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Prevalence of abnormal pap smears among Iraqi women attending the Al Zahra'a cervical screening clinic in AL Najaf city

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Abstract
Introduction: The World Health Organization (WHO) reports that in Iraq, there were 2.1 cases of cervical cancer for every 100,000 females of all ages. Moreover, 10.21 million Iraqi women between the ages of 15 and 44 were at risk for developing cancer.
Method: At Al Zahra Teaching Hospital in Al Najaf City, a cross-sectional study was carried out over the course of nine months, from January 1 to October 1 2022. Throughout the research period, all female patients who went to the alzahraa cervical screening unit were included (112). At the cytology lab, slides were evaluated using the Bethesda Scoring System, and smears were collected using the Ayre's spatula. Highlighting relationships between cytological results and socio-demographic details using the Chi-square test. Binary logistic regression was used for the significant variables. In our statistical analysis, a significance level of 0.05 was considered to be present.
Results: The majority of the sample (91.1%) had normal pap smear results. 8.9% of the remaining women reported abnormal pap smear results. Vaginal discharge (42%), after-coital bleeding (1.8%), and irregular bleeding (25%) were the most frequently reported patient concerns. Cervical cancer in just one case was found. The link between abnormal pap smears and females under the age of 40 was statistically significant (p = 0.047 for both). Smoking increased the risks of having abnormal pap smears [p=0.000; OR=0.011; CI 95% (0,001-0.095)], whereas being 40 years old increased the odds [OR=6.559; CI 95% (.801-53.727)].
Conclusions: Ten percent of the sample had abnormal pap smear results, and there was a very significant association between smoking and abnormal pap smear results in females under 40. A successful cervical cancer screening programme must be activated, promoted, and made aware of along with the risk factors that it entails.

Keywords: Cancer of cervix, pap smear, screening, prevalence

Introduction

The aberrant growth of cells in the cervical epithelium is what causes cervical cancer. Squamous cell carcinoma, followed by adenocarcinoma, is the most common kind of cervical cancer, occurring in around 70% of cases. More than 7% of fatal female cancer cases worldwide are caused by cervicovaginal carcinoma [1]. The majority of cervical cancer cases (85%) occur in underdeveloped nations with weak screening programmes [2]. After breast cancer and lung cancer, cervix cancer is the second most frequent kind of cancer in both populations and among females. According to projections for 2018, 244 new instances of cervical cancer are detected per year in Iraq. Every year, 159 people die from cervical cancer. Cervical intraepithelial neoplasias (CINs), also known as precancerous lesions of the cervix, and cervical carcinomas, are strongly associated with the sexually transmitted high-risk human papillomavirus (HPV) infection, which is responsible for more than 99% of cervix cancer [3]. Types 16 and 18 malignancies account for 70% of all cervical cancers. Human papillomavirus (HPV), smoking, poor socioeconomic position, early marriage before the age of 18, first coitus at a young age, several sexual partners of her or her husband, and multiple pregnancies are established risk factors for developing cervical cancer. Cervical cancer risk is increased by a number of factors. It has been shown that the main factor causing cervical cancer is HPV. The most often linked HPV genotypes with invasive cervical cancer are 16, 18, 31, 33, and 45. When a person gets older, normal cells divide faster. Normal cells divide more quickly in the early years of a person's life so they may grow. Most cells only divide when a person reaches maturity to replace dead ones. As the body's cancer-causing cells multiply unchecked, cancer develops [4].

The uterine body and vagina are connected via the cervix. The part of the cervix that is closest to the uterine body is called the endocervix. The part of the cervix closest to the vagina is called the ectocervix. The squamocolumnar junction, which is made up of cells that line the cervix, is where cervical cancer first develops. Squamous and glandular cells make up the majority of the cells that cover the cervix's mucosa. The transformative zone is where these two cell types converge. The Transformational zone shifts depending on a woman's age, as well as after pregnancy and delivery. Cervical cancer often starts in Transformational zone [5]. The HPV vaccination and routine screenings in accordance with American Cancer Society (ACS) guidelines are the two most important things you can do to prevent cervical cancer. The American Cancer Society Recommendations for the Prevention and Early Detection of Cervical Cancer, Version 6, include these suggestions. The protracted preinvasive phase makes cervical cancer preventable. Early detection and treatment are made possible by screening [6]. Cervical cancer incidence and mortality have been reduced thanks to cytological screenings for precancerous lesions and cervix cancer and the following therapies of these lesions. The primary care level uses a Pap smear screening test in conjunction with a gynecologic exam to find abnormalities that might lead to cervical cancer. It is affordable, simple, and noninvasive. The pap test may reduce cervical cancer mortality by up to 80% when combined with a routine screening programme and frequent follow-up [7]. The objectives of this research were to explain the prevalence of abnormal pap smear results in a sample of Iraqi women and to ascertain the association between abnormal pap smear results and socio-demographic factors.

Method

From January 1st to October 1st of 2022, AL-Najaf Teaching Hospital conducted this cross-sectional study during a nine-month period. Female patients who went to the cervical screening unit made up the sample. All patients were included throughout the duration of the study; those who were lost to follow-up were excluded. Hence, a total of 112 cases were included in the sample. The study received ethical clearance from Al Zahra Teaching Hospital and the Council of Arab Board of Health Specializations. Telephone calls from patients were used to gather information on their age, job status, parity, marital status, use of hormonal contraception, history of smoking, primary complaint, and family history of cancer. Results of speculum examinations on individuals were documented after examinations. All pap smear samples were sent to a cytological lab; the results of the pap smear adopted descriptive diagnoses, benign cellular changes, including infections; no specific inflammatory response; epithelial cell abnormalities, including atypical squamous cells of undetermined significance (ASC-US) and atypical glandular cells of undetermined significance (AGUS); and various grades of squamous intraepithelial lesions (SIL). All cytological smears were collected using the (Ayre's spatula), spread out on slides, and evaluated in the cytology lab [7]. The cytological diagnosis was recorded using the Bethesda Scoring System. The associations between abnormal and normal pap smear results and socio-demographic traits were highlighted using the chi-square test. A binary model was used to do logistic regression for the significant variables. Every statistical analysis considered a P value of 0.05 to be significant.

Result

The sample under study had a (41.04+7.9) average age, with ages ranging from 23 to 59. The characteristics of the analysed sample are shown in Table 1. The majority were housewives, married, and non-smokers. 54.5% of the sample, or 61 out of 100, did not utilise combination oral contraceptives.

Table 1: Distribution of the sample's sociodemographic characteristics and outcome (n=112)

		Frequency (percentage)
Age group	Less than 40	44 (39.3%)
	40 and more	68 (60.7%)
Parity	nulliparous	3 (2.7%)
	primiparous	63(56.3%)
	multiparous	46(41.1%)
Age of marriage	less than 20	57(50.9%)
	20 and more	55(49.1%)
Combined oral contraceptive pills	Yes	51(45.5%)
	no	61(54.5%)
occupation	housewife	69(61.6%)
	employed	43(38.4%)
Family history of cancer	Yes	39(34.8%)
	No	73(65.2%)
smocker	yes	18(15.5%)
	no	94(81%)

*Cancers include: cervix, ovary, uterine, breast.

According to the table, the most common patient complaints were vaginal discharge (47%) and irregular bleeding (28%) after sex (2%) and post-coital bleeding (1.8%). (2).

Table 2: The distribution of patients according to their chief complaint. N=112

Patient complain	Frequency (percentage)
asymptomatic	1(0.9%)
pain	8(7.1%)
mixed post coital bleeding and others	2(1.8%)
abnormal vaginal bleeding	13(11.6%)
vaginal discharge	47(42%)
irregular bleeding	28(25%)
post-menopausal bleeding	13(11.6%)

The pap smear findings for more than two thirds of the sample (102; 91, 1%) were normal. Whereas the remaining group, as indicated in figure (1) and table, had 10 (8.9%) abnormal pap smears (3).

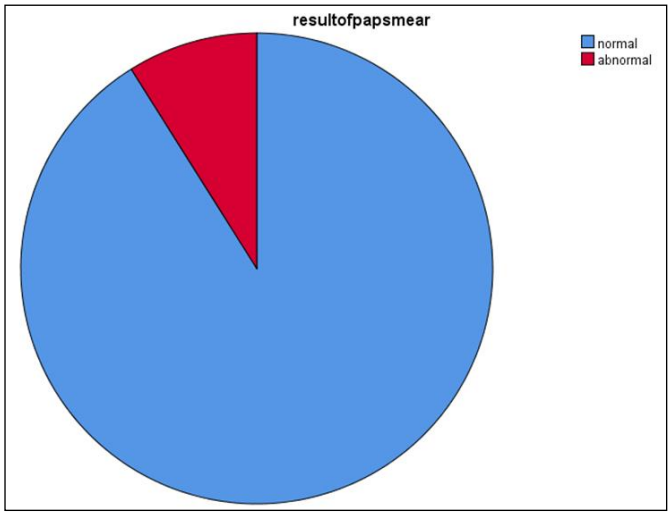

Fig 1: The results for pap smears of the studied sample, N=112

Table 3: Pap smears' results of the studied sample in details, N=112

Pap smear result		Frequency	Percentage
Normal	NILM	27	24.1%
	inflammation	40	35.7%
	ASCUS	35	31.3%
Abnormal	LSIL	3	2.7%
	HSIL	3	2.7%
	AGC-NOS	3	2.7%
	Squamous cell carcinoma	1	0.9%
	Total	112	100.0%

ASCUS: Atypical squamous cell of undetermined significance; LSIL: Low-grade squamous intraepithelial lesion; HSIL: High-grade intraepithelial lesion; AGC-NOS: Atypical glandular cells not otherwise specified.

A highly significant association was found between abnormal pap smear results and females 40 years of age or older, smokers, multiparous, married before 20 years of age, use of combined oral contraceptives, and positive family history; however, no significant association was found between the patient's reported occupation as shown in the table (4).

Table 4: The distribution of the study sample by sociodemographic characteristics and pap smear findings

		Result of pap smear		P Value
		Normal	Abnormal	
Age group	lessthan40	43(42.2%)	1 (10.0%)	0.047
	40 and more	59(57.8%)	9 (90.0%)	
parity	nulliparous	3 (2.9%)	0(0.0%)	0,00
	primiparous	63(61.8%)	0(0.0%)	
	multiparous	36(35.3%)	10(100.0%)	
Age of marriage	less than 20	48(47.1%)	9(90.0%)	0.009
	20 and more	54(52.9%)	1(10.0%)	
Combined oral contraceptive pills	Yes	43(42.2%)	8(80.0%)	0.022
	no	59(57.8%)	2(20.0%)	
Patient complain	asymptomatic	1(1.0%)	0(0.0%)	0.187
	pain	7(6.9%)	1(10.0%)	
	mixed post coital bleeding and others	2(2.0%)	0(0.0%)	
	abnormal vaginal bleeding	12(11.8%)	1(10.0%)	
	vaginal discharge	46(45.1%)	1(10.0%)	
	irregular bleeding	24(23.5%)	4(40.0%)	
	post-menopausal bleeding	10(9.8%)	3(30.0%)	
occupation	housewife	61(59.8%)	8(80.0%)	0.214
	employed	41(40.2%)	2(20.0%)	
Family history of cancer	Yes	29(28.4%)	10(100.0%)	0.00
	No	73(71.6%)	0(0.0%)	
smoker	Yes	9(8.8%)	9(90%)	0.00
	no	93(91.2%)	1(10%)	

Using binary logistic regression analysis for the factors revealed that having an abnormal pap smear was six times more frequent in those who were 40 years of age or older [OR 6.559 CI95%.801-53.727].

Table 5: Analysis using binary logistic regression of the related factors for abnormal pap smear findings in the sample under study

	Odd ratio	95% confidence interval	
		Lower limit	Upper limit
Age group	6.559	.801	53.727
Age of marriage	.099	.012	.808
Combined oral contraceptive pills	.182	.037	.901
Occupation	.372	.075	1.841
Smoker	0.011	0,001	0.095

Discussion

A 2019 research in Baghdad indicated that 23.3% of women had abnormal intraepithelial lesions, while a 2014 study in Baghdad found that roughly 50% of investigated samples had abnormal pap smear findings [7, 8]. The present prevalence of abnormal pap smear results among Iraqi female samples was 8.9%. A disparity that might be explained by differences in sample size and knowledge of the screening programmes. As a comparison, the results recorded in Saudi Arabia in 2011 were 4.95 percent, while the results published in Jordan in 2017 were 3.8 percent, [9, 10]. The absence of a cervix cancer screening programme in Iraq may have resulted to a lack of awareness and late presentation, both of which may have contributed to the higher proportion of abnormal pap smears. This study's prevalence of abnormal pap smear results (31.3%) was similar to two others done in Baghdad (11.2%, 10.1%, 1.5%, respectively) in 2019 and 2014 (ASCUS 10%, 11.2%, 10.1%, 1.5%). This is in contrast to the prevalence rates seen in Saudi Arabia in 2011 (ASCUS 2.99%, LSIL 0.09%, HSIL 0.68%) and India in 2017 (ASCUS 2.90%, LSIL 5.09%, HSIL 0.68%) (LSIL 19% and HSIL 20%) respectively [7, 8]. HSIL 0.48%) [9,5]. Just one patient (0.9%) was diagnosed with cervical cancer throughout the study period, which is in line with previous studies from Baghdad (0.4%) and Saudi Arabia (0.3%). Cervical cancer is uncommon because of people's sexual habits and the teachings of their religions and cultures. Premarital sex is illegal in Iraq according to Islamic law. But, other practises, such as male circumcision, which is common in our country, also contribute. There was a statistically significant increase in the risk of abnormal pap smear results for women aged 40 and up in this study, which is in line with a 2019 study from Iraq (Baghdad) that found that the average ages of patients with ASCUS (40.51±0.8), HISL (44.91±2.95), and LISL (38.91±2.95) were 40.5, 10.8, and 38.8 years, respectively. Furthermore, in 2018, a study in India found that the majority of abnormal pap smear results occurred between the ages of 40 and 60, while in 2012, research in Kirkuk found that the average age of abnormal pap smear findings was 47 years. Age is significantly related to abnormal pap smear results [5, 7, 11, 12], as shown by the binary logistic regression analysis. This research supports the findings of Guarisi R., who found that smoking increased the risk of having an abnormal pap smear, *et al.* [13] found in a 2009 study done in Argentina and Brazil that smoking was significantly associated with negative pap smear findings despite a negative colposcopy, *et al.* found a strong link between smoking and cervical cancer in a 1999 study done in the USA [14]. This finding, however, conflicts with 2018 Saudi Arabian data [15] that revealed no correlation between smoking and abnormal pap smear results. Additionally, shown to be statistically associated with abnormal pap smear findings were parity, age at marriage, use of combination hormonal contraception, and a family history of cancer. This is in line with the findings of a research done in Baghdad in 2016 which linked cervical abnormalities and premalignant alterations to high parity, the use of hormonal contraceptives, and the major complaint (postcoital bleeding or vaginal discharge) [16]. Despite the apparent link between these factors and the cervix, research undertaken in Saudi Arabia in 2018 [15] and in Baghdad in 2020 [17] identified no such correlation.

Conclusions

Around 10% of pap smears were abnormal. Being a woman over 40, a smoker, having more than one child, being married before 20, taking combination oral contraceptive pills, and having a positive family history were substantially connected to abnormal

pap smear results. These findings underscore the need to create a comprehensive cervical screening programme, promote public awareness of the illness and its risk factors, and adopt preventive measures, as well as ensuring that patients with abnormal pap smear results get continuous treatment.

Conflict of Interest
None.

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