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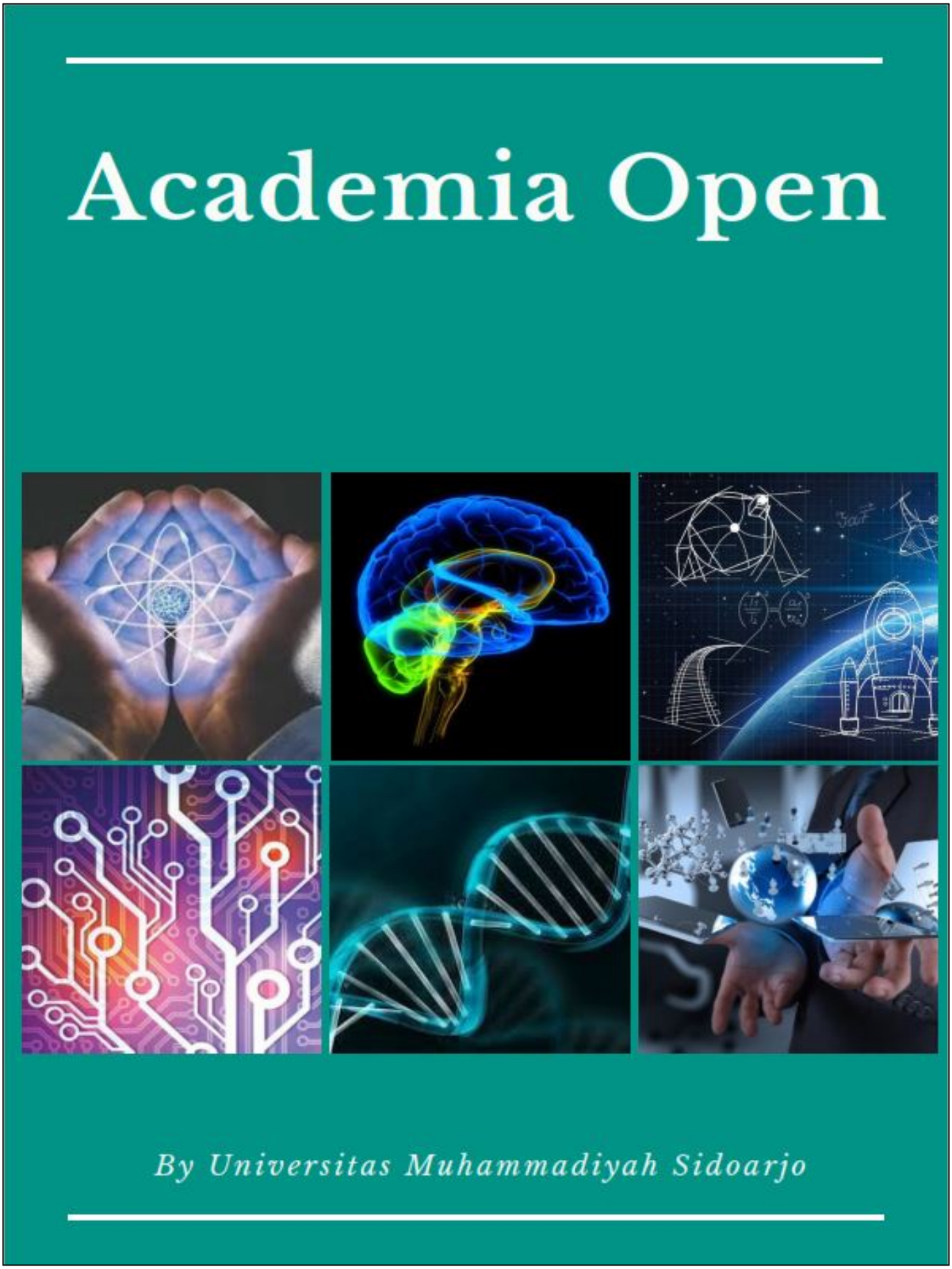

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Pap Smear Screening for Abnormal Cervix and Clinical Correlation

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Abstract

General Background: Cervical cancer remains a leading cause of morbidity and mortality among women worldwide, particularly in low- and middle-income countries where early detection is limited. **Specific Background:** The Papanicolaou (Pap) smear offers a simple, safe, and cost-effective screening method to identify precancerous, malignant, and benign cervical lesions, yet its application in Iraq is underutilized. **Knowledge Gap:** Despite global evidence supporting Pap smear screening, there is limited data correlating cytological findings with clinical profiles among Iraqi women. **Aims:** This study aimed to evaluate the prevalence of abnormal Pap smear results and their clinical correlations in women attending Basrah Teaching Hospital. **Results:** In a cross-sectional analysis of 63 women aged 21–60 years, the mean age was 38.1 years; acute cervicitis was the most common finding (74.6%), followed by ASCUS (9.5%), LSIL (6.3%), and cervical atrophy (4.8%). Marital status showed a significant association with abnormal cytology ($p < 0.05$). **Novelty:** This research provides region-specific insights into the spectrum of cervical cytological abnormalities and highlights demographic and clinical predictors in an Iraqi cohort. **Implications:** Findings underscore the necessity of implementing routine Pap smear screening and educational initiatives to reduce cervical cancer incidence and improve women's health outcomes in resource-limited settings

Highlights:

- High prevalence of acute cervicitis among screened women.
- Marital status significantly linked to abnormal cytology.
- Pap smear is a low-cost, effective early detection method.

Keywords: Cervical Cancer, Pap Smear, Clinical Correlation, Precancerous Lesions

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Introduction

The fourth most frequent cancer in women is cervical. Around the world, the World Health Organization estimates that in 2022, 350,000 women lost their lives to cervical cancer, and an additional 660,000 women received a diagnosis. Women who have a persistent human papillomavirus (HPV) infection may develop cervical cancer, although most infections with HPV resolve spontaneously and cause no symptoms [1].

Iraq and other low- and middle-income countries bear the brunt of the incidence and mortality of cancer [2]. According to the World Health Organization (WHO), there are 2.1 cases of cervical cancer for every 100,000 women in Iraq, regardless of age. Additionally, 10.21 million Iraqi women who are 15 years of age or older are susceptible to contracting the illness [3].

The main justification for implementing screening programs for early detection of cervical cancer is the preventable nature of cervical cancer and the effectiveness of early treatment to manage this type of cancer [4]. Cytological screens have successfully decreased cervical cancer incidence and death for precancerous lesions and carcinoma of the cervix and subsequent treatments of these lesions. Up to 80% fewer people die from cervical cancer when the Pap test is used in conjunction with a routine screening program and proper follow-up [5].

Finding precancerous, cancerous, and benign cervical lesions is simple, safe, non-invasive, and reasonably priced with a Pap smear [6]. The overall sensitivity of the Pap test to detect a high-grade squamous intraepithelial lesion (HSIL) is 70.8%. A Pap screening increases the sensitivity for early detection of precancerous lesions when paired with an HPV DNA test [7].

During screening programs or following a clinical evaluation of cervical pathology symptoms, abnormalities of squamous and glandular cells are discovered in cervical samples. Atypical squamous cells of unknown significance (ASCUS), atypical squamous cells cannot exclude HSIL (ASC-H), low-grade squamous intraepithelial lesions (LSIL), high-grade squamous intraepithelial lesions (HSIL), and invasive squamous cell carcinoma are examples of squamous cell abnormalities [8].

The World Health Organization reported that the crude incidence rate of cervical cancer in Iraq was around 1.4 per 100,000 women of all ages, with an expected 70,000 deaths from the disease in 2019. In 2020, cervical cancer accounted for 193 yearly fatalities in Iraq, with an estimated 286 new cases reported annually, making it the 12th most common disease among women aged 15 to 44 [9]. The current study's objective was to use the Pap smear test to screen women for precancerous lesions and identify any clinical correlation.

Methods

A descriptive cross-sectional study, which included 63 pap smear screenings utilizing a conventional cervical cytology methodology, was conducted at Basra Teaching Hospital, in the period between June and September 2024.

This study covered women in the age range of 21 to 60 who had abnormal pap test results. Intermenstrual bleeding (IMB), postcoital bleeding, postmenopausal bleeding, and vaginal discharge (bloody or mixed) were requirements for study participants to be included. Women who had an evident growth, a history of CC therapy, a visible cervical lesion or ulcer, active bleeding, or who were pregnant were excluded from the research. Information from the medical records department, including patient demographics, risk factors, medical and sexual history, clinical findings, and histopathological diagnosis, was also used to assess them. Every participant who signed up for the current study gave their verbal consent.

The descriptive data analysis, Statistical Package for the Social Sciences (SPSS) version 26, was used to examine the collected data. For numerical data, descriptive statistics were performed using mean and standard deviation; for categorical variables, frequency and percentage.

Results and Discussion

A. Results

Table 1 and Table 2 summarize the demographic and history characteristics of the participants. Of the total 63 women, the average age of the study women was 38.1 years (*SD* = 11.1), and the highest percentage was found among those aged between (> 30) years with 47 (74.6 %) participants. More than half of the participants, 34 (54%), were from primary school, while only 3 (4.8%) had attended higher education. The majority of women, 49(77.8%), had a middle socio-economic status, and 55 (87.3%) were married. Regarding smoking history, 14(22.2%) were smokers, 1 (1.6%) reported previous STD history, and only 3 (4.8%) reported previous genital warts history. Parity ranged from 0 to 8 with a mean of 4.1 (SD = 2.4).

[Table 1 . about here]

[Table 2 . about here]

Table 3 and Figure 1 display the clinical presentation and Pap smear results of the women who are currently enrolled in the study, respectively. Most women had vaginal discharge 44 (69.8%), PCB was seen in 12 (19%), IMB was seen in a single case 11 (17.5%), and post-menopausal bleeding was seen in 3 (4.8%). According to the Pap smear results, 4.8% of patients had no discernible pathology, 74.6% had acute cervicitis, 38 (9.5%) had ASCUS, 6.3% had LSIL, and 4.8% had cervical

atrophy.

[Table 3. about here]

[Figure 1 . about here]

The current study shows that the majority of the women (82.5%) had been performed natural vaginal delivery followed by 6.3% had performed cesarean section delivery type and 11.1% had used both methods of delivery, as shown in Figure 2.

[Figure 2 . about here]

In this study, both acute cervicitis and ASCUS occurred in women below thirty years old, whereas LSIL, ASCUS, acute cervicitis, and cervical atrophy occurred at a higher percentage at age over thirty years old, as shown in Figure 3.

[Figure 3 . about here]

Women were married shows higher percentage of acute cervicitis , ASCUS,LSIL and cervical atrophy in compared to other groups as shown in Figure 4.

[Figure 4 . about here]

Chi-square test results reveal that there were statistically significant association between marital status and pap smear results p value < 0.05 whereas no statistically significant association between other characteristics and Pap smear results p value > 0.05 as shown in Table 4.

[Table 4. about here]

B. Discussion

Most of the participants in this study were over 30 and had only completed primary school. The majority of them were married and of middle-class socio-economic status. The US Preventive Services Task Force (USPSTF) recommends that every three years, women aged 21 to 29 should have a cervical cytology screening for cervical cancer. For women aged 30 to 65, the USPSTF recommends screening for high-risk HPV every five years, every three years with cervical cytology alone, or every five years with HPV testing in addition to cytology (co-testing) [10].

In the current study, the majority of participants have no past smoking history, STD history, or genital warts history. A similar finding was reported by a study in Iraq, done by [11], in which it was reported that among the subjects, 2.5% had a history of sexually transmitted illnesses.

Regarding the chief complaint, the majority reported that they have vaginal discharge, and about twenty percent of them reported that they have post-colitis bleeding, about seventeen percent reported that they have Inter-menstrual bleeding, and nearly five percent reported that they have post-menopausal bleeding. A study in India done by [12] discovered that the most prevalent complaint, affecting 36.96% of the women, was vaginal discharge. Of the women who complained, 12.78% reported an irregular menstrual cycle, 25.63% reported abdominal pain, and 15.15% had no symptoms. Another study in Iraq done by [11], indicate that the women who were enrolled in the trial had the following clinical presentations and Pap smear results: Of the women, 82.5% had no symptoms, 17.0% experienced postcoital bleeding (PCB), and 0.5% experienced intermenstrual bleeding.

Regarding pap smear examination findings, the majority of participant were with acute cervicitis. Ten percent with ASUC, nearly six percent with LISL, and five percent with cervical atrophy. However, a study by [7], reported that inflammation was found in 58% of participants, no lesion among 29% and the abnormal findings represented 13% where 12% were ASCUS and 1% was LSIL. Another study done by [12], discovered that 42.66% had an illness or inflammation and 48.84% had a Pap test negative for cancer. Low-grade squamous intraepithelial lesion (LSIL), high-grade squamous intraepithelial lesion (HSIL), and atypical squamous cells of unknown significance (ASCUS) were found in 2.90%, 5.09%, and 0.48% of cases, respectively. A study in Saudi Arabia by [13], show that only 58 of the 624 (53.3%) abnormal Pap smears that were discovered had an epithelial pathological diagnosis (SIL). They accounted for 4.95 percent of all smears collected. ASCUS accounted for 60% of SIL cases in our population, making it the most common SIL diagnosis. Squamous cervical cancer was seen in 0.34% of cases. a study in Iraq done by [11], disclose the following Pap smear results: 36.0% of the individuals had no discernible pathology, 32.0% had inflammatory signs, 19.0% had ASCUS, 7.5% had LSIL, and 5.5% had HSIL [14] [15].

Conclusions

A basic, affordable, and straightforward technique for identifying precancerous cervical epithelial abnormalities is Pap smear testing. This procedure is particularly useful in developing countries like Iraq, where it can help detect cervical cancer early and reduce morbidity and mortality. Women should regularly undergo this procedure, even after menopause, as it is an easy, affordable, and secure way to identify cervical cancer. As a result, Pap smear testing is an effective method for cervical cancer prevention and early detection.

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