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CERVICAL CANCER: LOOKING INTO THE FUTURE (A KAP STUDY AMONG THE UNDERGRADUATE MEDICAL STUDENTS OF PESHAWAR- PAKISTAN)

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Abstract

Introduction; This study assessed and compared knowledge of the disease, and prevention with treatment, attitude, and practices in relation to cervical cancer among undergraduate medical students of Peshawar. **Methods;** A cross-sectional study was conducted in 2018, after approval from the Institutional Review Board Committee. All the students of 4th and 5th year MBBS were included in the study. The medical colleges of Peshawar city were selected randomly from the Public and Private sectors. The sample size of 682 was calculated through the online calculator, data was collected through a well-structured validated questionnaire and analyzed through SPSS Version- 19. Descriptive statistics as frequency, percentage, mean & standard deviation were calculated whereas inferential statistics were done through a chi-square test keeping 0.05 as a significant p-value for association among the variables. **Results;** among the total population, a 100% response rate was seen. The mean age was 22.36 years + 3.850. They showed knowledge 91.90% regarding cervical cancer disease, HPV as the cause of disease with 77.12%, mode of transmission 57.33%, awareness of prevention (92.11%), screening tests (70.03%), age of screening (80.94%), pap test (79.51%), HPV vaccine 81.74%, and age for vaccination as 55.44%. Favorable attitudes of the students were noted as they affirmed that every woman should undergo screening (85.81%), 88.41% preferred a national screening program and 81.72% wished for more training on this subject. Unfavorable practices were as only 1.90% had done pap tests and only 11.1% actually visited the gynecologist. **Conclusion;** Knowledge and attitudes were found to be significant among the undergraduates however behaviors were deficient.

Keywords: Medical; Students. Cervical Cancer. Screening. Knowledge. Attitudes. Practices. Public Health

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INTRODUCTION

Globally chronic diseases are a matter of concern and cancer is the most disturbing ailment among them as it causes socio-economic burden along with limited resources availability. Breast and cervical cancers are the most common problems with high number of cases and associated mortalities. The most common infection of female genital tract is Human Papilloma Virus (HPV) that can lead to cervical cancer if not appropriately treated. However, this cancer is preventable but lack of knowledge in relation to screening, risk factors, treatment, vaccination and prevention affect an individual's decision (Aweke, 2017). Cervical cancer has become the fourth commonest cancer and leading contributor towards mortality and morbidity among sexually active females worldwide. WHO 2020 statistics reports 604, 000 new cases of this disease with alarming 342, 000 deaths. Human Papilloma Virus is responsible for 95% of the cases with type 16 and 18 causing it. Unfortunately, all the cervical cancer cases hail from poor countries. A cost-effective vaccination against this threatening disease is available globally and if diagnosed early can be cured (WHO, 2022). Shaukat Khanum Memorial Cancer Hospital & Research Center reported Cervical cancer among the top five common female cancers of the Pakistani women from 1994- 2019. Deaths associated with this cancer were high due to ignorance, negligence and 70% reported unfortunately in advanced stages of cancer with poor prognosis (Shaukat Khanum Memorial Trust Hospital, 2021).

Every Pakistani woman regardless of age are vulnerable to cervical cancer, with 500, 000 newly diagnosed cases per year and 273000 deaths. It has progressive growing and killing nature with developing countries females being most affected. Pakistani statistics show a rise in its prevalence, with daily twenty female victims of this cancer, thereby making Pakistan as the highest mortality rates country. WHO (World Health Organization) predicts half a million women deaths from cervical cancer by 2030 with 98% deaths share from developing world. Reliable and authentic data is unavailable in Pakistan due to unavailable cancer registry and ban on all matters related to sex with inconsistent small studies data of registered cases only. Early sex exposure, sex without any protective measures, poverty, smoking, low immunity, illiteracy, early menarche, too many children and reproductive infections like HPV were listed as the most danger factors involved in the causation of cervical cancer (Batool, 2017). Globocon- 2018 statistics claims new Cervical cancer cases as 5, 601 (7.3 per 100, 000) with mortality 3, 861 (5.2 per 100, 000 women) in Pakistan. However, it was further predicted for 2070 that 402, 742 females will succumb to cervical cancer deaths with 1, 087, 028 by 2120. This could be prevented by screening although on-ground reality shows low coverage and no national program for effective implementation. Pakistan could eliminate 930, 000 cervical cancer deaths by three pillars of HPV vaccination, cervical cancer screening, and treatment (UNFPA, 2022).

Researches on cervical cancer have been done internationally. A Cambodian Community-based study on knowledge, risk factors and prevention of cervical cancer. They utilized face to face interviews. Trained personal used for data collection and

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found low awareness of screening, rare screening practice, but willingness to do pap test was high (Touch, 2018). Knowledge, attitude and practices related to cervical cancer screening was done in an Ethiopian study upon undergraduate students and found to be very low (Tilahun, 2019). Another Ethiopian study upon Female students of Science and Technology found low level of awareness of cervical cancer and its prevention however, attitudes of the female students were positive (Tedesse, 2022). An Institutional Based descriptive study upon knowledge, attitudes and practices of the female medical undergraduate students was carried out with good knowledge and positive attitudes towards cervical cancer however, practices were quite low with less than 1% screening done (Getaneh, 2021).

A Karachi based Pakistani study upon nurses found inadequate knowledge of cervical cancer, screening but the educational effect upon knowledge was found to be significant and improved attitudes (Hafeez, 2020). A hospital-based study conducted in Azad Kashmir adult women found better knowledge, attitudes and practices among the unmarried as compared to the married ones (Javaeed, 2019). Another Karachi based study done upon women found insufficient knowledge of cervical cancer disease and screening with significant relationship regarding education and socio-economic status. However, attitudes were found to be favorable Riaz, 2020).

Pakistan lacks Cancer Data Registry and the published descriptive studies have small scope as well as cervical cancer cases seek health care in the advanced stage. This burden of cervical cancer is still rising as treatment is costly and people are ignorant. Furthermore, little information is available in relation to vaccination and screening of cervical cancer among the public. In order to have complete awareness for this progressive cancer, one must target the medical undergraduates so that in future they serve the ailing humanity with well-equipped knowledge and able to treat the patients. As a result, this study was planned and conducted in KPK in District Peshawar with Medical Colleges of Peshawar with an aim to evaluate and compare knowledge of the cervical cancer disease, prevention, treatment, attitudes and practices among the undergraduate medical students of Peshawar.

MATERIALS & METHODS

A Cross-Sectional study utilized survey of medical knowledge, attitude and practices of 682 undergraduate medical students of Peshawar from August- 2018 to December-2019. The ethical approval was taken from the Institutional Review Board Committee of Prime Foundation, Pakistan as Prime/IRB/2015-0007.

The sample size 682 was calculated through online calculator (Raosoft, 2023) by keeping 95% confidence interval, 3.69 margin of error and response distribution as 50%. All the students of 4^{th} and 5^{th} year MBBS were selected and included in the study, whereas the same population being absent, sick, on leave and not willing to participate were excluded. The medical colleges of Peshawar city were selected randomly from Public and Private sector (Khyber, Kabir, Rehman and Peshawar Medical College).

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A structured validated tool (Khosravi, 2012) was used in the study which comprised of a total 46 questions in relation to knowledge, attitudes and practices. This tool's validity and reliability was sufficient enough to assess knowledge, attitude and practices for cervical cancer and screening among the undergraduate medical students. The knowledge portion was divided further into cervical cancer disease with 13 questions, 12 from prevention and 3 from the treatment. Attitude had 8 questions and 4 from practice. The knowledge, attitude and practice in relation to cervical cancer disease, prevention and treatment were evaluated with a score of one as a correct response and zero for incorrect answer. The knowledge scores were summed up, divided by total number of questions with the mean value as outcome which was then converted into percent scores.

The assessment of the questionnaire was labelled satisfactory with 60% and un-satisfactory with less than 60%. Attitude of cervical cancer screening was measured using a 5-point Likert scale as individuals responding strongly with a favorable attitude were given a score of 5 and 1 was allocated to those who responded strongly in disagreement. The scoring was reversed when asking questions around unfavorable attitudes. The scores of the items were summed-up and the total divided by the number of the items, giving a mean score. These scores were converted into a percentage, and the means and standard deviations were computed. The attitude was considered 'favorable' if the percent score was 60% or more and 'unfavorable' if less than 60%. The practice was assessed by asking respondents if they had attended a screening test for precancerous lesions at least once or if they had not attended in the past 3 years. Those who had attended screening were considered to be following practice. Those who had not attending screening were considered not to be following practice (Tilahun, 2019).

Data was collected, entered and analyzed through SPSS Version- 19. After entering the data, it was checked for completeness and cleaning done. Descriptive analysis using frequency, mean, standard deviation, median and standard deviation was done. A chi-square test performed for assessment of associations among knowledge, attitudes and practices with the respective included colleges, with 0.05 set as statistically significant P- value.

RESULTS

In this descriptive study the total number of the included Medical Undergraduates were (n= 682) with response rate as 100 %. The included females were (n= 306) with 44.90 % and males as (n= 376) with 55.20 %. The married individuals among them were (n= 20; 2.90 %), divorced (n= 9; 1.30 %), widowed (n= 1; 0.10 %) however, most of the students were single (n= 650; 95.30 %).

The mean age of the participants was 22.36 Years with Standard Deviation (SD) as 3.850 and variance of 14.820.

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Randomly selected Medical Colleges of Peshawar from the Private sector were Peshawar Medical (PMC), Rehman Medical (RMC) and Kabir Medical College (Kabir MC) however, Government sector had Khyber Medical College (KMC) only. The participating students were taken from 4th Year MBBS (n= 380; 55.7%) and final Year ((n= 302; 44.3%). The individual included students from PMC were (166; 24.3%), RMC (200; 29.3%), Kabir MC (88; 12.9%) and KMC (228; 33.4%) respectively.

The Cervical cancer awareness with knowledge of disease was (627; 91.90%) however, (618; 90.6%) had never heard nor knew anyone regarding this disease. Sexually Transmitted Infection awareness among the students was (638; 93.5%) however, (44; 6.5%) were unaware.

Table 1: Knowledge of Cervical Cancer, Prevention & Treatment among Undergraduate Students

	Cervical Cancer Disease	**PMC N (%)**	**RMI N (%)**	**Kabir MC N (%)**	**Govt KMC N (%)**	**Chi-Square P Value**	**Total Frequency (%)**
1	Have you heard about Cervical Cancer?						
	Yes	**142**	**193**	**84**	**208**		**627 (91.90 %)**
	No	**23**	**7**	**4**	**19**	**0.01**	**55 (8.09 %)**
2	Do you know someone with Cervical Cancer?						
	Yes	**54**	**2**	**3**	**5**		**64 (9.44 %)**
	No	**108**	**198**	**85**	**223**	**0.00**	**618 (90.82 %)**
3	Do you know about STIs?						
	Yes	**147**	**195**	**83**	**213**		**638 (93.50 %)**
	No	**19**	**5**	**5**	**13**	**0.01**	**44 (6.49 %)**
4	What is the source of information?						
	Print Media	**26**	**19**	**3**	**34**		**82 (12.00 %)**
	Electronic Media	**18**	**136**	**43**	**32**	**0.00**	**229 (33.60 %)**
	Relatives	**32**	**7**	**2**	**8**		**49 (6.20 %)**
	Books	**82**	**32**	**38**	**144**		**322 (47.21 %)**
5	Is Cervical Cancer the most common cancer of female Genital Tract?						
	Yes	**98**	**110**	**56**	**102**	**0.02**	**366 (53.70 %)**
	No	**59**	**83**	**28**	**106**		**317 (46.60 %)**
6	Do you think all women are at risk of Cervical Cancer?						
	Yes	**92**	**151**	**56**	**99**		**398 (58.40 %)**
	No	**69**	**46**	**29**	**123**	**0.00**	**284 (41.59 %)**
7	Which age group is most likely to develop Cervical Cancer?						
	Before Puberty	**6**	**2**	**1**	**3**		**12 (1.80 %)**
	Reproductive age group	**93**	**158**	**28**	**144**		**423 (62.00 %)**
	Post-Menopausal	**53**	**31**	**59**	**63**		**206 (3.20 %)**
	Unrelated to age	**11**	**5**	**0**	**11**	**0.00**	**41 (6.05 %)**
8	What is the mortality rank of						

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	Cervical Cancer among gynecological cancers?						
	Leading cause of death	**42**	**133**	**18**	**60**		**253 (37.10 %)**
	No Death	**34**	**6**	**4**	**18**		**62 (9.10 %)**
	Unaware	**88**	**59**	**66**	**146**	**0.00**	**367 (54.13 %)**
9	Which of the risk factors are associated with increased chance of Cervical Cancer?						
	Smoking	**104***	**161**	**32**	**127**		**424 (62.20 %)**
	Weak Immune System	**124***	**180**	**71**	**157**		**532 (78.00 %)**
	Long Contraceptive Use	**130***	**184**	**76**	**155**		**545 (79.90 %)**
	HPV Infection	**119***	**183**	**61**	**190**		**553 (81.11 %)**
	Chlamydial Infection	**123***	**179**	**63**	**150**		**515 (75.50 %)**
	Multiparity	**95***	**154**	**53**	**107**	**0.00**	**409 (60.00 %)**
	Family History	**132***	**187**	**70**	**187**		**576 (84.50 %)**
	HIV Infection	**107***	**175**	**64**	**162**		**508 (74.50 %)**
	Partner not Circumscribed	**89***	**149**	**45**	**90**		**373 (54.71 %)**
	Multiple Sex Partners	**121***	**174**	**67**	**178**		**540 (79.21 %)**
	No regular pap tests	**109***	**170**	**75**	**164**		**518 (76.11 %)**
10	In your opinion which ones are the symptoms of Cervical Cancer?						
	Vaginal bleeding in period	**108**	**159**	**70**	**149**		**486 (71.32 %)**
	Persistent vaginal smelly discharge	**82**	**164**	**73**	**112**		**431 (63.23 %)**
	Persistent low backache	**75**	**142**	**53**	**111**		**381 (55.91 %)**
	Discomfort & Pain in sex	**84**	**159**	**81**	**161**	**0.00**	**485 (71.13 %)**
	Heavy Prolong periods	**87**	**164**	**75**	**95**		**421 (61.74 %)**
	Persistent diarrhea	**42**	**41**	**11**	**31**		**125 (18.32 %)**
	Vaginal bleeding after menopause	**88**	**93**	**71**	**133**		**385 (56.51 %)**
	Persistent Pelvic pain	**97**	**159**	**58**	**156**		**470 (68.90 %)**
	Vaginal bleeding during/after sex	**85**	**140**	**58**	**123**		**406 (59.53 %)**
	Blood in Urine& stool	**71**	**77**	**42**	**71**		**261 (38.33 %)**
	Unexplained weight loss	**93**	**161**	**62**	**144**		**460 (67.41 %)**
11	Which virus is responsible for Cervical Cancer?						
	Human Immuno-deficiency V	**25**	**9**	**22**	**10**		**66 (9.73 %)**
	HBV	**2**	**3**	**0**	**9**		**14 (2.11 %)**
	HPV	**117**	**166**	**58**	**185**	**0.00**	**526 (77.12 %)**
	HCV	**12**	**7**	**3**	**2**		**24 (3.53 %)**
	HSV	**5**	**3**	**4**	**7**		**52 (7.67 %)**
12	Can STI cause Cervical Cancer?						
	Yes	**124**	**165**	**64**	**151**	**0.005**	**504 (73.91 %)**
	No	**36**	**30**	**24**	**67**		**178 (26.08 %)**
13	Do you know the mode of transmission of Cervical Cancer?						
	Yes	**94**	**147**	**35**	**115**	**0.00**	**391 (57.33 %)**

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	No	**68**	**48**	**52**	**101**		**291 (42.64 %)**
	Prevention in Cervical Cancer						**Frequency (%)**
1	Can Cervical Cancer be prevented? Yes No	 **148** **14**	 **192** **6**	 **83** **3**	 **206** **11**	 **0.05**	 **629 (92.11 %)** **53 (7.79 %)**
2	Is regular examination necessary to detect Cervical Cancer? Yes No	 **142** **14**	 **193** **4**	 **85** **0**	 **203** **11**	 **0.002**	 **623 (91.34 %)** **59 (8.70 %)**
3	Do you know cervical screening tests? Yes No	 **113** **48**	 **166** **33**	 **50** **36**	 **150** **68**	 **0.00**	 **479 (70.03 %)** **203 (29.77 %)**
4	Can screening detect pre-cancerous lesions? Yes No	 **126** **34**	 **186** **9**	 **72** **11**	 **192** **77**	 **0.00**	 **576 (84.54 %)** **106 (15.42 %)**
5	At what age screening should be done? Before puberty Reproductive age Post-Menopausal	 **22** **113** **27**	 **7** **178** **12**	 **5** **77** **4**	 **14** **184** **15**	 **0.00**	 **48 (7.42 %)** **552 (80.94 %)** **82 (12.02 %)**
6	Does early detection of pre-cancerous lesions increase chances of survival? Yes No	 **102** **16**	 **157** **6**	 **60** **0**	 **185** **10**	 **0.00**	 **504 (73.90 %)** **178 (26.14 %)**
7	Have you heard of pap test? Yes No	 **125** **40**	 **181** **17**	 **63** **23**	 **173** **45**	 **0.00**	 **542 (79.51 %)** **140 (20.52 %)**
8	Pap test is used for what purpose? Screening Treatment Both	 **91** **5** **62**	 **170** **3** **19**	 **72** **2** **9**	 **172** **6** **33**	 **0.00**	 **505 (74.23 %)** **54 (7.91 %)** **123 (18.01 %)**
9	How often should a pap test be done? Once a year Once in two years Once in three years Once in life time	 **84** **40** **29** **3**	 **35** **131** **13** **4**	 **67** **11** **6** **0**	 **134** **32** **29** **4**	 **0.00**	 **320 (46.91 %)** **214 (31.44 %)** **77 (11.32 %)** **71 (10.41 %)**
10	Have you heard about Human Papilloma Vaccine? Yes No	 **131** **24**	 **180** **16**	 **65** **19**	 **181** **31**	 **0.007**	 **557 (81.74 %)** **125 (18.37 %)**
11	Is HPV available in Pakistan Yes	 **94**	 **138**	 **32**	 **99**	 **0.00**	 **363 (53.23 %)**

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	No	**57**	**50**	**50**	**89**		**319 (46.81%)**
12	What is the age range for this vaccine? 10- 20 Years 21- 30 Years 31- 40 Years 41- 50 Years 51 and above Years	 **19** **40** **61** **18** **5**	 **13** **138** **22** **7** **3**	 **16** **18** **40** **3** **1**	 **33** **74** **43** **14** **6**	 **0.00** 	 **81 (11.94 %)** **378 (55.44 %)** **166 (24.35 %)** **42 (6.22 %)** **15 (2.24 %)**
	Treatment in Cervical Cancer						**Frequency (%)**
1	Can Cervical Cancer be cured? Yes No	 **134** **27**	 **78** **120**	 **71** **14**	 **177** **35**	 **0.00** 	 **460 (67.41 %)** **221 (32.37 %)**
2	Can early detection cure Cervical Cancer? Yes No	 **149** **12**	 **189** **8**	 **81** **4**	 **201** **10**	 **0.045** 	 **620 (90.91 %)** **90 (12.61 %)**
3	Which of the treatment is most commonly used to treat Cervical Cancer? Chemical Surgical Radiological Combination	 **11** **23** **51** **76**	 **6** **11** **13** **165**	 **3** **8** **21** **54**	 **11** **44** **33** **116**	 **0.00** 	 **31 (4.53 %)** **86 (12.64 %)** **118 (17.34 %)** **75 (65.24 %)**

- All the p values as 0.001 are the significant ones.

Table- 1 gives detailed description and analysis of medical students' knowledge from included medical colleges in relation to cervical cancer disease, treatment and prevention with significant p- values.

Table 2: Attitudes of Undergraduate Medical Students in relation to Cervical Cancer.

Serial No	Questions	PMC	RMI	Kabir MC	KMC	Total Frequency (%)	Chi- Square P- Value
1	Do you routinely educate people on screening? Yes No	 **71** **88**	 **41** **154**	 **18** **68**	 **77** **128**	 **207 (30.44 %)** **475 (69.62 %)**	 **0.00**
2	Do you think all women should undergo screening? Yes No	 **139** **23**	 **181** **17**	 **84** **3**	 **181** **24**	 **585 (85.81 %)** **97 (14.20 %)**	 **0.00**
3	What are the reasons for screening women for this disease? No Symptoms Non- availability Expensive Scared	 **24** **31** **38** **26**	 **20** **28** **7** **7**	 **8** **46** **1** **3**	 **35** **50** **16** **16**	 **87 (12.80 %)** **155 (22.73 %)** **388 (56.92 %)** **52 (7.63 %)**	 **0.00**

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4	Are you comfortable with screening procedure? Yes No	 **121** **30**	 **169** **19**	 **67** **16**	 **123** **54**	 **480 (70.43 %)** **202 (29.64 %)**	 **0.00**
5	Does gender of HSP influence willingness for pelvic examination? Yes No	 **103** **48**	 **169** **17**	 **64** **16**	 **142** **38**	 **478 (70.14 %)** **204 (29.93 %)**	 **0.00**
6	Will you prefer a National Screening Program if available in future? Yes No	 **143** **19**	 **190** **8**	 **85** **2**	 **185** **14**	 **603 (88.41 %)** **79 (11.91 %)**	 **0.00**
7	Have you had training/ education on cervical cancer and HPV vaccination? Yes No	 **65** **92**	 **26** **168**	 **14** **73**	 **55** **139**	 **160 (23.53 %)** **522 (76.50 %)**	 **0.00**
8	Do you wish more for information related to cervical cancer? Yes No	 **129** **34**	 **187** **9**	 **68** **19**	 **173** **21**	 **557 (81.72 %)** **125 (18.44 %)**	 **0.00**

*The p values as 0.001 are the significant values.

Table- 2 shows the attitudes of undergraduates from all the medical colleges with p-value analysis as well.

Practice section included few questions like visit paid to a gynecologist, which was never done by 164 students (24.00 %) and 442 (64.80 %) participants did not answer the question. However, 76 (11.1 %) of them frequently paid a visit with variable intervals. Herbal products were used only by 10 (1.50 %) participants for their genital care however, 388 students (56.90 %) skipped the question and 284 (41.60 %) never used it. Pap test was done by 13 participants (1.90 %), 282 (41.30 %) did not do it however, 387 (56.70 %) never answered the question.

Knowledge has always been a very significant component from the student's perspective and as per results of this study, unsatisfactory knowledge has been found among the 4th and final year students of the included medical colleges. This is alarming and future programs needs to address this issue. The final scores of the student's attitudes concluded unfavorable as they scored less than 60% as per the evaluated criteria. The practices of the students were also unfavorable like a visit to gynecologist that was 11.1% (n= 76) and only 1.90% (n= 13) had actually done the screening pap test. This clearly indicates that they were not following the practices as per the assessment criteria in regard to cervical cancer.

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DISCUSSION

This study explored the knowledge about cervical cancer disease, its treatment options, prevention, screening, attitudes with practices among the medical undergraduates of Peshawar. The awareness level of cervical cancer was found to be high however, were ignorant of knowing any person with cervical cancer. Knowledge of sexual transmitted infections, the pre cursor of this disease was high, and source of information was totally related to their text books. They had satisfactory knowledge regarding causes, risk factors, age group involved but deficient in their attitudes and practices.

International literature on cervical cancer is tremendous with KAP studies among students. An Ethiopian Institutional based study found 54.4% of the female university students with awareness of cervical cancer, screening known to only 35.8%, none were screened for HPV, however 44.1% had positive attitudes. Results concluded low level of knowledge, attitudes and practices. These results do not go with this study as medical students had better knowledge than these students (Tilahun, 2019). Another Ethiopian study upon Science & Technology female students showed low knowledge (60.6%) regarding cervical cancer, 77.1% had positive attitude towards screening, but only 2.2% were actually screened (Tedesse, 2022). These results comply with the present study however better results were seen in medical students. Undergraduate female medical students of Ethiopia showed good knowledge of cervical cancer, favorable attitudes but low practices of cervical cancer screening Getaneh, 2021). These findings are in comparison with the present study however scores were much better in the present study.

Several Pakistani research articles have been published on knowledge, attitudes and practices regarding cervical cancer. Registered nurse's knowledge on cervical cancer was insufficient, but knowledge, attitudes and practices on cervical cancer were found to be highly significant with education in a Karachi based study. However, attitudes were not significant (Hafeez, 2020). An Azad Kashmir KAP study of adult women revealed better KAP scores in unmarried women however, only 5.9% underwent a pap test, 51.7% thought pap test to be embarrassing and attitudes were good (Javaeed, 2019). A Pakistani Descriptive study upon Karachi women concluded insufficient knowledge of cervical cancer (51. 3%), only 34.2% knew about pap test, 40.2% were aware of the HPV vaccine, low practices regarding screening & prevention, but surprising had favorable attitudes to know more about the disease, prevention and screening. A significant association found between socioeconomic status and education with knowledge (Riaz, 2020). Inadequate knowledge was found among the health care professionals of Karachi with 68.8% awareness of the screening test, 24.5% were aware of the guidelines to repeat the test, and only 17% actually did the pap test (Majeed, 2022). All these results were not in correlation with the present study as different target populations were included however, knowledge was significant and good enough among the medical students as compared to women, nurses and health care staff.

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A Karachi- based study of female university students mostly medical undergraduates revealed limited knowledge (69.9%) of the vaccine against cervical cancer, 77.1% had intentions of being vaccinated but with very low practices (19.3%) of actually being vaccinated against HPV. The HPV awareness was found to be significant among the medical students with a p value of 0.05 (Khan, 2021). The findings of the present study were far better with 81.7% knowledge of the vaccine however none were vaccinated and only 19.1% had done pap test. Medical preclinical undergraduate students of Nigeria were assessed for perceptions of pap smear and found high level of awareness (82%) of cervical screening and lectures were the main source of information (81%) (Amin, 2020). In this study, awareness of cervical screening (Pap test) among the students was 74.32% and the main source of information was text books as 47.21%. These results correlate with each other but the awareness percentages are better in the Nigerian students.

A study conducted in Saudi Arabia investigated awareness, knowledge of etiology, sign and symptoms as well as risk factors of cervical cancer disease. This study revealed 70% population with awareness of cervical cancer, but only 28% and 19% knew that its common and were aware of its transmission respectively. Interestingly the medical undergraduates had more knowledge with significant p value. Low knowledge was concluded among them (Aga, 2022). These results are consistent with the present study as good knowledge among medical undergraduates with average age of 22 years.

Limitations of the Study

- This was a cross-sectional study vulnerable and sensitive to variety of biases.
- As this study was conducted only in Peshawar and only medical undergraduates were included, so the results cannot be extrapolated.
- The sample size was very modest that cannot be generalized to all Pakistani medical undergraduates.
- There was no demarcation among rural and urban undergraduates, so future researchers need to do something about it.

CONCLUSION

The findings of this study concluded good knowledge of cervical cancer in relation to basics of disease, causative agent, risk factors, prevention, screening tests, and treatment with favorable attitudes among the undergraduate medical students. However, practices were found to be deficient and unfavorable.

The awareness on cervical cancer is not only low in general public but also among the medical students, who are the future physicians treating this disease. This alarms us as a nation to work more in this regard as it is a growing epidemic and takes lives of many women. This article gives the actual facts of the local students and their frequencies in understanding this topic. In relation to these findings, this topic will be stressed upon in

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the curriculum and make thorough efforts in clinical settings for the understanding of the undergraduates to practice in near future.

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Author's Contributions

FRM; Substantial contributions to the design of the work; the acquisition, analysis, interpretation of data for the work. Drafting the work, revising it critically for important intellectual content. Final approval of the version to be published. Agreement to be accountable for all aspects of the work in ensuring the integrity of the work and appropriately investigated and resolved.

SN; Helped in tool development, data collection and responsible for the intellectual content.

ZAS; Helped in tool development, data collection and responsible for the intellectual content.

FK; Helped in tool development, data collection and responsible for the intellectual content.

AS; Helped in manuscript writing, data collection and data entry.

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