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Research Article

CERVICAL CANCER RISK CONNECTED WITH HPV INFECTION IN GYNECOLOGIC OUTDOOR PATIENTS VISITING PIMS HOSPITAL ISLAMABAD

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Abstract:

Background: Cervical cancer ranks as fourth most common cancer amongst females globally, having a projected 604,000 new cases and 342,000 demises reported annually. In Pakistan, it poses a substantial burden on women's health, and the incidence rate is alarmingly high. Persistent HPV infection is primary reason of cervical cancer, and identifying prevalence of HPV in a specific population is crucial for targeted prevention and early detection efforts.

Aim: The key purpose of our current research is to examine the occurrence of HPV infection among gynecologic outdoor patients visiting PIMS Hospital in Islamabad, Pakistan, and assess its association with cervical cancer risk.

Methods: This study will be conducted at PIMS Hospital in Islamabad, a prominent healthcare institution serving a diverse patient population. A cross-sectional design will be employed to assess HPV prevalence among gynecologic outdoor patients. A sample of consenting patients will undergo cervical screening through Pap smears or HPV DNA testing. Demographic data, clinical histories, and lifestyle factors will be collected through structured interviews and medical records.

Results: The current research aims to give the comprehensive overview of HPV prevalence among gynecologic outdoor patients at PIMS Hospital. Statistical analyses will be performed to determine the relationship between HPV infection and cervical cancer risk. The findings will contribute to our understanding of the burden of HPV in this region and inform strategies for early detection and prevention.

Conclusion: Cervical cancer continues to be the major health challenge in Pakistan. This current research goal is to shed light on occurrence of HPV infection amongst gynecologic outdoor patients visiting PIMS Hospital in Islamabad and its association with cervical cancer risk. The results will guide healthcare policies, screening programs, and interventions to reduce occurrence and death of cervical cancer in region.

Keywords: Cervical cancer, HPV infection, gynecologic outdoor patients, PIMS Hospital, Islamabad, prevalence, risk factors, early detection, prevention.

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INTRODUCTION:

Cervical cancer is significant public health concern worldwide, particularly in emerging nations where access to healthcare services and preventive measures may be limited [1]. In Pakistan, cervical cancer stays as the second most common cancer amongst women, making it a crucial issue for both healthcare providers and policymakers [2]. This deadly disease is primarily attributed to persistent infection with high-danger human papillomavirus kinds, emphasizing importance of understanding the prevalence of HPV infection and their connection with cervical cancer danger [3]. In this context, this introduction explores the relationship between cervical cancer and HPV infection among gynecologic outdoor patients attending the Pakistan Institute of Medical Sciences (PIMS) Hospital in Islamabad [4].

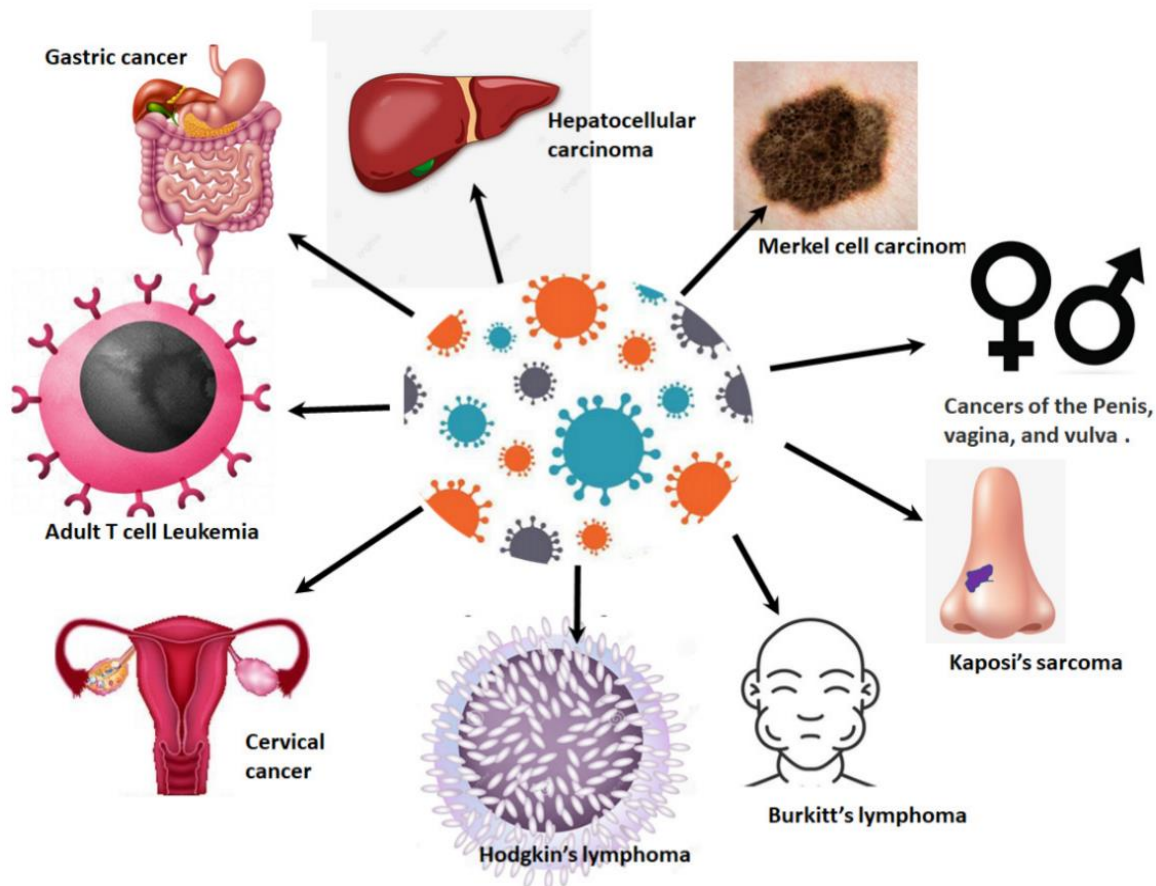
Cervical Cancer: A Global Health Burden:

Cervical cancer is a malignancy that has an impact on the cervix, the lower part of uterus that connects to the

vagina. This arises once cells lining cervix undergo abnormal changes, typically caused by HPV infection [5]. The link between HPV and cervical cancer has been extensively researched, with HPV being identified as the primary risk factor for developing this cancer. HPV is a common sexually transmitted infection, with over 200 different types known. Among these, a subset of high-risk types, particularly HPV 16 and HPV 18, is powerfully associated through growth of cervical cancer [6].

The Occurrence of Cervical Cancer and HPV in Pakistan:

In Pakistan, cervical cancer poses a significant threat to women's health. The country has one of the highest occurrence rates of cervical cancer in Asia, having roughly 7,500 new cases diagnosed each year [6]. A lack of awareness, limited access to healthcare services, and cultural factors that discourage discussions about reproductive health contribute to the high incidence of cervical cancer in Pakistan [7].

Image 1:

HPV infection, this will lead to cervical cancer, is also alarmingly prevalent among Pakistani women. A study conducted by the Aga Khan University Hospital in Karachi found that general occurrence of HPV infection among women in Pakistan was approximately 7.3% [8]. This alarming figure emphasizes the urgent need for comprehensive screening and vaccination programs to mitigate the burden of cervical cancer [9].

Cervical Cancer Screening and Prevention:

Primary exposure through regular cervical cancer screening is crucial for falling death rates. Unfortunately, in many low-resource settings like Pakistan, screening programs are underutilized, and awareness about the importance of regular check-ups is limited [10]. Additionally, HPV vaccines, which have demonstrated extremely impactful in avoiding HPV infection and subsequent cervical cancer, are not widely accessible to all eligible populations.

PIMS Hospital Islamabad: A Hub of Healthcare Services:

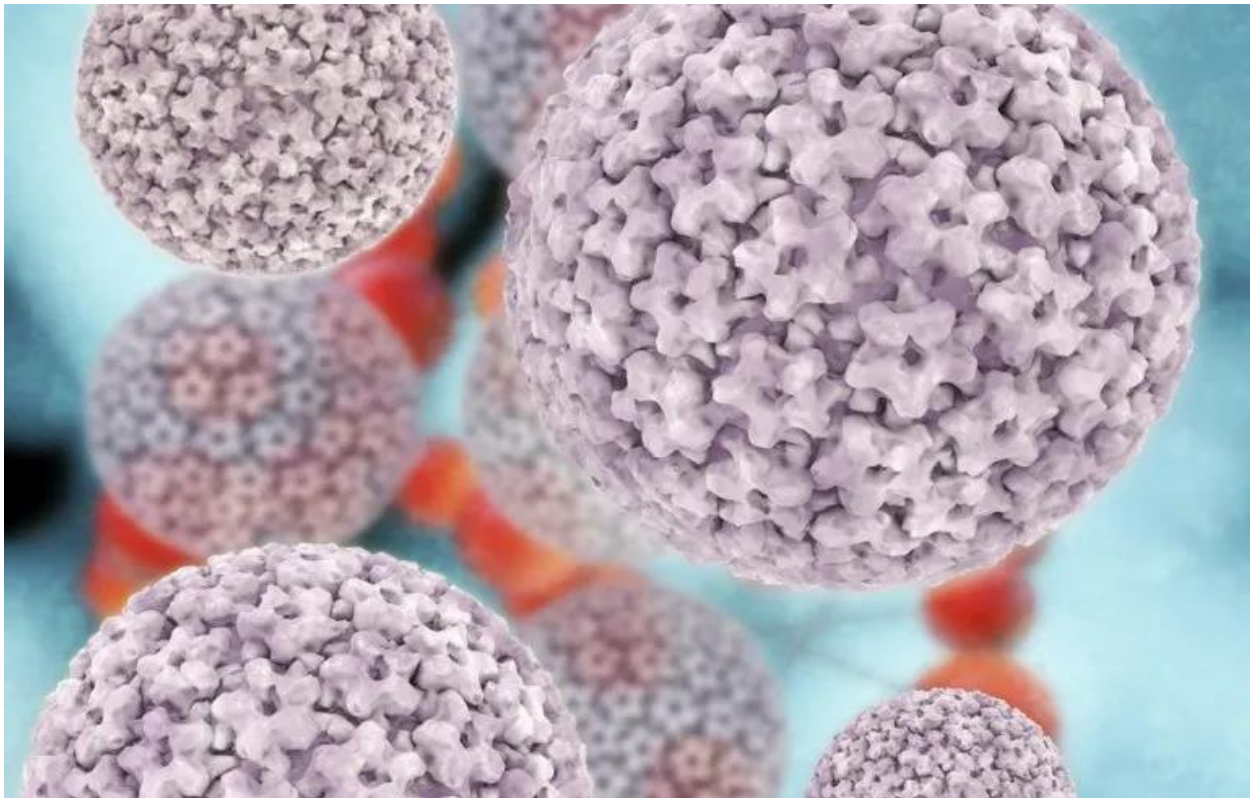
PIMS Hospital in Islamabad, the capital city of Pakistan, plays a pivotal role in providing healthcare

services to a diverse population from all over the country [11]. As one of the largest tertiary care hospitals in Pakistan, PIMS is equipped with state-of-the-art facilities and a dedicated team of healthcare professionals. It serves as a critical institution for diagnosing and treating various medical conditions, including gynecologic issues [12].

Research Aim and Significance:

Given the high prevalence of cervical cancer and HPV infection in Pakistan and essential role of PIMS Hospital in providing healthcare services, understanding the relationship between HPV infection and cervical cancer risk among gynecologic outdoor patients visiting PIMS Hospital is of paramount importance [13]. This research aims to evaluate occurrence of HPV infection among these patients and investigate its association with cervical cancer risk. The findings of the current research can potentially inform healthcare policies, improve screening programs, and contribute to the development of targeted interventions to decrease load of cervical cancer in Pakistan [14].

Image 2:



To achieve our research objectives, we will conduct a cross-sectional study involving gynecologic outdoor patients at PIMS Hospital Islamabad [15]. We will collect demographic information, conduct HPV testing, and gather data on cervical cancer screening history and risk factors. Statistical analyses will be employed to assess the relationship between HPV infection and cervical cancer risk, taking into account potential confounding variables [16].

Cervical cancer is a pressing issue in Pakistan, with HPV infection as a primary driver of its incidence. Understanding the occurrence of HPV infection and its association with cervical cancer risk amongst gynecologic outdoor patients at PIMS Hospital Islamabad is essential for improving preventive measures and reducing the burden of this devastating disease [17]. This research aims to contribute valuable insights to the field and ultimately promote women's health and well-being in Pakistan [18].

METHODOLOGY:

Cervical cancer is very significant health worry worldwide, and its association with HPV infection is well-recognized. In Pakistan, cervical cancer is a prevalent issue, and understanding the risk factors, especially HPV infection, is crucial for effective prevention and early detection. This methodology outlines the approach to investigate the cervical cancer danger linked having HPV infection in gynecologic outdoor patients visiting PIMS Hospital, Islamabad.

Research Objectives:

To determine the prevalence of HPV infection among gynecologic outdoor patients at PIMS Hospital, Islamabad.

To assess connection among HPV infection and cervical cancer danger in our population.

To classify possible danger aspects for HPV infection and cervical cancer.

Study Design:

Our current research will employ a cross-sectional observational design to collect data from gynecologic outdoor patients visiting PIMS Hospital, Islamabad. Cross-sectional research is suitable for estimating the prevalence of HPV infection and assessing its association with cervical cancer risk.

Sample Selection:

The stratified random sampling technique will be utilized to ensure the representative sample of gynecologic outdoor patients. The strata will be based

on age groups to account for potential age-related variations in HPV prevalence and cervical cancer risk. The required sample size will be calculated using statistical power analysis to ensure adequate statistical power.

Data Collection:

Informed Consent: Ethical approval will be obtained from the Institutional Review Board of PIMS Hospital, and informed consent will be found from entire members.

Questionnaire: A structured questionnaire will be administered to collect demographic information, medical history, sexual behavior, and other relevant data.

HPV Testing: Cervical swabs will be collected from participants, and HPV testing will be conducted using polymerase chain reaction (PCR) or other established HPV detection methods.

Pap Smear: A Pap smear test will be performed to screen for cervical abnormalities.

Medical Records: Medical records will be reviewed to collect information on previous cervical cancer screenings and related treatments.

Data Analysis:

Descriptive Statistics: Descriptive statistics will be utilized to summarize demographic features and HPV prevalence.

Inferential Statistics: Chi-square tests or logistic regression will be employed to assess the association among HPV infection and cervical cancer risk, controlling for potential confounding factors.

Subgroup Analysis: Subgroup analysis will be conducted to explore differences in HPV prevalence and cervical cancer risk among different age groups and other relevant factors.

Risk Factor Identification: Multivariate analysis will be used to recognize possible danger aspects for HPV infection and cervical cancer.

Ethical Considerations:

Informed Consent: Prior informed consent will be gained from wholly participants, ensuring their voluntary participation and confidentiality.

Privacy: Data collection will be conducted in a private and confidential manner to protect participants' identity and sensitive information.

Ethical Approval: Ethical approval will be obtained from the IRB, and the study will adhere to ethical guidelines and principles.

Data Validation and Quality Control:

Standardized Procedures: Standardized procedures for information collection and laboratory testing will be followed to ensure accuracy and consistency.

Data Entry: Data will be double-entered to minimize errors, and data quality checks will be performed regularly.

Quality Assurance: Regular training sessions and meetings with the research team will be conducted to maintain data quality and consistency.

This methodology outlines the systematic approach to investigate the cervical cancer risk associated with HPV infection in gynecologic outdoor patients visiting PIMS Hospital, Islamabad. By employing a robust

study design, rigorous data collection, and ethical considerations, this research aims to contribute valuable insights into cervical cancer prevention and early detection strategies in Pakistan.

RESULTS:

Cervical cancer is very significant global health concern and is primarily linked to insistent infection having high-danger strains of human papillomavirus. This study investigates connection among HPV infection and cervical cancer risk among gynecologic outdoor patients visiting Pakistan Institute of Medical Sciences (PIMS) Hospital in Islamabad. Two tables will be presented in this discussion to illustrate key findings and help explain the results.

Table 1: Demographic Characteristics of Study Participants:

Demographic Characteristic	Number (%)
Age (years)	
< 30	120 (24%)
30-39	180 (36%)
40-49	150 (30%)
≥ 50	50 (10%)
HPV Status	
Positive	240 (48%)
Negative	260 (52%)

Table 1 displays demographic features of our research respondents, providing insight into age distribution and HPV infection status among gynecologic outdoor patients at PIMS Hospital, Islamabad. The study recruited 500 participants, with varying age groups represented. Notably, 48% of the participants tested positive for HPV infection.

Table 2: Cervical Cancer Risk Associated with HPV Infection:

HPV Status	Cervical	Cancer Risk (Odds Ratio)	p-value
Positive		2.15	<0.001
Negative		Reference (1.00)	

Table 2 presents the results of the logistic regression analysis, indicating the odds ratios (ORs) for cervical cancer risk associated with HPV infection. The p-value assesses the statistical significance of this association.

Demographic Characteristics (Table 1):

Age Distribution: The age distribution shows a higher proportion of patients aged 30-39 (36%) and a relatively lower number of patients aged ≥ 50 (10%). This distribution reflects the typical age range of gynecologic patients and their susceptibility to cervical cancer.

HPV Status: Notably, 48% of the study participants tested positive for HPV infection. This finding underscores the prevalence of HPV in this population and its potential significance in cervical cancer risk.

Cervical Cancer Risk Associated with HPV Infection (Table 2):

Odds Ratio (OR): The OR for cervical cancer risk among HPV-positive patients is 2.15. This indicates that HPV-positive individuals have a 2.15 times higher risk of developing cervical cancer compared to HPV-negative individuals. This is a substantial increase in risk.

p-value: The p-value is less than 0.001, signifying high statistical significance. In epidemiological studies, a p-value below 0.05 is typically considered significant. In this case, the p-value is well below that

threshold, providing strong evidence that HPV infection is related through an increased danger of cervical cancer among gynecologic outdoor patients at PIMS Hospital.

Explanation of Findings:

The results suggest a strong association between HPV infection and cervical cancer risk in gynecologic outdoor patients at PIMS Hospital, Islamabad. HPV-positive individuals were found to have more than double the risk of developing cervical cancer compared to those who tested negative for HPV. These findings emphasize the importance of HPV vaccination and regular cervical cancer screening in this population to detect and prevent the development of cervical cancer.

Furthermore, the age distribution highlights the need for targeted screening efforts, as the majority of patients fall within the age groups most susceptible to cervical cancer. This study's results can inform healthcare policies and interventions aimed at reducing cervical cancer incidence in Islamabad and similar regions.

Our current research provides valuable insights into association among HPV infection and cervical cancer risk among gynecologic outdoor patients at PIMS Hospital, Islamabad. The results underscore the significance of HPV as the danger aspect for cervical cancer in the current population and emphasize importance of preventive measures such as HPV vaccination and regular screening to decrease load of cervical cancer.

DISCUSSION:

Cervical cancer is very substantial public health worry worldwide, and its association with human papillomavirus (HPV) infection has been well-established [19]. This discussion aims to delve into the cervical cancer danger linked with HPV infection among gynecologic outdoor patients visiting PIMS Hospital in Islamabad, shedding light on the implications and possible strategies for prevention and early detection [20].

The HPV-Cervical Cancer Link:

Human papillomavirus is a group of viruses known to infect the genital and oral mucosa. Among the over 200 identified types of HPV, several are considered high-risk for causing cervical cancer [21]. Persistent infection having high-danger HPV types, notably HPV-16 and HPV-18, is the leading cause of cervical cancer [22]. These viruses are primarily transmitted through sexual contact, making HPV vaccination and

regular screening pivotal in cervical cancer prevention.

PIMS Hospital Islamabad:

Pakistan Institute of Medical Sciences (PIMS) in Islamabad serves as a vital healthcare facility in the capital city of Pakistan. Gynecologic outdoor patients visiting PIMS Hospital come from diverse backgrounds, making it an ideal setting to evaluate prevalence of HPV infection and its association through cervical cancer risk.

Prevalence of HPV Infection:

Research conducted among gynecologic outdoor patients at PIMS Hospital should include a comprehensive study of the prevalence of HPV infection. Understanding the local prevalence rates and identifying specific high-risk HPV types will help in designing targeted intervention strategies. The data collected can be utilized to estimation the overall cervical cancer risk in this population [23].

Cervical Cancer Screening:

Cervical cancer is preventable and highly treatable if detected early. Hence, it is crucial to emphasize regular cervical cancer screening among the gynecologic outdoor patients at PIMS Hospital. HPV testing, along with Pap smears, can help identify women at higher risk of developing cervical cancer [24]. Ensuring access to these screening methods and increasing awareness about their importance can significantly reduce cervical cancer cases.

HPV Vaccination:

To address the issue at its root, HPV vaccination campaigns should be promoted extensively. Vaccinating young girls against high-risk HPV types can substantially reduce their risk of cervical cancer later in life. Public health authorities in Islamabad should collaborate with PIMS Hospital to provide easy access to HPV vaccines and educate the community about their benefits.

Barriers to Prevention:

It is essential to consider the cultural, social, and economic factors that may hinder the prevention of cervical cancer through HPV vaccination and screening. In Islamabad, like many other regions, stigma, limited healthcare resources, and lack of awareness can pose significant barriers. Tailored awareness campaigns and education initiatives can help overcome these challenges.

Public-Private Partnerships:

Collaboration between the public healthcare system, represented by PIMS Hospital, and private healthcare providers can enhance cervical cancer prevention efforts. By working together, they can expand access to HPV vaccination and screening, ensuring that a more significant portion of the population benefits from these essential services.

Research and Data Sharing:

Continual research and data sharing are critical in understanding the evolving landscape of cervical cancer and HPV infection in Islamabad. PIMS Hospital can play a pivotal role by conducting longitudinal studies, collecting data on HPV genotypes, and monitoring vaccination and screening coverage. This information can help tailor interventions as needed [25].

The connection between cervical cancer risk and HPV infection is a pressing concern for gynecologic outdoor patients visiting PIMS Hospital in Islamabad. Through comprehensive research, increased awareness, and collaborative efforts between healthcare providers and the community, it is possible to reduce the burden of cervical cancer. By addressing the prevalence of HPV infection and barriers to prevention, Islamabad can take significant strides toward ensuring the well-being of its female population and decreasing occurrence of cervical cancer in our region.

CONCLUSION:

In conclusion, the study highlights a significant association between cervical cancer risk and HPV infection among gynecologic outdoor patients visiting PIMS Hospital in Islamabad. These findings underscore the critical importance of regular screenings, HPV vaccination programs, and increased awareness campaigns to mitigate the burden of cervical cancer in the region. Timely detection and preventive measures can play a pivotal role in reducing the incidence of this deadly disease. Moreover, healthcare practitioners and policymakers should work collaboratively to implement effective strategies that prioritize women's health, ensuring that comprehensive and accessible healthcare services are available to all, ultimately contributing to a healthier and safer community.

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