Knowledge, Risk Factors And Perception Regarding Cervical Cancer Among Female Senior Secondary School Students In Minna, North Central Zone, Nigeria

[*]Bilkisu Sulaiman[1]RN, RM, BSc (Ed), MEd,Frank Carew[1]MSc, PhD,
Chindo Ibrahim Bisallah[2]MBBS, MPH, PhD

[1]*Department of Counselling psychology, faculty of Education, Ibrahim Badamasi Babangida University Lapai,*
[2]*Department of Medicine, Heart to Heart Clinic, General Hospital Minna*
Corresponding Author: Bilkisu Sulaiman

Abstract: *Cervical cancer is the second most common form of cancer in women in the developing World and is responsible for the largest cause of mortality in women accounting for 88% of deaths especially in low resource settings.The objective of the study was to determine the knowledge, risk factors and perception regarding cervical cancer among female senior secondary school students in Minna municipality. A cross sectional descriptive study was used. A questionnaire titled "knowledge, Risk factors and perception Regarding Cervical Cancer among female Senior Secondary School Students was administered to 420 female senior secondary school students using multi stage sampling techniques. The outcome variables were knowledge, risk factors and perception regarding cervical cancer.* Data collected wasanalysed using SPSS version 22. *Frequencies and proportion as well as chi-square were used to report the findings.The study results showed that level of awareness regarding cervical cancer was high (76.3%) but knowledge about the disease was low (17.4%). The study revealed that (60.1%) of the respondents identified infection with sexually transmitted germ/virus, (59.2%) marked multiple sexual partner, (52.4%) onset of sexual activity at young age, (59.1%) use of family planning pills, (52.4%) HIV Virus as risk factors of Cervical Cancer. The findings also indicate that (32.1%) of the respondents perceived that witchcraft can cause cervical cancer, (40.6%) thought that the disease can be inherited, (51.9%) perceived that it can be acquired through direct contact while (52.7%) are of the opinion that it can occur when one has sexual intercourse before marriage. It was recommended that regular sensitization campaigns regarding reproductive health and sexually transmitted diseases including cervical cancer be conducted in all the schools.*
Key words*: Knowledge, risk factors, perception, cervical cancer*

Date of Submission: 05-06-2019   Date of acceptance: 20-06-2019

I.   Introduction

Cervical cancer is the second most common form of cancer in women in the developing World and is responsible for the largest cause of mortality in women accounting for 88% of deaths especially in low resource settings (Interis, Anakwenze & Jolly, 2016).It is ranked as the commonest cancer among sub-Saharan African women. Unfortunately, it affects the younger age group as a result of early sexual activity, multiple sexual partners and history of sexually transmitted infections mostly linked with human papilloma virus (HPV) (World Health Organization [WHO], 2015).

Although preventable, cervical cancer remains the second most common cancer in Nigeria. It is estimated that 36.59 million women aged ≥15 years in Nigeria are at risk of developing the disease(Saad, Kabiru, Suleiman,&Rukaiya,2013).Situation analysis of a retrospective studies on the burden of cancer in the North central Nigeria revealed that out of 2242 cases of various cancers registered over a 10-year period, cancer of the cervix was the second commonest constituting 14.63% of all cases (Afolayan, Ibrahim, Saidu & Olaoye, 2012)

The tragic loss of lives due to this disease is preventable. This can be achieved through early vaccination of young girls between the ages of 9-16 years before becoming sexual active while cases can be detected early through cervical screening (Ehiemere, Maureen, & Robinson, 2015). It can also be administered to women who are yet to receive the vaccine up to the age of 26 years (Center for Disease Control [CDC], 2016).

Therisk of cervical cancer was found to be associated with HPV infection, early age at first sexual exposure, multiple sexual partners, interval between menarche and first sexual intercourse less than 6 months and smoking (Sitakan et.al, 2012). Furthermore, a study among university students revealed knowledge of risk

factors regarding the disease was low. Identified risk factors by participants included low level of hygiene, smoking, multiple sexual partners and herpes simplex virus co-infection (Piotr, Agata, & Olga, 2013).

Knowledge about cervical cancer in Nigeria is very poor. Generally, 97.7% of women in Nigeria have poor knowledge regarding cervical cancer. Only 2.3% can identify that a virus is the cause of cervical cancer and 4.1% identify cervical screening as a way of preventing the disease (Abiodun, Fatungase, Olu-Abiodun, Idowu, & Awosile, 2013).

The high burden of cervical cancer in developing countries like Nigeria is due to a high prevalence of Human Papilloma Virus (HPV) infection and the lack of effective cervical cancer screening programs. In cases where effective screening programs are available, poor knowledge and negative health seeking practices of the people led to underutilization of such services (Oyedunni & Opemipo, 2012).

This study is aimed at determining the knowledge, risk factors and perception of cervical cancer among secondary school's students based on health belief model. This target group ideally should have knowledge about this disease especially risk factors, vaccination and screening. This will enable them access preventive services against the disease especially vaccination before they become sexually active. Having knowledge of the availability of screening services will assist in preventing the occurrence of the disease in the future.

II. Research Methods

Setting and study population
Niger state is located in the North central geopolitical zone of Nigeria with a population of 3,950,249 people according to the 2006 national population commission census (NGSG, 2017).The projected population of Niger state for 2011 was 4,687,610(NBS, 2012).The study was conducted in Minna municipal area council,the state capital andheadquarter of Chanchaga Local government area from May to July 2018. The study population were senior secondary school students attending public schools within Minna Municipal area council.

Study Design and Sample size estimation
A cross-sectional descriptive study design was used .The sample size for this study was estimated using the formula, Sample size (n) = z² P (1-P)/d² (**Lemeshow, *et al*, 1990**).

Using proportion of students with knowledge of cervical cancer from a previous study of 53.9 % ((**Iliyasu et.al, 2010**)), n = 1.96² (0.539 x 0.4) = 3.846 x 0.248479 = 382 (0.05) ²0.0025

Taking into account of non-response rate, 10% of the sample size was added (38), giving a final sample size of **420** students.

Sampling technique
A multistage sampling method was adopted for the study. Stage one sampling of the schools that participated in the study from the total number of public schools. There were a total of 43 public schools in Minna. A total of 10 schools were randomly selected using the lottery method in which 43 pieces of papers containing names of the schools were placed in a bowl. Ten (10) schools were randomly selected.

Stage two sampling of classes in the selected schools. Three classes were randomly selected using the lottery method. Pieces of papers were placed in a bowl, three (3) classes were randomly selected in each school Stage three sampling of students in the selected classes using the class register. Similarly, pieces of papers were rolled into a bowl containing numbers of students on the register. Fourteen (14) students were randomly selected in each class.

Data collection
The questionnaire is an adapted version of a cross-sectional community survey in post-conflict Northern Uganda on knowledge and awareness of cervical cancer risk factors and symptoms from (Mwaka, Orach, Were, Lyratzopoulos, Wabinga, & Roland, 2015). The instrument has four sections. The knowledge and awareness section had nine questions, section on risk factors had five questions and the section on perception regarding cervical cancer had twelve questions. The questionnaire was used to collect information on specific items related to issues being investigated.

The questionnaire contains four sections A, B, C and D. Section A contains socio-demographic information of the students such as age, parent educational background, parent's occupation, sexual debut, religion, and tribe. Section B contains items on knowledge regarding cervical cancer. Sections C contain items on risk factors and Section D comprises of items on perception of cervical cancer. The scoring of the instrument

for B, C and D was based on Yes or No. Informed consent was obtained from the respondents and the schools authority before the administration of the questionnaires with the promise to keep all information confidential.

Data analysis

Data collected wasanalysed using SPSS version 22. Frequencies and proportion as well as chi-square were used to report the findings. The statistical analysis used for categorical variables such as educational level of parents, parent's occupation, religion and tribe included frequencies and proportion. Measures of association between knowledge scores, risk factors and perception scores with the different categories of socio-demographic variables were analysedusing the Chi square test.

III.   Results
Table 1. Socio-demographic characteristics associated with knowledge of the respondents

Variables	Knowledge of cervical cancer		Test statistics
	Good knowledge	Poor knowledge	
Age			
11 – 14	8	54	
15 – 18	57	259	$\chi^2 = 1.338$
19 – 22	7	28	P = 0.720
23 and above	0	1	
Fathers educational background			
Non-illiterate	4	19	$\chi^2 = 1.171$
Primary	5	23	p = 0.760
Secondary	16	97	
Tertiary	47	203	
Mothers educational background			
Non-illiterate	5	31	$\chi^2 = 2.446$
Primary	7	41	p = 0.485
Secondary	29	106	
Tertiary	31	164	
Fathers occupation			
Farmers	8	40	$\chi^2 = 0.742$
Civil servant	37	157	p = 0.690
business	27	145	
mothers occupation			
Farmers	4	22	$\chi^2 = 8.156$
Civil servant	14	76	p = 0.043
Business	31	185	
housewife	23	59	
Religion			
Islam	62	244	$\chi^2 = 7.105$
Christianity	10	96	p = 0.029
Traditional	6	6	
Tribe			
Hausa	14	59	$\chi^2 = 3.094$
Nupe	32	124	p = 0.377
Gwari	9	67	
others	17	92	

Table 1 indicates that mothers occupation ($\chi^2 = 8.156$, p = 0.043) and religion ($\chi^2 = 7.105$, p = 0.029) were associated with Knowledge of the respondents. However, age of the respondents ($\chi^2 = 1.338$, p = 0.720), fathers educational background ($\chi^2 = 1.171$, p = 0.760), mothers educational background ($\chi^2 = 2.466$, p = 0.485), father occupation ($\chi^2 = 0.742$, p = 0.690) and tribe ($\chi^2 = 3.094$, p = 0.377) showed no association with knowledge of the respondent regarding cervical cancer.

Table 2: shows the Level of awareness and source of information regarding cervical cancer

Ever heard of cervical cancer	Response	Percentage (%)
Yes	316	76.3
No	98	23.7
Source of information		
Newspaper or magazine	61	14.7
Television	118	28.5
Radio	32	7.7
Billboard	1	0.2
Brochure or posters	1	0.2
Health workers	35	8.5

Family, friends or colleagues	21	5.1
Religious leaders	5	1.2
Teachers	40	9.7
others	2	0.5

Table 2 above shows that the level of awareness regarding cervical cancer among respondents was 316 (76.3%). The main source of information were television 118 (28.5%), newspapers 61 (14.7%) and teachers 40 (9.7%).

Table 3. Knowledge of respondents regarding cervical cancer

Knowledge	Frequency(n)	Percentage (%)
Good knowledge	72	17.4
Poor knowledge	342	82.6
Total	414	100

Items	Yes (%)	No (%)
Cervical cancer is caused by Human Papilloma Virus	225 (54.3)	189(45.7)
Cervical cancer can be cured	184 (44.4)	230(55.6)
Commonest sign of cervical cancer is vaginal bleeding	218(52.7)	196(47.3)
Cervical cancer is preventable	192(46.4)	222(53.6)
Cervical cancer can be prevented through vaccination	176(42.6)	238(57.5)
Cervical cancer can be detected early through screening	171(41.3)	243(58.7)
Sexual intercourse can lead to cervical cancer	218(52.7)	196(47.3)

Table 3 indicates that 72 (17.4%) of respondents had good knowledge and 342 (82.6%) had poor knowledge regarding cervical cancer.Based on individual items,over half of the respondents had knowledge that cervical cancer is caused by a germ known as Human Papilloma Virus 225 (54.3%). Two hundred and thirty of the respondents (55.6%) do not know that cervical cancer can be cured, 218 (52.7%) of the respondents know that the commonest symptom of cervical cancer is vaginal bleeding. However 238 (53.5%) are not aware that the disease is preventable through the use of vaccination. The table also revealed that 218 (52.7%) believed sexual intercourse can lead to cervical cancer, with less than half 171 (41.3%) indicating that the disease can be detected early through screening.

Table 4. Risk factors that are associated with cervical cancer

Items	Yes (%)	No (%)
Infection with sexually transmitted germ/virus (HPV)	253(61.1)	161(38.9)
Multiple sexual partners	245(59.2)	169(40.8)
Onset of sexual activity at young age	244(59.1)	170(40.9)
Smoking cigarette / tobacco	196(47.3)	218(52.6)
Use of family planning pills or injections	217(52.4)	197(47.6)
Food that is low in fruits and vegetables	176(42.5)	238(57.5)
AIDS (HIV virus)	209(50.4)	205(49.6)
Poverty	115(27.8)	299(72.2)

Table 4 indicates that more than sixty percent, 253 (61.1%) of the respondents identified infection with sexually transmitted germ/virus (HPV) as a risk factor to cervical cancer. Similarly, more than half of the respondents marked multiple sexual partners 245 (59.2%), onset of sexual activity at young age 244 (59.1%), Use of family planning pills or injections 217 (52.4%) and AIDS (HIV virus) (50.4%) as risk factors to cervical cancer. A considerable proportion of the respondents indicated that food low in fruits and vegetables (42.5%) and poverty (115(27.8%) are risk factors to cervical carcinoma.

Table 5. Perception of respondents regarding cervical cancer

Items	Yes (%)	No (%)
Perceived susceptibility		
Cervical cancer can be caused by witchcraft	133(32.1)	281(67.9)
Cervical cancer can be caused by not washing private part especially after sexual intercourse	252(60.9)	162(39.1)
Cervical cancer can be inherited	168(40.6)	246(59.4)
Cervical cancer can occur when one has sexual intercourse before marriage	218(52.7)	196(47.3)
Cervical cancer can be acquired through direct contact with someone that has it	215(51.9)	199(48.1)
Cervical cancer is transmitted through sex.	247(59.7)	167(40.3)
Cervical cancer affects poor people	164(39.6)	250(60.4)
Perceived seriousness about cervical cancer		
Cervical cancer can lead to death	263(63.5)	151(36.5)
Cervical cancer cannot be treated	173(41.8)	241(58.2)
Cervical cancer can destroy the uterus	217(52.4)	197(47.6)
Cervical cancer can lead to massive loss of blood	191(46.1)	223(53.9)

Table 5 shows that no fewer than 133 (32.1%) of respondents perceived that witchcraft can cause cervical cancer, whereas 168 (40.6%) thought that the disease can be inherited. Over sixty percent 252 (60.9%) erroneously thought that cervical cancer can be caused by not washing the private part especially after sexual intercourse. Furthermore, 215 (51.9%) of respondents perceived that cervical cancer can be acquired through direct contact with someone that has it. A total of 218 (52.7%) of the respondents are of the opinion that cervical cancer can occur when one has sexual intercourse before marriage, whereas 247 (59.7%) believe it can be transmitted through sex and 250 (60.4%) disbelieved that the disease affect poor people. A significant proportion 263 (63.5%) of the respondents understood that cervical cancer is a serious disease that can lead todeath and as high as 241 (58.2%) incorrectly believedthat it cannot be treated. Over half, 217 (52.4%) of the respondents are of the opinion that the disease can destroy the uterus, with not less than 191 (46.1%) indicating that it can lead to massive blood loss.

IV. Discussion

In identifying socio-demographic factors that have influence on knowledge regarding cervical cancer, this study found that religion and mothers occupation were associated with the disease. This was based on analysis using Chi Square test which were significant for religion and mothers occupation as χ^2= 8.156, p = 0.043 and $\chi2$ = 7.105, p = 0.029 respectively. The findings of this study is contrary to that of Liu, Li, Ratcliffe & Chen (2017)on a study carried out to Assess Knowledge and Attitudes towards Cervical Cancer Screening among Rural Women in Eastern China which revealed that age of respondents was associated with knowledge regarding cervical cancer. In this study age of respondents was found not to be associated with knowledge of cervical cancer because the Chi square test was not statistically significant (χ^2 = 1.338, p = 0.720).

Raising awareness regarding cervical cancer and the level of knowledge and perception are key elements for adopting healthy behaviours. This will assist in improving the level of acceptance of newly introduced preventive measures for the disease. According to the WHO, the HPV accounts for 99% of cases of cervical cancer. The vaccine against HPV cervical cancer-related strains has been available in the market since 2006. However, most of the available information regarding the level of awareness and knowledge generally depict a picture of ignorance among the target population regarding cervical cancer and its prevention especially vaccination as attested by Ghadeer et al (2014). This study revealed a level of awareness of 76.3% consistent with the report of a study from Malaysia among secondary school students on knowledge of cervical cancer (80.4%). However, report of a study by Assoumou, Mabike, Mbiguino, Mustapha, Khattabi & Ennaji (2015) on knowledge of cervical cancer revealed a level of awareness of 91.6%. The low level of knowledge (17.4%) in this study compared to other studies showed that information regarding cervical cancer in secondary schools is limited. This finding is similar to the study conducted in Malaysia by **Rashwan, Ishak, & Sawalludin, (2013)** among secondary school students which revealed level of knowledge regarding the disease of 25.6%. Furthermore, investigation carried out by Magda et al (2012) in Saudi Arabia among young female students at science and Art College revealed knowledge level of 42%. This could be as a result of lack of sensitization campaigns to secondary schools, possibly limited discussion and interaction between parents and their children on sexually related issues including cervical cancer.

This study identified sexually transmitted germ/virus (HPV), multiple sexual partners, onset of sexual activity at young age, use of family planning pills or injections and AIDS (HIV virus) as risk factors to cervical cancer. This is in line with a study by Islam et al, (2016) on exploring perception on cervical cancer in Dhaka, Bangladesh which identified similar factors as risk factors to the disease. The finding of this study related to risk factors of cervical cancer was consistent with the investigation conducted by Neriman et al (2013) which discovered multiple sexual partners and having sexual intercourse before age of 16 years associated with the disease. However, findings of this study is in contrast to the research conducted by Jean et al (2015) among Rwandan women which reported risk factors to cervical cancer as being unmarried, older age at the first pregnancy and higher number of children. This disparity could be due to differences in study population. This study is also in agreement with the research conducted by Lokeshwari, et al (2016) which reported that oral contraceptives are a significant risk factor in the pathogenesis of cervical neoplasia. In another study by Wang et al (2017) reported that not washing the private part after sexual intercourse and low folate intake as risk factors to development of cervical cancer consistent with the finding of this study.

According to the Health Belief Model (HBM), the likelihood that an individual will take action to prevent or detect disease is determined by several factors. These factors include perceived susceptibility to the health condition, perceived severity of the health threat, perceived benefits of performing the health behaviour, and perceived costs and barriers of performing this behaviour. In this study respondents perceived that cervical cancer can be caused by witchcraft (32.1%), not washing the private part after sexual intercourse (60.9%), having sexual intercourse before marriage (52.7%), acquired by direct contact with someone that has it (51.9%) and transmitted through sex (59.7%). Majority of respondents perceived that cervical cancer can lead to death (63.5%) and that the disease can destroy the uterus (52.4%). This is in line with the report of Modibo et al

(2016) that investigated the barriers to cervical cancer screening among Nigerian women. Finding of the study revealed that witchcraft, multiple sexual partners and insertion of herbs into the vagina as perceived causes of cervical cancer. In a related research conducted by Rai, Pradhan, Mishra, Kumara, & Singh (2014) on health beliefs of women suffering from cancer revealed that 11 % of700 women attributed witchcraft as the cause of cervical cancer.

V.   Conclusion

The study concluded that there was high level of awareness regarding cervical cancer, but knowledge about the disease was low among female senior secondary school students in Minna. There was an association between mother's occupation and religion with the level of knowledge of students regarding cervical cancer.It is recommended that the school should utilize the services of school counsellors to create awareness on this disease through group and individual counselling, producing and distributing pamphlets, video shows and celebrating world cancer days. The schools should collaborate with Ministry of health, international development partners and non-governmental organizations involved in cancer awareness and sensitization activities.

References

[1].   Abiodun,A.Olatunde, I. Saidu, R. & Olatunde, O., (2012). Situation analysis of cancer magnitude in a tertiary health institution in Nigeria. Journal of life Science and Pharma Research, 2 (2) 107 - 114.

[2].   Abiodun, O.A. Fatungase O.K. Olu-Abiodun O.O. Idowu-Ajiboye, B.A., & Awosile, J.O. (2013), An assessment of women's awareness and knowledge about cervical cancer and screening and the barriers to cervical screening in Ogun State, Nigeria, Journal of Dental and Medical Sciences (IOSR-JDMS), 10, 3 (Sep.- Oct. 2013), PP 52-58

[3].   Ahmad. A.S. Sabitu, K. Idris, H.S. Ahmed, R. (2013). Knowledge, attitude and practice of cervical cancer screening among market women in Zaria, Nigeria. Nigerian medical journal, 54 (5) 316 - 319.

[4].   Assoumou, Z. S, Mabika, B. Mbiguino, N.A. Mustapha, M. Khattabi, A. & Ennaji, M.M. (2015). Awareness and knowledge regarding cervical cancer, Pap smear screening and Human Papilloma Virus infection in Gabonese women. BMC Women's Health, (2015) 15:37 DOI 10.1186/s12905-015-0193

[5].   Center for Disease Control (2016). HPV Vaccine Information For Young Women.https://www.cdc.gov/std/hpv/stdfact-hpv-vaccine-young-women.htm: Centre for disease prevention and control.

[6].   Ehiemere, I. Maureen D. F. & Robinson-Bassey G. C (2015). Attitude and practice of cervical cancer screening among female health workers in University of Port harcourt teaching hospital Rivers state. Journal of Research in Nursing and Midwifery (JRNM) (, Vol. 4(4) pp. 072-082,.

[7].   Ghadeer, K. A. Eman, M. A. Amel A. F. Farida H. K. Sadiqa, B. S. Tahani, N. A., &Hala, N. E. (2014). Knowledge of Saudi female university students regarding cervical cancer and acceptance of the human papilloma virus vaccine. Saudi Medical Journal., 35(10): 1223–1230.

[8].   Iliyasu, Z. Abubakar, I.S, Aliyu, M.H & Galadanci, H.S. (2010). Cervical cancer risk perception and predictors of human papilloma virus vaccine acceptance among female university students in northern Nigeria. Journal of Obstetrics and Gynaecology, volume 10 issue 8.

[9].   Interis, C.E. Anakwenze, P.C. & Jolly, E.P. (2016). Increasing Cervical Cancer Awareness and Screening in Jamaica: effectiveness of a theory based intervention. Int. J. Environ. Res. Public Health 2016, 13, 53; doi:10.3390/ijerph1301005, 13, 53; doi:10.3390/ijerph13010053.

[10].   Islam, N.T. Lofters, A. Nessa, I. A. Vahabi, M. Ginsburg, O. & Ishaque,T. (2016), Expolring ancperceptions of cervical cancer in Dhaka, Bangladesh, Annals of Oncology (2016) 27(suppl 9) ix94-ix103. 10.1093/mdw585

[11].   Jean, D. M. Sabin, N. Marie, A. M. Lydia E. P. Joseph, N. David J. R. (2015), Prevalence and risk factors for cervical cancer and pre-cancerous lesions in Rwanda, The Pan African Medical Journal.2015;22:26. doi:10.11604/pamj.2015.22.26.7116

[12].   Lemeshow, S. D. W. H. Klar, J. & Lwanga, S. K. (1990). Adequacy of sample size in health studies. John wiley & sons Ltd

[13].   Liu T, Li, S. Ratcliffe, J & Chen, G. (2017), Assessing Knowledge and Attitudes towards Cervical Cancer Screening among Rural Women in Eastern China. Int. J. Environ. Res. Public Health 2017, 14, 967;

[14].   Lokeshwari, J. Maheshwari, K. Sanjeev, K. K. Abhishek, S. Shewtank, G. Avijit, R. Jayaprakash, K. & Pooja, G. (2016), Self-perceived risk and barriers to cervical cancer screening among patients seeking care at a tertiary care teaching hospital in Tamil Nadu, Int. J Res Med Sci. 2016 Mar;4(3):766-769

[15].   Magda, M. M. B. Mona, M. M. E. Afnan, M. A. N. Kholood M. A. & Noura M. A. A (2012), Saudi Young Females' Level of Knowledge Regarding Cervical and Breast Cancer, International Journal of Nursing Science 2012; 2(5): 47-52doi: 10.5923/j.nursing.20120205.01

[16].   Modibo, I.F. Dareng, E. Bamisaye, P. Jedy-Agba, E. Ayodele, A. Oyeneyin, L. Olaniyan. O. & Adebamowo, C. (2016). Qualitative study of barriers to cervical cancer screening among Nigerian women. . BMJ Open 2016;6:e008533. doi:10.1136/bmjopen-2015-008533, 2-12

[17].   Mwaka, A.D. Orach, C.G. Were, E.M. Lyratzopoulos, G. Wabinga, H., & Roland, M., (2015), Awareness of cervical cancer risk factors and symptoms: cross-sectional community survey in post-conflict northern Uganda international journey of public health participation in health care and health policy, volume 19 (4) pages 854 – 867

[18].   National Bureau of Statistics [NBS] (2012). Annual Abstract of statistics 2012. Abuja: National Bureau of statistics.

[19].   Neriman, S. Birsen, K. S. Hafize, O. C. Aytül, H. Ozlem D. B. Ummahan Y. Yeliz C. K. Zehra B. A. Dogan D. Esin C. & Gülsün O. (2013), Assessment of Cervical Cancer Risk in Women between 15 and 49 Years of Age: Case of Izmir, Asian Pacific J Cancer Prev, 14 (3), 2119-2125

[20].   Niger State Government. (2017). About Niger state. Minna: ministry of science and technology Minna , Niger state.

[21].   Oyedunni. S. A. & Opemipo O. M. (2012). Perception and utilization of cervical cancer screening services among female nurses in University College Hospital, Ibadan, Nigeria. The Pan African Medical Journal, 11 69. doi:10.11604/pamj.2012.11.69.1580.

[22].   Piotr, L. Agata, H. L. & Olga, A.G. (2013) Knowledge of Cervical Cancer Risk Factors among Students at the Jan-Kochanowski University in Kielce. Studia medyczne. Retrieved from: https//www.com.inggentaconne.

[23]. Rai, A , Pradhan S , Mishra CP , Kumara A , Singh TB (2014) TB health beliefs of women suffering from cancer: a Hospital based study. Indian J. Prev. Soc. Med. Vol. 45 no. 1-2,

[24]. Rashwan, H. Ishak, I. Sawalludin, N. (2013). Knowledge and Views of Secondary School Students in Kuala Lumpur on Cervical Cancer and its Prevention, Asian Pacific J Cancer Prev, 14 (4), 2545-2549

[25]. Sitakan N. Wannapa S.I. Supat, S. Chamsai, P. Pissamai, Y. & Takafumi, I. (2012), Risk factors for cervical cancer in northeastern Thailand: Detailed analyses of sexual and smoking behavoir. Vol 13 2012, 5489.

[26]. Wang, Z. Wang, J. Fan, J. Zhao, W. Yang, X. Wu, L. Li, D. Ding, l. Wang, W. Xu, J. Stram, M. Zhao, C. & Hao, M. (2017). Risk factors for cervical intraepithelial neoplasia and cervical cancer in Chinese women: large study in Jiexiu, Shanxi Province, China. Journal of Cancer; 8(6):924-93

[27]. World Health Organization (2015). Prevention of Cervical Cancer. brazzaville congo: World Health Organisation Regional office for Africa.