

<https://doi.org/10.48047/AFJBS.6.13.2024.6111-6121>



African Journal of Biological Sciences

Journal homepage: <http://www.afjbs.com>



Research Paper

Open Access

## Examining the Demographics Status of Cervical Cancer at Jammu and Kashmir's Kishtwar Area: A Retrospective Study

Anshika Sharma<sup>1</sup>, Rashmi Gupta<sup>1</sup>, Ravi Kant Pareek<sup>2</sup>, Shivam Jasrotia<sup>1</sup>, Kulbir Singh<sup>3</sup>,  
Ankita Sharma<sup>4</sup>, Ajay Kumar<sup>6</sup>

<sup>1</sup>Department of Biosciences, Chandigarh University, Gharuan, Punjab, India- 140413.

<sup>2</sup>Department of Civil Engineering, Vivekananda global University, Jaipur-30201.

<sup>3</sup>Department of Civil Engineering, Maharishi Markandeshwar (Deemed to Be University), Mullana, Ambala, Haryana, India-133207.

<sup>4</sup>Baba Ghulam Shah Badshah University, Rajouri, College of Nursing, Kishtwar, India-185234.

<sup>6</sup>University Center for Research & Development (UCRD), Biotechnology Engineering & Food Technology, Chandigarh University, Gharuan, Mohali, Punjab, India-14013

Corresponding Author : [guptarashmimangla@gmail.com](mailto:guptarashmimangla@gmail.com)

Volume 6, Issue 13,2024

Received: 15 jun 2024

Accepted: 25 July 2024

Published: 15 August 2024

[doi:10.48047/AFJBS.6.13.2024.6111-6121](https://doi.org/10.48047/AFJBS.6.13.2024.6111-6121)

### Abstract

In the world the fourth most common affecting cancer is cervical cancer that creating the impact on women globally. Due to low screening rates and limited awareness, it is especially lethal in underdeveloped countries. Improving recovery rates and lowering the incidence of the disease depend on early detection by human papillomavirus (HPV)-based preventive measures include cytologic screening, ocular inspection with acetic acid, and HPV immunizations. The aim of this study to evaluate the effectiveness of a structured educational program on increasing cervical cancer awareness among women of reproductive age in Bandrena, Pochal, Kishtwar. Information from 80 students at a chosen school in Kishtwar were analyzed using analytical statistics such as t-test chi-squared analysis, and summary statistics including occurrence, ratio, average, median, degree of variation, and range. Statistical evaluation was carried out with SPSS software 25 at a level of significance p less than 0.05. The study evaluated the effectiveness of an organized educational initiative on cervical cancer awareness within women of reproductive age at Kishtwar. Results showed significant improvement in knowledge scores, with associations within prior-test knowledge scores and variables such as religion, residence, educational status, and family type.

**Key words:** Demographics, Cervical cancer, Human papillomavirus, Statistical analysis, Null Hypothesis

## Introduction

A person's physical, psychological, social, and economic values, interests, beliefs, and actions make up their lifestyle. Lifestyles can be found in groups or communities. It's the way they lead their lives. People worldwide lead diverse lifestyles, varying from active to sedentary or healthy to sick. A disease linked to a person's or a group's lifestyle. Atherosclerosis, heart disease, stroke, type 2 diabetes, obesity, and illnesses linked to drug misuse, alcohol use, and smoking are examples of lifestyle diseases. Cancer occurs when specific body cells grow uncontrollably and spread to other parts of the body. Since the human body consists of trillions of cells, cancer has potential to develop nearly any location. Normally, when body needs new cells, human somatic cells split, enlarge, and then split again.

This is known as cell division. When cells get old or injured, they expire or get replaced with new ones. Sometimes, this well-organized mechanism fails, resulting in uncontrolled growth and development of damaged or abnormal cells. Cells such as these have the potential to grow into tissue lumps known as tumors. Tumors may present as cancerous or non-cancerous. The cancer which impacts cells of cervix, and lower portion of uterine cavity which joins to vagina, called cervix carcinoma. A cancer of the cervical cavity is a virulent tumor that falls in two tissue-based categories: squamous cell carcinoma and adenocarcinoma (Torre *et al.*, 2015). SCC is more prevalent, occurring at a rate of 70% (Herrero, González, and Markowitz, 2015). SCC originates by the cells of squamous tissue covering an outside section of the cervical cavity which opens into the ectocervix, while adenocarcinoma originates via the gland cells lining the duct of cervical cavity, the endocervix. This transitional zone is the area comprising the thin, flat, squamous glandular cells; most tumors begin in this zone (Waggoner, 2003). The predominant cause of HPV infections, which are contracted through sexual contact, is a chronic infection that leads to cervical cancer (Golfetto *et al.*, 2018). Among women, particularly those under 35, 90-100% cases of this cancer is due to HPV (Bruni *et al.*, 2010). Depending on their correlation to precancer, benign and cancerous growth, the different Human papillomavirus varieties which are categorized as higher-risk or lower-risk (Kocjan *et al.*, 2015). The two most common subtypes of HPV, high-risk HPV16 and high-risk HPV18, that account 70% of occurrence of cervix cancer (Torre *et al.*, 2015; Golfetto *et al.*, 2018). Furthermore, previous study connected Human Papillomavirus 16 and 18 variants to aggressive cancers of penile tissue, vulva, and anus (Torre *et al.*, 2015; Ghebre *et al.*, 2017). Cervical cancer ranks fourth globally in terms of cancer diagnoses among females and is particularly prevalent in minimal and mid-range income nations including China, Brazil, India and South Africa (SA) (Ferlay *et*

*al.*, 2015; Swanson *et al.*, 2018; Idehen *et al.*, 2018). In 2018, there were 311,000 fatalities associated with cervical cancer and approximately 569,000 new instances of the disease recorded globally (Torre *et al.*, 2015; Ferlay *et al.*, 2015). Overall 84% emerging cases, 87% to 90% of all fatalities occur in LMICs (Ferlay *et al.*, 2015; Torre *et al.*, 2015). High socioeconomic level areas do, however, also have an elevated frequency of HPV infections and related cancers. It turned out that 80 million Americans were HPV positive in 2008 (Satterwhite *et al.*, 2013).

Thousands of women from LMICs lose their lives to cervical cancer before their time due to this disease, in contrast to those in developed nations (Herrero, González, and Markowitz, 2015; Say *et al.*, 2014). Cervical cancer frequency and fatality rates have been successfully decreased by main and secondary preventive strategies, namely vaccine and screening, respectively (Vaccarella *et al.*, 2013). Consequently, the goal of eradicating a particular cancer from the world is now achievable for the first time in history (World Health Organization, 2020). Studies employing data from Norway have demonstrated that enhancements in the field of cervical carcinoma screening campaigns, especially the move towards initial HPV based tests, are essential for expediting the eradication of cervical cancer (Portnoy *et al.*, 2021), Australia (Hall *et al.*, 2019), USA (Burger *et al.*, 2020), and Britain (Castanon *et al.*, 2019). Further inquiries regarding the eradication of cervical cancer include the following: when will elimination occur, and how will the secondary preventive techniques chosen by various nations affect this timeline? When cervical cancer is eradicated is predicted to vary greatly depending on national policy about cervical cancer prevention. Australia is expected to be on pace to eradicate cervical cancer by 2028 according to mathematical models (Hall *et al.*, 2019) and USA between 2038 and 2046 (Burger *et al.*, 2020), while it is improbable that many nations without screening programs in place will be rid of cervical tumor by the end of the century. Comprehending a disease's epidemiology in great detail and putting preventative measures into practice can close knowledge gaps.

It (cervix cancer), the 9<sup>th</sup> most prevalent tumor in Europe among females, it's the second leading reason of deaths related to cancer among females between group of ages 15 to 44 (Bruni *et al.*, 2021). Significant differences in cervical cancer mortality and incidence are present throughout Europe. Baltic countries among the European nations with elevated levels of cervical tumor incidence and fatalities (Wojtyla *et al.*, 2020; Arbyn *et al.*, 2020). Despite being entirely preventable, cervical cancer remained leading cause for cancer fatalities in 36 lower-middle income nations (LMICs). To address this issue, the WHO launched a global initiative in November 2020 to eradicate cervical tumor as a public health concern. WHO's

recommended approach involves a triple strategy: vaccinating at least 90% females against HPV age-wise 15, screening 70% women using high-efficiency test at age 35 and once more at age 45, treating not less than 90% early-stage lesions and advanced cancers. The global elimination goal is to achieve fewer than 4 confirmed cases per 1 lakh women on yearly basis (Shamsunder and Verma, 2024).

### **Methodology**

The data was collected during the month June in accordance with the ease of samples. From the relevant authorities, a formal permission letter was acquired. The samples were given information about the study's goal before their informed consent was taken. In order to gather data, a structured survey of knowledge is used to gauge women's awareness of cervical cancer. A lesson plan was prepared on knowledge about cervix cancer. Population comprises females residing in selected areas of Kishtwar and sample for this study were women's residing in chosen areas of Kishtwar. The sample size in this study was 80 women's and the technique for sampling used was method of purposive sampling. Study encompassed the females whom belong to reproductive age group and females those were interested to participate. The study excluded women's whom are illiterate and women's whom are previously restricted to similar study with in past 3 months. It includes demographic details including age, occupation, family structure, religion, and level of education. The investigator will collect the data by structured knowledge questionnaires regarding cervical cancer.

Statistics analysis: The gathered data was analysed using inferential as well as descriptive statistics. The investigator created a master data sheet in order to compute the data. The sociodemographic variables made up of items were described using descriptive analysis, which yielded results like mean, frequency, standard deviation, and percent distribution. To assess association between understandings and specific demographic factors, Chi square method was applied.

### **Results and Discussions**

Present investigation analyzed the data of 80 students chosen from school in Kishtwar to assess the efficacy of a systematic education program. It focused on cervix carcinoma understandings for women in reproductive age group range living in Bandrena, Pochal. This section addresses the examination and explanation of the demographic characteristics of research participants, including age, religion, family type, place of residence, education, married profile,

employment, as well as prior knowledge of cervix cancer which provides the background information of the research participants.

The investigation findings indicated that most participants were including 22-35 year age range (43.75%), followed by those in 15-21 year (31.25%), and 36-40 year age groups (25%) (Table 1). The majority of the study subjects were Muslims (62.5%), with the remaining 37.5% being Hindu population (fig 1). The population distribution on the basis of religion, residence, marital status and pre knowledge on cervical cancer are shown in figure 1(a-d).

**Table 1: Research volunteers' frequencies and percentages distribution as per age**

Age in years	Frequency	Percentage
15-21	25	31.25%
22-35	35	43.75%
36-40	20	25%
<b>Total</b>	<b>80</b>	<b>100%</b>

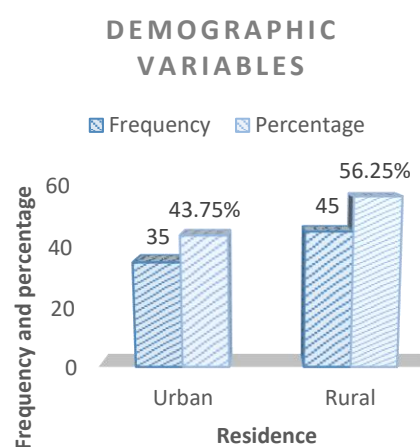
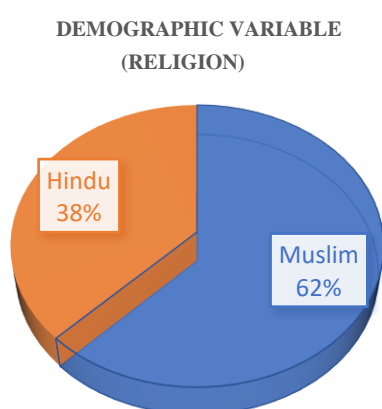


Figure 1(a): Percentage distribution of population as per religion

Figure 1(b): Percentage distribution of population as per residence

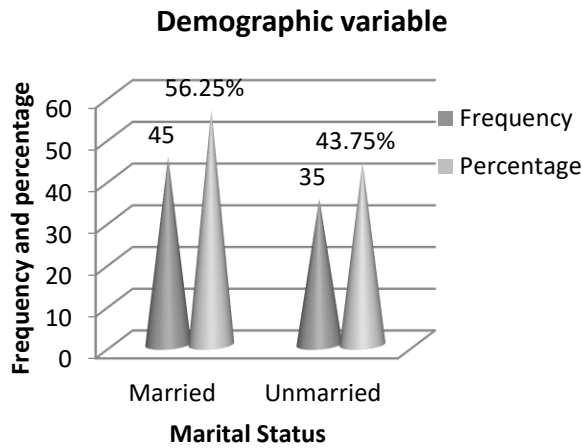


Figure 1(c): Percentage distribution of population as per residence marital status

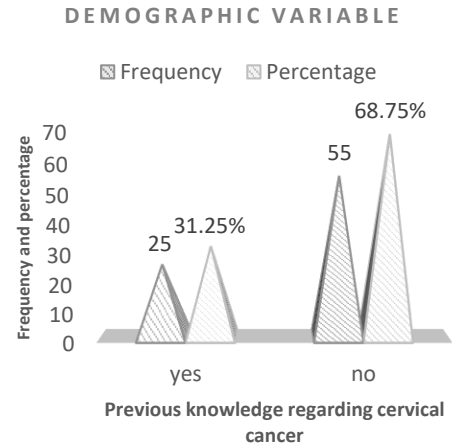


Figure 1(d): Percentage distribution of population on prior knowledge of cervical cancer

**Table 2: Distribution of population based on educational attainment**

Educational Status	frequency	Percentage
Elementary education	40	50%
Intermediate education	20	25%
Higher secondary education	10	12.5%
Graduate	10	12.5%
<b>Total</b>	<b>80</b>	<b>100%</b>

The collected data was evaluated using both inferential data analysis methods including t-test also chi square test and descriptive empirical data including proportion, average, median, frequency, standard deviation, and range). SPSS version 25 was used to verify all conclusions at significance level  $p$  less than 0.05. The research findings indicated a variation in the average knowledge scores between the pre-test ( $15.33 \pm 2.01$ ) and post-test ( $29 \pm 2.04$ ). This indicates that structured teaching has turned impactful in improving knowledge about cervix tumor within women of the reproductive age in selective areas of Kishtwar. This is rejecting the null hypothesis ( $H_{01}$ ) and accepting the research hypothesis ( $H_1$ ). The structured teaching showed a statistically significant effect on improving the knowledge ( $p = 0.000$ ), as illustrated in table 1. A substantial statistic correlation was recorded between the prior-test knowledge ratings of study participants along with religion ( $p = 0.03$ ), locals ( $p = 0.03$ ), educational ( $p = 0.01$ ), family ( $p = 0.02$ ). No such significant relationship was found in age ( $p = 0.9$ ), occupation ( $p = 0.8$ ), marital status ( $p = 0.2$ ), or prior knowledge regarding cervical cancer ( $p = 0.7$ ). Thus, the

null hypothesis ( $H_{02}$ : The pre-test knowledge scores of cervical cancer was not found significantly correlated with the chosen demographic characteristics), so it was not rejected for age, employment, marital status, and prior knowledge (Table 2).

**Table 3: Demographic Characteristics and Associations**

Demographic Characteristic	p-value
Religion	0.03
Residence	0.03
Education status	0.01
Type of family	0.02
Age	0.9
Occupation	0.8
Marital status	0.2
Prior knowledge	0.7

## Discussion

An assessment of the changes in knowledge scores about cervical malignancies among women of reproductive age living in Bandrena Pochal was conducted, comparing their understanding before and after the test. The collected data was evaluated using both inferential data analysis and descriptive statistics.

### *Age Distribution*

Study findings disclosed that most of research subjects belonging to age range 22-35 epochs (43.75%), preceded by the age range 15-21 epochs (31.25%) and 36-40 epochs (25%) which is consistent with research conducted by (Ferlay *et al.*, 2004). This age distribution aligns with findings from similar studies, indicating that awareness and education programs are particularly impactful for young to middle-aged women.

### *Demographic Characteristics*

Most of the study subjects were Muslims (62.5%), with the remaining 37.5% being Hindu. This demographic distribution reflects the population composition of the region, indicating that the study sample is representative (Sierra-Torres *et al.*, 2003; Varghese *et al.* 2004).

### *Knowledge Scores*

The research findings showed a substantial improvement in average knowledge ratings from prior-test ( $15.33 \pm 2.013$ ) to post-test ( $29 \pm 2.04$ ), indicating the efficacy of the structured training program on cervical cancer awareness. The improvement in knowledge scores ( $p = 0.000$ ) supports rejection of zero hypothesis ( $H_0$ ) and acceptance of study hypothesis ( $H_1$ ). This demonstrates that the educational intervention significantly enhanced awareness among the participants.

#### *Association with Demographic Characteristics*

Empirically significant relationships were recorded within pretest knowledge scores and several demographic characteristics, including religion ( $p = 0.03$ ), locals ( $p = 0.03$ ), educational ( $p = 0.01$ ), plus family type ( $p = 0.02$ ). These findings suggest that these factors influence participants' initial knowledge levels, and tailored educational programs may be necessary to address these differences. No such significant relationship was found, age ( $p = 0.9$ ), occupation ( $p = 0.8$ ), marital status ( $p = 0.2$ ), or prior knowledge regarding cervical cancer ( $p = 0.7$ ), indicating that these variables was found not significantly influence pre-test knowledge scores.

**Table 4: Analysis comparing pre-test and post-test knowledge data.**

Knowledge	(Mean±SD)	Mode	Median	df	t Value	p value
Pre test Knowledge	15.33±2.013	15	15			
Post test Knowledge	29±2.04	26	27	79	34.08	0.000*

\*highly significant at 0.05 level of significance

**Table 5: Correlation of Pretest Knowledge ranges for chosen Demographic factors.**

Variables	opts	Inadequate Knowledge	Moderate Knowledge	Adequate Knowledge	$\chi^2$ Test	$\chi^2$ Table Value	df	p Value	Result
<b>Age in years</b>	15-21	7	10	8	6.11	9.48	4	0.9	NS
	22-35	5	10	20					
	36-40	2	4	14					
<b>Religion</b>	Muslim	10	5	35	9.10	5.99	2	0.03	S
	Hindu	5	12	13					



<b>Residence</b>	Urban	5	15	15	7.88	5.99	2	0.03	S
	Rural	6	10	29					
<b>Family type</b>	Nuclear	9	11	30	13.10	9.48	4	0.02	S
	Joint	1	2	2					
	Broken	13	5	7					
<b>occupation</b>	Housewife	20	22	18	4.10	5.99	2	0.8	NS
	Govt. Employee	7	6	7					
<b>Educational Status</b>	Primary education	15	12	13	25.2	12.592	6	0.01	S
	Secondary education	7	7	6					
	Higher secondary education	3	1	6					
	Graduate	1	2	8					
Marital status	Married	15	16	14	2.10	5.99	2	0.2	NS
	Unmarried	10	12	13					

The limitations of this research comprise comparatively limited sample amount and specific geographical focus, may restrict applicability of results. Upcoming research featuring larger as well as more broader samples offer additional revelations in the effectiveness of educational interventions across different populations. Despite these limitations, the findings emphasize the need for continued education and awareness programs to enhance cervical cancer knowledge and promote early detection and prevention strategies.

### **Conclusion**

The purpose of this research was to check the knowledge of the taken samples, with respect to the cervix cancer before and after the test. Initially, they had no prior knowledge about the cervical cancer. After introducing and teaching them some concepts, some test was conducted, on basis of that data was collected. The study finding revealed that statistically notable link

between prior-test knowledge range of the participants along with religion ( $p=0.03$ ), locals ( $p=0.03$ ), educational ( $p=0.01$ ), plus type of family ( $p=0.02$ ), whereas no association was found with age, occupation, marital status, past knowledge about cervical cancer. Thus, researchers fail to reject null hypothesis ( $H_{02}$ ). Pre-test knowledge scores of cervix cancer is not significantly correlated with the demographic characteristics that were chosen, namely age ( $p=0.9$ ), employment (0.8), married profile ( $p=0.2$ ), plus prior knowledge ( $p=0.7$ ).

## References

- Arbyn, M., Weiderpass, E., Bruni, L., de Sanjosé, S., Saraiya, M., Ferlay, J. and Bray, F., 2020. Estimates of incidence and mortality of cervical cancer in 2018: a worldwide analysis. *The Lancet Global Health*, 8(2), pp 191-203.
- Bruni, L., Albero, G., Serrano, B., Mena, M., Collado, J.J., Gómez, D., Muñoz, J., Bosch, F.X. and de Sanjosé, S., 2021. Human papillomavirus and related diseases in China. *Summary report*, 22.
- Bruni, L., Diaz, M., Castellsagué, X., Ferrer, E., Bosch, F.X. and de Sanjosé, S. (2010) 'Cervical human papillomavirus prevalence in 5 continents: Meta-analysis of 1 million women with normal cytological findings', *Journal of Infectious Diseases*, 202, pp. 1789–1799.
- Burger, E.A., Smith, M.A., Killen, J., Sy, S., Simms, K.T., Canfell, K. and Kim, J.J., 2020. Projected time to elimination of cervical cancer in the USA: a comparative modelling study. *The Lancet Public Health*, 5(4), pp. 213-222.
- Castanon, A., Rebolj, M. and Sasieni, P. (2019) 'Is a delay in the introduction of human papillomavirus-based cervical screening affordable?', *Journal of Medical Screening*, 26, pp. 44–49.
- Ferlay, J., Bray, F., Pisani, P. and Parkin, D.M., 2004. GLOBOCAN 2002: cancer incidence, mortality and prevalence worldwide. IARC cancerbase, 5(2.0).
- Ferlay, J., Soerjomataram, I., Dikshit, R., Eser, S., Mathers, C., Rebelo, M., Parkin, D.M., Forman, D. and Bray, F. (2015) 'Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012', *International Journal of Cancer*, 136, pp. 359–386.
- Ghebre, R.G., Grover, S., Xu, M.J., Chuang, L.T. and Simonds, H. (2017) 'Cervical cancer control in HIV-infected women: Past, present and future', *Gynecologic Oncology Reports*, 21, pp. 101–108.
- Golfetto, L., Alves, E.V., Martins, T.R., Sincero, T.C.M., Castro, J.B.S., Dannebrock, C., Oliveira, J.G., Levi, J.E., Onofre, A.S.C. and Bazzo, M.L. (2018) 'PCR-RFLP assay as an option for primary HPV test', *Brazilian Journal of Medical and Biological Research*, 51, e7098.
- Hall, M.T., Simms, K.T., Lew, J.B., Smith, M.A., Brotherton, J.M., Saville, M., Frazer, I.H. and Canfell, K., 2019. The projected timeframe until cervical cancer elimination in Australia: a modelling study. *The Lancet Public Health*, 4(1), pp. 19-27.
- Herrero, R., González, P. and Markowitz, L.E. (2015) 'Present status of human papillomavirus vaccine development and implementation', *Lancet Oncology*, 16, pp. e206–e216.
- Idehen, E.E., Koponen, P., Härkänen, T., Kangasniemi, M., Pietilä, A.M. and Korhonen, T. (2018) 'Disparities in cervical screening participation: A comparison of Russian, Somali and Kurdish immigrants with the general Finnish population', *International Journal for Equity in Health*, 17, p. 56.

- Kocjan, B.J., Bzhalava, D., Forslund, O., Dillner, J. and Poljak, M. (2015) 'Molecular methods for identification and characterization of novel papillomaviruses', *Clinical Microbiology and Infection*, 21, pp. 808–816.
- Portnoy, A., Pedersen, K., Trogstad, L., et al. (2021) 'Impact and cost-effectiveness of strategies to accelerate cervical cancer elimination: a model-based analysis', *Preventive Medicine*, 144, 106276.
- Satterwhite, C.L., Tortrone, E., Meites, E., Dunne, E.F., Mahajan, R., Ocfemia, M.C., Su, J., Xu, F. and Weinstock, H. (2013) 'Sexually transmitted infections among US women and men: Prevalence and incidence estimates, 2008', *Sexually Transmitted Diseases*, 40, pp. 187–193.
- Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A.B., Daniels, J., Gülmezoglu, A.M., Temmerman, M. and Alkema, L. (2014) 'Global causes of maternal death: A WHO systematic analysis', *Lancet Global Health*, 2, pp. 323–333.
- Shamsunder, S. and Verma, S., 2024. Cervical Cancer Prevention Efforts in India: A Reality Check. *Journal of Colposcopy and Lower Genital Tract Pathology*, 2(1), pp.1-5.
- Sierra-Torres, C.H., Tying, S.K. and Au, W.W., 2003. Risk contribution of sexual behavior and cigarette smoking to cervical neoplasia. *International Journal of Gynecologic Cancer*, 13(5).
- Swanson, M., Ueda, S., Chen, L.M., Huchko, M.J., Nakisige, C. and Namugga, J. (2018) 'Evidence-based improvisation: Facing the challenges of cervical cancer care in Uganda', *Gynecologic Oncology Reports*, 24, pp. 30–35.
- Torre, L.A., Bray, F., Siegel, R.L., Ferlay, J., Lortet-Tieulent, J. and Jemal, A., 2015. Global cancer statistics, 2012. *CA: a cancer journal for clinicians*, 65(2), pp.87-108.
- Vaccarella, S., Lortet-Tieulent, J., Plummer, M., Franceschi, S. and Bray, F., 2013. Worldwide trends in cervical cancer incidence: impact of screening against changes in disease risk factors. *European journal of cancer*, 49(15), pp.3262-3273.
- Varghese, C., Amma, N.S., Chitrathara, K., Dhakad, N., Rani, P., Malathy, L. and Nair, M.K., 1999. Risk factors for cervical dysplasia in Kerala, India. *Bulletin of the world Health organization*, 77(3), p.281.
- Waggoner, S.E. (2003) 'Cervical cancer', *Lancet*, 361, pp. 2217–2225.
- Wojtyła, C., Ciebiera, M., Kowalczyk, D. and Panek, G., 2020. Cervical cancer mortality in east-central European countries. *International Journal of Environmental Research and Public Health*, 17(13), p.4639.
- World Health Organization, 2020. *Global strategy to accelerate the elimination of cervical cancer as a public health problem*. World Health Organization.