowledge about cervical cancer.

163

164

165

166 **Association between education and knowledge about cervical cancer**

167 Associations were explored by Chi-squared cross-tabulation to find out if being in school, and if in
168 school, whether the level of respondents' education had a link with their knowledge about cervical
169 cancer. Table 5 shows the proportions of respondents in the respective categories of level of
170 education and their knowledge about cervical cancer.

171 **Table 5: Proportion of respondents who are knowledgeable about cervical cancer**
172 **according to their levels of education**

Level of education	Adequate	Limited	Total
No education	36	64	100
Senior high school	67	33	100
Tertiary education	81	19	100
Total count (%)	184 (61.3)	116 (38.7)	300 (100.0)

173

174 Knowledge about cervical cancer was associated with a respondent being a student ($p < 0.01$)
175 and with their level of education ($p = 0.02$), if they were schooling. The results thus indicate that
176 education could be a necessary factor in the knowledge about cervical cancer.

177 **Perception about cervical cancer and its screening**

178 Respondents answered a 10-item question list regarding their perceptions about cervical cancer
179 and its screening. They indicated their levels of agreement with statements that focused on
180 perceptions about cervical cancer. Table 6 shows the frequencies of the responses indicating the
181 various levels of agreements with each of the ten statements in the questionnaire.

182 **Table 6: Respondents' perceptions about cervical cancer**

Question item	Strongly agree	Agree	Disagree	Strongly disagree
Early detection is good for favorable treatment outcomes	123	94	65	18
Cervical cancer can lead to death	78	54	82	86
Cervical cancer is a serious health condition	123	112	46	19

Cervical cancer is one of the common cancers in women	120	79	82	9
Cervical cancer is a burden on society	189	87	19	5
I prefer a woman to conduct my screening test	190	78	9	23
I feel shy going for cervical cancer screening	117	88	72	23
Cervical cancer screening should be part of the routine medical examination for women	126	114	55	5
I will feel secured after cervical cancer screening	142	97	46	15
Unmarried women who go for cervical cancer screening may be considered promiscuous	117	89	30	64

183

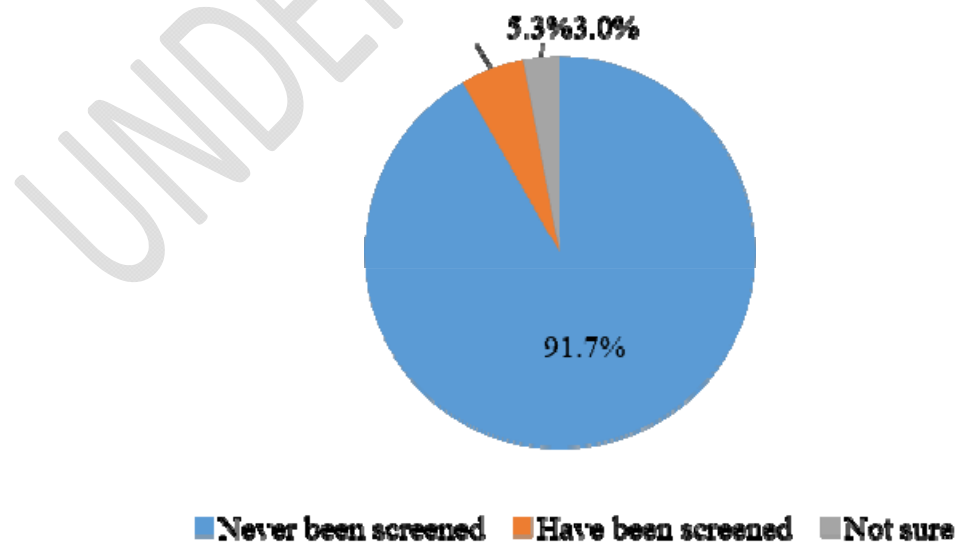
184 **Practice of cervical cancer screening and barriers to screening**

185 When asked about whether respondents have been screened for cervical cancer before, majority
 186 of them (91.7%) indicated that they have never been screened before while only 5.3% of them
 187 have been screened before (Figure 1).

188 Among the barriers that did not allow most of the respondents to screen for cervical cancer,
 189 inadequate or lack of information about cervical cancer was the most common barrier (Figure 2).

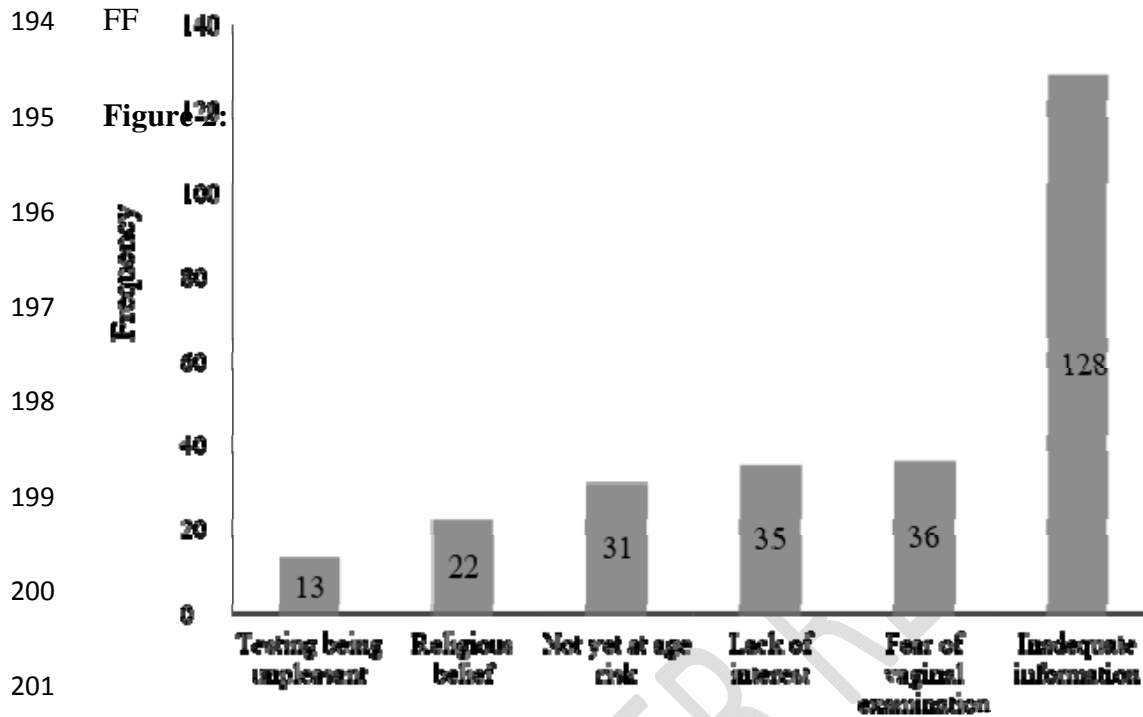
190 Only a few of the respondents did not screen due to the unpleasant nature of the test.

191 **Figure 1: Proportion of respondents who have been screened for cervical cancer**



192

193 **Figure 2: Barriers to the practice of cervical cancer screening**



203 **DISCUSSION**

204 The average annual incidence of cervical carcinoma from an institution-based study conducted at
205 the Korle-Bu Teaching Hospital in Accra-Ghana is reported to range between 70.0% and 75.0%
206 [4]. This is high and may be attributed to the low level of awareness of the disease among
207 Ghanaian women prior to the study by [4]. There is however an indication that current
208 sensitization programmes are yielding results; this might have accounted for the considerable
209 number of women (61.3%) in this study being much aware about cervical cancer. This compares
210 with an average awareness rate reported by [12] in Bolgatanga-Ghana.

211 This study observed a significant association between being a student ($p < 0.01$) at a particular
212 level ($p = 0.02$) and knowledge about cervical cancer. The study involved 200 students, and so
213 the proportion of those among the students who had adequate knowledge about cervical cancer
214 (most likely from school (33.1%)) could have also resulted in the high awareness rate observed in

215 this study. In another study conducted in Elmina-Ghana [13], very few sexually active women
216 were reported to have been aware about cervical cancer. Indeed, even though most women in
217 this study indicated awareness about cervical cancer, only 19.3% of them could correctly answer
218 up to half of the questions about background knowledge about cervical cancer in Table 2. The
219 indication of school (33.1%) and mass media (29.9%) as the major sources of information about
220 cervical cancer shows that strategies to disseminate educational information about cervical
221 cancer should be directed at these avenues.

222 It has been reported [14] that 70% of all cases of cervical cancer are linked to the human
223 papilloma virus (HPV). However, about 41.0% of the participants in this study had no idea about
224 the cause of cervical cancer (Table 2), even though most (73.3%) of them knew that it was a
225 preventable disease (Table 4). Efforts at awareness creation about the disease should therefore
226 include information about the main cause(s) of cervical cancer.

227 The risk factors of cervical cancer according to [15] include HPV infections, smoking,
228 immunosuppression, diet low in fruits and vegetables, being overweight, long-term use of oral
229 contraceptives, intrauterine device use, having multiple full term pregnancies, younger than 17
230 years at first full term pregnancy, and having a family history of cervical cancer. In this study, the
231 respondents were assessed on their awareness about the risk factors for cervical cancer (Table
232 3). Having multiple sexual partners was the major risk factor reported for cervical cancer by
233 50.7% of the respondents in this study, followed by HPV infection (44.7%), and the least identified
234 risk factor was diet poor in fruits and vegetables (16.0%). Indeed, HPV infection, multiple sexual
235 partners, early sexual initiation, and smoking have been cited elsewhere [16] as major risk factors
236 for cervical cancer. Among health workers in Winneba-Ghana, it was found that this group of
237 women had adequate knowledge about the risk factors of cervical cancer [5], and it was therefore
238 not surprising that the participants in that study did well on this same question than those in the
239 current study. However, the findings of this study regarding the question about risk factors were
240 similar to those among women of reproductive age in Bolga-Ghana [12] and sexually active

241 women in Elmina-Ghana [13] who were not health workers in both studies and therefore could not
242 have been adequately informed about cervical cancer.

243 Cervical cancer is readily preventable when effective programs are implemented to detect and
244 treat its precursor lesions [17]. However, cervical cancer prevention appears not to be commonly
245 promoted in Ghana. In assessing the knowledge of respondents (Table 4) on availability of
246 screening programmes in Ghana and where they are located, most of them did not know if one
247 can be screened for cervical cancer (63.0%), and about the availability of screening programmes
248 in Ghana (53.3%). Most of them (73.3%) however believed that screening for cervical cancer was
249 necessary in order to know about one's status. These perceptions about cervical cancer
250 screening among the respondents of this study compare with those reported by [18] among
251 sexually active women in India. In contrast to our finding, [19] reported a generally high
252 awareness rate (88.4%) about cervical cancer screening among nursing staff in a tertiary health
253 institution in India. Clearly, the respondents in the study by [19] were more exposed to information
254 about cervical cancer than our respondents and those of [18].

255 A very well informed individual about cervical cancer is more likely to hold an informed perception
256 about it, including accepting screening. It was therefore not surprising that our study found a
257 significant association between education and knowledge about cervical cancer, adding to a
258 61.3% cervical cancer knowledge rate among the respondents in this study. This could have
259 contributed to the 41% and 63.3% of them having the perceptions that early detection could be
260 beneficial and that colleague women are the preferred choice for screening them, respectively
261 (Table 6). Generally, their perceptions about cervical cancer were indicative of the need to widen
262 the scope of sensitization programmes in the study area beyond schools, since the results show
263 that educational programmes about cervical cancer in schools are already yielding positive
264 results.

265 Cervical cancer screening is an effective method for reducing the incidence and mortality of
266 cervical cancer. In this study, a significantly high number (91.7%) of the women indicated that
267 they had never undergone cervical cancer screening (Figure 1), citing lack of adequate

268 information (46.6%) as the reason for their inability to get to know about cervical cancer and the
269 need to screen for it (Figure 2). Previous studies have indicated that the main barriers to
270 participation in cervical cancer screening include a lack of knowledge and awareness of cervical
271 cancer screening, its benefits, shortage of staff, equipment and supplies, the fear of pain and
272 being diagnosed with cervical cancer, embarrassment, the lack of husband's support for
273 screening and cultural [20],[21].Our finding is in agreement with this assertion. We therefore
274 recommend a well-structured programme that should have components of education, screening,
275 management and treatment of cervical cancer in various communities, health facilities, and
276 schools in order to allow for all categories of women to access such services.

277 It is important to state that this study had a few limitations, which we wish to acknowledge. The
278 questionnaire used for data collection was not a standardized tool to assess knowledge about
279 cervical cancer. In addition to this, some of the questions were rather detailed for a respondent of
280 no clinical background to answer, even though public sensitization programmes about cervical
281 cancer could provide information on some of them. Finally, there is no established cervical cancer
282 prevalence rate for the Tamale metropolis currently. We therefore used a reported range for the
283 whole country, assuming an average appropriate for a regional-based rate in order to estimate
284 the sample size for the study.

285 **CONCLUSION**

286 This study observed a trend towards increasing levels of knowledge about cervical cancer among
287 sexually active women, particularly among those in school. Despite their high knowledge about
288 cervical cancer and acceptance that screening is necessary, only 1 in 20 women in this study
289 have been screened before. Therefore, current sensitization programmes should go beyond
290 providing only information and focus on screening on planned schedules and venues within the
291 Tamale metropolis.

292

293

294 **REFERENCES**

- 295 1. World Health Organization, WHO. (2013). WHO guidance note: comprehensive cervical cancer
296 prevention and control; a healthier future for girls and women
- 297 2. Ferlay, J. B. (2015). Cancer incidence, mortality and prevalence worldwide. *IARC Cancer Base*
298 *No. 5*. Lyon: IARC Press.
- 299 3. Bray, F. J. (2012). Global cancer transitions according to the Human Development Index
300 (2008-2030): A population-based study. *The Lancet Oncology*, *13*, 790-801.
- 301 4. Der, E.M, Adu-Bonsaffoh, K., Tettey, Y., Kwame-Aryee, R.A., Seffah, J.D., Alidu, H., Gyasi,
302 R.K. (2014). Clinical-pathological characteristics of cervical cancer in Ghanaian women.
303 *Journal of Medical and Biomedical Sciences*, *3*(3): 27-32.
- 304 5. Klokou, C.A. (2015). Awareness and prevention of cervical cancer among female health
305 professionals: A study of three health institutions in Winneba, Ghana. *Doctoral*
306 *dissertation, Kwame Nkrumah University of Science and Technology, Ghana.*
- 307 6. Singh, S. & Badaya, S. (2012). Factors influencing uptake of cervical cancer screening among
308 women in India: A hospital-based pilot study. *Journal of Community Medicine & Health*
309 *Education*, *2*(157), 2161-0711.
- 310 7. Rachet, B., Ellis, I., Maringe, C., Chu, T., & Coleman, M.P. (2010). Socioeconomic inequalities
311 in cancer survival in England after the NHS cancer plan. *British Journal of Cancer*,
312 *103*(4), 446-453.
- 313 8. Anorlu, R. I. (2008). Cervical cancer: the sub-Saharan African perspective. *Reproductive*
314 *Health Matters*, *16*(32):41-9.
- 315 9. Ghana Statistical Service (2010). Population Census. GSS. Accra.
- 316 10. Cochran, W. (1977). Sampling Techniques, 3rd Edition, New York: *John Wiley & Sons*, 75-76.
- 317 11. Awua, A. K., Sackey, S. T., Osei, Y. D., Asmah, R. H., & Wiredu, E. K. (2016). Prevalence of
318 human papillomavirus genotypes among women with cervical cancer in Ghana.
319 *Infectious Agents and Cancer*, *11*(1), 4-12
- 320 12. Ziba, F.A., Baffoe, P., Dapare, P.M., Shittu, S.O, Antuamwine, B.B. (2015). Awareness and

- 321 knowledge level of cervical cancer among women of reproductive age in Bolgatanga
322 Municipality. *Journal of Medical and Biomedical Sciences*, 4(2): 1-6.
- 323 13. Ebu, N.I., Mupepi, S.C., Siekwa, M.P, Sampselle, C.M. (2015). Knowledge, practice and
324 barrier towards cervical cancer screening in Elmina, Southern Ghana. *International*
325 *Journal of Women's Health*, 31-39.
- 326 14. Bruni, L., Albero, G., Aldea, M., Serrano, B., Valencia, S., Brotons. M., Mena, M., Cosano, R.,
327 Munoz, J., Bosch, F.X., de Sanjose, S., Castellsague, X. (2016). *Human papillomavirus*
328 *and related diseases in Peru: summary report 2015-12-23*. Retrieved from ICO
329 Information Centre on HPV and Cancer (HPV Information Centre):
330 <http://www.who.int/hpvcentre>; last assessed 13/01/2019
- 331 15. American Cancer Society (2011). Cancer Facts & Figures. *American Cancer Society, Atlanta*.
- 332 16. Tadesse, A. (2014). Knowledge, attitude and practice towards screening for cervical cancer
333 among Adama University female students, Addis Ababa, Ethiopia. *Ethiopian Journal of*
334 *Reproductive Health*, 2, 14-17.
- 335 17. Sherris, J., Agurto, I., Arrossi, S., Dzuba, I., Gaffikin, L. (2005). Advocating for cervical cancer
336 prevention. *International Journal of Gynaecology and Obstetrics*, 89(supp2): 46-54.
- 337 18. Siddharthar J, Rajkumar B, Deivasigamani K. (2014). Knowledge, awareness and
338 prevention of cervical cancer among women attending a tertiary care. Hospital in
339 Puducherry, India. *Journal of Clinical and Diagnostic. Research*, 8(6): Oco 1-3.
- 340 19. Shah, V., Vyas, S., & Shrivastava, M. (2012). Awareness and knowledge of cervical cancer
341 and its prevention among the nursing staff of a tertiary health institute in Ahmedabad,
342 Gujarat, India. *Ecancermedicalscience*, 6: 270.
- 343 20. Fort, V.K., Makin, M.S., Siegler, A.J., Ault, K. & Rochat, R. (2011). Barriers to cervical
344 Cancer screening in Mulanje, Malawi: A qualitative study. *Patient Prefer. Adherence*, 5,
345 125–131.
- 346 21. Williams, M.; Kuffour, G.; Ekuadzi, E.; Yeboah, M.; EIDuah, M.; Tuffour, P. (2013).
347 Assessment of psychological barriers to cervical cancer screening among women in
348 Kumasi, Ghana using a mixed methods approach. *Afr. Health Sci.* 13, 1054–1061.
349

350

351 **UNIVERSITY FOR DEVELOPMENT STUDIES**
352 **SCHOOL OF ALLIED HEALTH SCIENCES**
353 **DEPARTMENT OF NURSING**

354

355

QUESTIONNAIRE

356

INTRODUCTION

357

358

359

360

361

362

363

We are BSc. Nursing students from the school of Allied Health Sciences, University for Development Studies. We are conducting a study on **knowledge about cervical cancer and screening practices among women in the Tamale Metropolis of Northern Ghana: A comparative study between female students and women without formal education**, in partial fulfillment of the award of the BSc Nursing degree. We would like to seek your views on the above topic through this questionnaire. We would therefore be glad if you could complete the questionnaire for us.

364

365

366

367

We assure you of confidentiality and that the information you may provide would be used only for academic purposes, and would not be made available to any third party. To ensure absolute anonymity, please do not indicate your name on any part of the questionnaire.

368

Thank you.

369

GENERAL INSTRUCTION ON COMPLETING THIS QUESTIONNAIRE

370

371

Please where appropriate, tick your choice of answer from the options given, and write in the spaces provided if your answer is not stated in the given options.

372

SECTION A: SOCIO- DEMOGRAPHIC DATA

373

1. Age (years)

374

A). 15-24 [] B). 25 -34[] C). 35-44[] D). 45 – 49 []

375

- 376 2. Marital status
- 377 A. Married [] B. Single [] C. Divorced [] D. Married but separated []
- 378
- 379 3. Religion
- 380 A. Islam [] B. Christianity [] C. Traditional [] D. Other (specify).....
- 381 4. Educational level
- 382 A. Tertiary [] B. Secondary [] C. No Formal Education []
- 383 5. What is your employment status?
- 384 A. Farmer [] B. Trader [] C. Salary worker [] D. Student []
- 385 E. Unemployed [] F. Other (Specify)
- 386 6. How many children do you have?
- 387 A. 0 [] B. 1 [] C. 2 [] D. 3 [] E. 4 [] F. Other (Specify)
- 388

389 **SECTION B: KNOWLEDGE ABOUT CERVICAL CANCER.**

- 390 7. Have you ever heard of cervical Cancer? YES [] NO []
- 391 8. If yes, Where? a) Mass media [] b). School [] c). Hospital []
- 392 d). relatives and friends [] e). Other (Specify)
- 393
- 394 9. What is the causative organism of cervical cancer?
- 395 A. Human immunodeficiency virus (HIV)
- 396 B. Hepatitis B virus (HBV)
- 397 C. Human papilloma Virus (HPV)
- 398 D. Other (Specify)
- 399 10. Cervical cancer is a sexually transmitted infection. YES [] NO [] DON'T
- 400 KNOW []
- 401 11. Is it possible to cure Cervical cancer? YES [] NO [] DON'T
- 402 KNOW []

403 12. Cervical cancer affect theof a woman.

404 a) cervix b). neck c). beast d). vagina

405 13. Before today, have you ever heard of the Human Papilloma Virus (HPV)?

406 YES [] NO [] DON'T KNOW []

407 14. If you answered YES to question 13, we would now like to ask what you know about
408 the HPV. Please read each of the following statements about HPV and indicate whether
409 they are **TRUE** or **FALSE** by ticking the appropriate box. If you do not know the
410 answer, please tick "**DON'T KNOW**".

STATEMENT ABOUT THE HPV	TRUE	FALSE	DON'T KNOW
HPV can cause cervical cancer			
A person could have HPV for many years without knowing			
Having many sexual partners increases the risk of getting HPV			
HPV can be passed on during sexual intercourse			
HPV always has visible signs or symptoms			
Using condoms reduces the risk of getting HPV			
HPV can cause HIV/AIDS			
Having sex at an early age increases the risk of getting HPV			
H PV can be cured with antibiotics			
If a woman tests positive for HPV, she will definitely get cervical cancer			

411

412 15. What is/ are the signs and symptoms of cervical cancer? You can select more than
413 one.

414 A. persistent vaginal discharge with unpleasant smell []

415 B. persistent pelvic pain. []

433 19. If you answered YES to question 18, at what age should women be first screened for
434 cervical cancer in Ghana?

435 A. Adolescent (12 – 19 years) []

436 B. Young women (20 – 50 years) []

437 C. Old women (60 years and above) []

438 20. Who should get tested for cervical cancer?

439 A. Married woman [] B. Unmarried woman [] C. Any female []

440 21. Have you ever been screened of Cervical Cancer? YES [] NO [] DON'T
441 KNOW []

442 22. If you answered **YES** to question 21 how often do you go for screening?

443 A. every month B. every year C. every three years D. other

444 (specify).....

445 23. If you answered **NO** to question 21, what is/ are reason(s) for not going for
446 screening?

447 A. religious belief. []

448 B. fear of vaginal examination []

449 C. lack of interest []

450 D. test being unpleasant []

451 E. not yet been of age at risk []

452 F. other (specify)

453

454 24. Is there anything you can think of that might put you off going to the doctor if you
455 had a symptom you thought might be a sign of cervical cancer? If **YES**, please state what
456 these are.

457

458 ...

- 459 25. How much do you agree or disagree that early detection of cervical cancer is good for
460 treatment outcome?
- 461 A. Strongly agree B. Agree C. Neither agree nor disagree D. Disagree E. Strongly
462 disagree
- 463 26. Is cervical screening important? YES [] NO [] DON'T KNOW [
464]
- 465 27. Why is cervical cancer screening important? You can select more than one.
- 466 A. It helps you to know whether you are infected or not []
467 B. To help in early detection and treatment []
468 C. To protect women from the danger of the disease []
469 D. To avoid Sexually Transmitted Diseases []
470 E. To prevent the disease from spreading. []
471 F. Other (specify)
- 472
- 473 28. Are you aware of any vaccine for cervical cancer? YES [] NO [] DON'T
474 KNOW []
- 475 29. If **YES**, at what minimum age range is it given? A. 9 – 13yrs B. 20 – 29 yrs C.
476 Don't know.
- 477 30. What is the duration of the vaccination?
- 478 A. 3 shots over 6 months B. 5 shots in a month C. Take the shot at once
- 479 31. Are you vaccinated against cervical cancer? YES [] NO []
- 480 32. Someone who has been vaccinated cannot develop cervical cancer.
- 481 YES [] NO [] DON'T KNOW []
- 482 33. The HPV vaccines offer protection against all sexually transmitted infections.
- 483 YES [] NO [] DON'T KNOW []

484 34. Is Cervical cancer preventable? YES [] NO [] DON'T KNOW []

485 35. If **YES** what are some of the practices that prevent cervical cancer? Select more than
486 one, if applicable.

487 A. Abstinence. []

488 B. Condom use. []

489 C. Single sexual partner. []

490 D. Having regular Pap smear / screening. []

491 E. Having HPV vaccine. []

492 F. Other (specify)

493

UNDER PEER REVIEW