Original Article

PREVALENCE OF CYTOLOGICAL ABNORMALITY OF CERVICAL PAPANICOLAOU SMEAR IN A- IMAMEEN AL- KADYMIAN MEDICAL CITY 2020, 2021

*[1]Dr. Zainab Alaa Dhari, [2]Dr. Alhan H. Sultan, [3]Dr. Lamees Adnan Shubber, [4]Dr. Ilham Abdulrahman Alzubaidi and [5]Dr. Hiba D. Al_Ameri

[1,2,3,4]Kadhimiya Teaching Hospital, Baghdad, Iraq.
[5]MBChB. FABHS(CM). F.C.S, Kadhimiya Teaching Hospital, Baghdad, Iraq.

*Corresponding Author: Dr. Zainab Alaa Dhari

Kadhimiya Teaching Hospital, Baghdad, Iraq.

ABSTRACT

Introduction: Cervical cancer is one of the leading causes of cancer death among females worldwide and its behavior epidemiologically likes a venereal disease of low infectiousness. The wide differences in the incidence among different countries also influenced by the introduction of screening.It is one of seven malignancies that accounted for half of the yearly worldwide incidence and mortality burden of all cancers. The goal of this study is to find out how many Iraqi women have invasive cervical cancer and intraepithelial neoplasia. **Method:** A cross sectional study. Information including the age and cytological results of the Pap smear for each patient parity,history of wart,education level, were taken. Asymptomatic female and those having (post cotal bleeding, post-menopausal bleeding, inter menstrual bleeding, vaginal discharge, dyspareunia, warts) are included in the study. Any females with unsatisfactory in cytology, pap smear reports are excluded from study. **Results:** from 438 females, 383 (87%) females had normal diagnoses, 43 (10%) of females diagnosed as ASCUS and 12 (3%) as LSIL. Mean age of females according to diagnosis as following: LSIL (38.75 ± 12.55), ASCUS (41.93 ± 11.03) years. There is a significant association between Pap smear and outcome; 91.7% of females diagnosed as LSIL had never had a Pap smear. There is a significant association between wart history and result; 83.3% of LSIL and 76.7% of ASCUS females had never had a wart. Menopause is associated with outcome; 33.3% of LSIL and 30.2% of ASCUS patients had menopause. There is a strong correlation between contraceptive method and result; 66.7% of LSIL females use a combination CP, whereas 30.2% of females diagnosed as ASCUS are use hormonal CP. **Conclusion:** Most of females have cervical cancer screening diagnosed as ASCUS and then as LSIL, the age of females according to diagnosis outcomes as the following; LSIL (38.75 ± 12.55) years, ASCUS (41.93 ± 11.03) years. High frequency of LSIL among women do not do Pap smear previously.

KEYWORDS: Prevalence, cytological abnormality, cervica, papanicolaou smear, A- Imameen Al-kadymian medical city.

INTRODUCTION

Cervical cancer is the fourth most common cancer among women, with 570,000 new cases and 311,000 deaths in 2016.[1] It is one of the top seven cancers responsible for half of the annual global incidence and death burden of all cancers. Highest report rate was noted in Sub-Saharan Africa and Southeast Asia whereas Western Asia has 7–10 times lowest rates.[2] Death and morbidity rate 1.3% and 1.9% per 100,000 populations in Iraq. Human papilloma virus (HPV) infections, a lack of sanitation, an early age of first intercourse, having several sexual partners, and living in poor circumstances

are all risk factors for cervical cancer.[3-5] Most cases of cervical cancer last 10 to 15 years before manifestation occur, in which many visible and curable changes accrue in their precursor stages.[6] In Iraq cervical cancer Screening test started at age 25 years old in married female and having at least one of the following condition (An abnormal vaginal discharge, a history or presence of genital warts, continuous use of oral contraceptive pills for 3 or more years, smoking, grand multipara, poor socioeconomic position, and malnutrition). Asymptomatic women but having abnormal looking cervix during examination may also be tested.[7]

Significant decrease in cervical cancer cases have been shown when screening programmers and HPV vaccines were implemented; this explain why 85% of worldwide mortality accrue in developing countries. Bethesda system is a modern reporting system for cervical cytological pap smear results. It was created in 1991 to give standard language and clear guidance for managing these lesions. It was revised in 2001.Its first edition added squamous intraepithelial lesion (SIL), a possible precancerous lesion, with high spontaneous regression rate and unpredictable development to invasive malignancy.[8] The descriptive diagnosis are either negative for intraepithelial lesion or malignancy (infection, reactive or atrophic changes), or epithelial cell abnormalities (squamous or glandular cell abnormality) or others such as endometrial cells in postmenopausal women not on hormonal therapy. The squamous cell abnormalities include four types:

1- ASC (Atypical Squamous Cells): either of undetermined significance (ASC-US), or that cannot exclude high-grade squamous intraepithelial lesion (ASC-H). 2- LSIL (Low-grade squamous intraepithelial lesions): cells show definite minor changes unlikely to progress into cancer, including human papilloma virus (HPV) infection, mild dysplasia, and cervical intraepithelial neoplasia (CIN 1). 3- HSIL (High-grade squamous intraepithelial lesions): cell changes having higher likelihood of progressing to cancer, including presence of moderate to severe dysplasia, carcinoma in situ (CIS), CIN 2 and CIN 3, or changes suspicious for invasive cancer. 4- Squamous cell invasive cancer.[9] The Glandular cell abnormalities include three types: The AGUS (Atypical glandular cells of undetermined significant borderline cell) between reactive changes to premalignant / malignant process, Adenocarcinoma in situ, and Adenocarcinoma.[9,10,11]

The aim of study tofind out how many Iraqi women have invasive cervical cancer and intraepithelial neoplasia.

METHOD

A cross sectional study is done in Al-Imameen Al-Kadhimin Medical City. Data is obtained from the file records in the period from January 2020 to July 2022. Information including the age and cytological results of the Pap smear for each patient was taken. asymptomatic female, whose ages equal or older than 25 years old and those having these symptom (post coital bleeding, post-menopausal bleeding, inter menstrual bleeding, vaginal discharge, dyspareunia, warts) are included in the study. females with unsatisfactory pap smear result were excluded from study. The variables including(Age(years), Education, Parity. Mode of delivery, Date of marriage, Contraception types, Frequency of intercourse, Symptoms. Pervious history includes; Chronic disease, Chronic drug use, hear about cancer, known about symptoms, Pap smear doing, Have wart before, Menopause) were taken. Statistical analysis done by SPSS 22, frequency and percentage used for categorical data, mean, median and SD for continuous data. Chi-square to f assess association between variables. P-value equal or less to 0.05 is considered significant.

RESULTS

Cross sectional study of 438 females with mean of age (40.8 ± 10.7) years. (32.9%) of females at age group 41-50 years old, (45%) of females have secondary education, (72.8%) of females have more than 3 parity, (41.8%) of females have normal vaginal delivery, (43.4%)of females married at age 20 years, (31.1%) of females used hormonal CP. (61.6%) of females have more than 3 intercourses per week, (48.2%) of females have more vaginal discharge as symptoms, (32.2%) of females have chronic disease before, (25.8%) have history of chronic drug use, only 13.5% of females hear about the cancer, (5%) of females know about symptoms, (6.2%) do Pap smear, (6.8%) of females have history of wart, (17.6%) of females at menopause. As show in table 1.

Table 1: distribution of patients according to demographic characteristics and chief complain.

Variables		Frequency	Percentage
Age (years)	≤30	107	24.4
	31-40	103	23.5
	41-50	144	32.9
	51-60	68	15.5
	>60	16	3.7
	illiterate	25	5.7
Education	primary	105	24.0
	secondary	197	45.0
	college or higher	111	25.3
Parity	0	27	6.2
	1-3	92	21.0
	>3	319	72.8
Mode of delivery	n	183	41.8
	c/s	88	20.1
	mixed	167	38.1

Years of marriage	5-10	82	18.7
	11-20	166	37.9
	>20	190	43.4
	no	127	29.0
Contraception types	Progestin contraceptive	136	31.1
	IUCD	63	14.4
	combined	112	25.6
Frequency of intercourse	≤3 week	153	34.9
	>3 /week	270	61.6
	No intrcourse	15	3.4
	increase VD	211	48.2
Symptoms	PCB	161	36.8
	dyspareunia	42	9.6
	no symptoms	24	5.5
Chronic disease	yes	141	32.2
	no	297	67.8
Chronic drug use	yes	113	25.8
	no	325	74.2
Hear about cancer	yes	59	13.5
	no	379	86.5
Know about symptoms	yes	22	5.0
	no	416	95.0
Did Pap smear test previously?	yes	27	6.2
	no	411	93.8
History of wart	yes	30	6.8
	no	408	93.2
Menopause	yes	77	17.6
	no	361	82.4

Fig 1, show that 383 (87%) of females have negative diagnosis, 43 (10%) of them diagnosed as ASCUS and 12 (3%) of them diagnosed as LSIL.
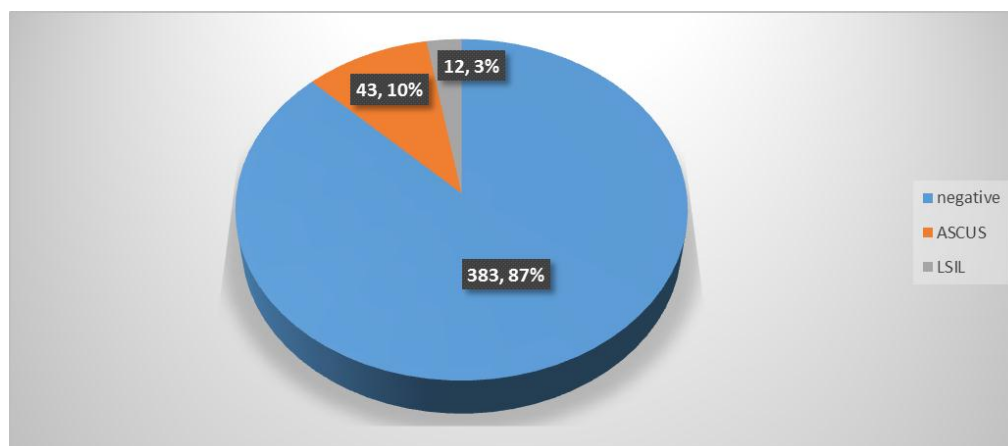

Fig. 1: Distribution of patients according to outcomes.

The age of females according to diagnosis outcomes as the following; LSIL (38.75 ± 12.55) years, ASCUS (41.93± 11.03) years, negative (40.85± 10.69) years. As show in table 3.

Table 3: Mean age of females (years) according to outcome.

Outcome	N	Mean ±SD
LSIL	12	38.75 ± 12.55
ASCUS	43	41.93 ± 11.03
Negative	383	40.85 ± 10.69

There is significant association between Pap smear done and outcome, (91.7%) of females diagnosed as LSILhavenotPap smear before, (88.4%) of females diagnosed as ASCUS have not Pap smear before.

There is significant association between history of wart and outcome, (83.3%) of females diagnosed as LSIL have no history of wart before, (76.7%) of females diagnosed as ASCUS have no history of wart before.

There is significant association between menopause and outcome, (33.3%) of females diagnosed as LSIL have menopause, (30.2%) of females diagnosed as ASCUS have menopause.

There is significant association between contraceptive type and outcome, (66.7%) of females diagnosed as LSIL have used combined contraceptive pills previously, (30.2%, 32.1%) of females diagnosed as ASCUS and normal females have been used hormonal contraceptive respectively. As show in table 4.

There is no significant association between other variables in tables 4 below and outcome.

Table 4: Association between demographic features of females and outcome.

Variables		OUTCOME			P-value
		LSIL	**ASCUS**	**Negative**	
Age groups	*30 and <*	7 (58.3%)	13 (30.2%)	87 (22.7%)	
	31-40	1 (8.3%)	8 (18.6%)	94 (24.5%)	0.058
	41-50	1(8.3%)	10(23.3%)	133(34.7%)	
	51-60	2(16.7%)	10(23.3%)	56(14.6%)	
	>60	1(8.3%)	2(4.7%)	13(3.4%)	
	0	0(0%)	2(4.7%)	25(6.5%)	
Parity	*1-3*	1(8.3%)	3(7%)	88(23%)	0.06
	>3	11(91.7%)	38(88.4%)	270 (70.5%)	
	Yes	1(8.3%)	7(16.3%)	19(5%)	
Pap smear	*No*	11(91.7%)	36(83.7%)	364(95%)	**0.013**
	Yes	2(16.7%)	10(23.3%)	18(4.7%)	
Wart	*No*	10(83.3%)	33(76.7%)	365(95.3%)	**0.0001**
Mode of	*normal*	3(25%)	19(44.2%)	161(42%)	
delivery	*c/s*	2(16.7%)	6(14%)	80(20.9%)	0.5
	mixed	7(58.3%)	18(41.9%)	142(37.1%)	
Chronic	*Yes*	2(16.7%)	17(39.5%)	122(31.9%)	
disease	*No*	10(83.3%)	26(60.5%)	261(68.1%)	0.3
Chronic	*Yes*	3(25%)	15(34.9%)	95(24.8%)	
Drugs use	*No*	9(75%)	28(65.1%)	288(75.2%)	0.35
Hear about	*Yes*	2	10	47	
Cancer		16.7%	23.3%	12.3%	0.13
	No	10	33	336	
		83.3%	76.7%	87.7%	
	Yes	1	5	16	
Know about		8.3%	11.6%	4.2%	0.09
symptoms	*No*	11	38	367	
		91.7%	88.4%	95.8%	
	≤week	2	16	135	
		16.7%	37.2%	35.2%	
Frequency of	*>3 /week*	8	25	237	0.09
Intercourse		66.7%	58.1%	61.9%	
	no	2	2	11	
		16.7%	4.7%	2.9%	
	Yes	4(33.3%)	13(30.2%)	60(15.7%)	
Menopause	*No*	8(66.7%)	30(69.8%)	323(84.3%)	**0.02**
	No	1	12	114	
	Progestin contraceptive	8.3%	27.9%	29.8%	
Contraception		0	13	123	
		0.0%	30.2%	32.1%	**0.02**
	IUCD	3	7	53	
		25.0%	16.3%	13.8%	
	combined	8	11	93	

		66.7%	25.6%	24.3%	
Duration of	*5-10*	0	6	76	
Marriage		0.0%	14.0%	19.8%	
	11-20	4	14	148	0.18
		33.3%	32.6%	38.6%	
	>20	8	23	159	
		66.7%	53.5%	41.5%	
	increase VD	5	15	191	
		41.7%	34.9%	49.9%	
	PCB	6	21	134	
Symptoms		50.0%	48.8%	35.0%	0.41
	dyspareunia	0	4	38	
		0.0%	9.3%	9.9%	
	no symptoms	1	3	20	
		8.3%	7.0%	5.2%	

P-value ≤ 0.05 (significant).

DISCUSSION

Cervical cancer (CC) is the leading cause of cancer-related fatalities that are avoidable; with lengthy extensive phase (cervical dysplasia); The incidence of cervical dysplasia varies according to socioeconomic variables and geographic locations of the population.[12] Therefore, its prevention is contingent upon early detection and treatment of these pre-invasive lesions.[13] In the current study, positive finding (LSIL and ASCUS) is directly related to age (p value is 0.05) that is may be due decrease in frequency of intercourse with age that lead to less exposure to infection. Most epithelial cell abnormalities are found in women aged 45 or older, according to study done in Bangladesh.[14] Significant association between doing pap smear test and cervical epithelial abnormality (LSIL and ASCUS) is noted in this current study (p Value=0.013), the explanation of this may be due to women that did pap smear screening test had more information about cervical complain and mode of management.[14] Negative results occur in female with mean age 40.8 10.7 years, 32.9% of females aged 41–50 years old. This is comparable to other studies that reported that the age of patients varied from 20 to 76 years old).[15] and concomitant with the Indian study.[16] Positive history of wart is directly related to diagnosis, in which 95% of those with negative finding had never have history of wart. Chronic HPV infection raises the probability that precancerous cervical lesions may proceed to invasive carcinoma.[17,18] In affluent nations, the introduction of HPV vaccination programmers and cervical cytology screening has decreased cervical cancer-related mortality by 50–75% over the previous 50 years.[18] Significant association between menopause and positive finding (LSIL and ASCUS), as (33.3%) of females diagnosed with LSIL and (30.2%) of females diagnosed with ASCUS had experienced menopause. This is consistent with other studies,[17,19] in which incidence of squamous intraepithelial lesion (SIL) increased with the beginning of menopause. Type of contraceptive is significantly associated with cervical intraepithelial lesion is noted in this study, using IUSD, COCP increase the percentage of LSIL and ASCUS

(66.7%) of females diagnosed with LSIL using a combination contraceptive method, (30.2%, 32.0%) of females diagnosed with ASCUS using a progestin only contraceptive method. So, the contraceptive pills have been related with low-grade squamous intraepithelial lesions, this is agreed with study done in USA [20]. In the current study, (87%) of females had negative diagnostic outcome (10%) diagnosed with ASCUS and (3%) with LSIL. Similar findings were noted in other Iraqi and Egyptian literatures.[17,21,22] Other studies indicate that the prevalence of ASCUS between 2016 and 2019 is (11%, 17%, and 13% respectively),[21,22] and that the prevalence of LSIL is (1.5%).[13,23] This may be attributable to the timing of data collection during the COVID 19 pandemic, since the number of females presenting for screening tests is declined.[17] The ages of females according to diagnosis outcomes are as follows: LSIL (38.75± 12.55) years, ASCUS (41.93 ±11.03) years, and negative (40.85 ±10.69) years. This is consistent with the study done in Iraq reported that the average age of patients with NILM is (39.4±10.9), ASCUS (40.5±10.8), LISL (38.4±11.3), HISL (44.9±12.95).[21] In the current study, (45%) of females have a secondary education, (72.8%) have more than three pregnancies, (41.8%) had a normal vaginal birth. The vast majority (95.7%; n = 423) of the participants were married, (43.4% married before the age of 20 years, similar findings were noted in studies carried out in Oman and Kuwait. Overall, this might be due to social circumstances.[24] In current study (61.6%) of females have more than 3 intercourses per week, (48.2%) of female's vaginal discharge as symptoms, (32.2%) of females have a history of chronic disease, (25.8%) have a history of chronic drug use, only 13.5% of females hear about cancer, this is agreed with other literature which stated that most of females have vaginal discharge and 30% of females have chronic disease and drugs use.[25] Only (5%) of females know about symptoms, (6.2%) do Pap smear, all of these conclusions are supported by additional study done in India and Iraq.[12,13] In the current research, the mean age of women getting Pap smears is 39 years, showing that this cohort is an appropriate target for cervical cancer screening;

nevertheless, the majority of women do not undertake pap smear screenings at this age due to a lack of knowledge this is also similar to Omani study.[25]

CONCLUSION

Most of females have cervical cancer screening diagnosed as ASCUS and then as LSIL, the age of females according to diagnosis outcomes as the following; LSIL (38.75 ± 12.55) years, ASCUS (41.93 ± 11.03) years. With significant association with wart infection, contraception pills, pap smear doing and menopause. High frequency of LSIL among women do not do Pap smear previously.

REFERENCES

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin, 2018; 68: 394–424. https://doi. org/10.3322/caac. 21492.

2. Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. Int J Cancer, 2015; 136: E359–86.

3. Koss LG, Stewart F, Foote FW, Jordan MJ, Bader GM, Day E. Some histological aspects of behavior of epidermoid carcinoma in situ and related lesions of the uterine cervix. A long-term prospective study. Cancer, 1963; 16: 1160–211. https://doi.org/1 0.1002/1097-0142(196309)16:93.0.co; 2-4.

4. Ugboma HAA, Aburoma HLS. Pap smear: An important screening technique for preventing and detecting cervical cancer. Continental J Med Res, 2010; 4:13–17. http://doi. org/10.5281/zenodo. 3528011

5. Schiffman MH, Brinton LA. The epidemiology of cervical carcinogenesis. Cancer, 1995; 76(10): 1888-901.

6. Hendrickso MR &Kempson RL. Normal histology of uterus and fallopian tubes. In: Sternberg S. Histology for pathogenesis. 2nd ed. Philadelphia Lippincott-Raven, 1997; 879-928.

7. MOH. Program of early detection of cervical cancer IRAQ. Official document, 2011.

8. Pangarkar MA. The Bethesda System for reporting cervical cytology. Cytojournal, 2022 Apr 30; 19: 28.

9. Sand JocoyRN The Bethesda system (TBS) 2009. National Cancer Institute (2001), retrieved from: htt://www. bethesda2001.cancer.org. Accessed, May 2012.

10. Hendrickso MR & Kempson RL. Normal histology of uterus and fallopian tubes. In: Sternberg S. Histology for pathogenesis. 2nd ed. Philadelphia Lippincott-Raven, 1997; 879-928.

11. MOH. Program of early detection of cervical cancer IRAQ. Official document, 2011.

12. Yasamin Hamza Sharif. Clinical correlation of CC screening using Pap smear test. J Popl Ther Clin Pharmacol [Internet]. 2022 Mar. 15 [cited Aug. 20], 2022; 29(01). Available from: https://jptcp.com /index.php/jptcp /article/view/892.

13. Al Sekri E, Al Musalhi A, Al Abri K, Al Kindi H, Al Salmani AA. Prevalence of Cytological Abnormalities in Papanicolaou Smears and Risk Factors for Cervical Cancer Among Women in Muscat, Oman. *Sultan Qaboos Univ Med J.*, 2021; 21(4): 598-603.

14. Banik U, Bhattacharjee P, Ahamad SU, Rahman Z. Pattern of epithelial cell abnormality in Pap smear: A clinicopathological and demographic correlation. Cytojournal, 2011; 8: 8.

15. Pangarkar MA. The Bethesda System for reporting cervical cytology. Cytojournal, 2022 Apr 30; 19: 28.

16. Sachan, P. L., Singh, M., Patel, M. L., & Sachan, R. A Study on Cervical Cancer Screening Using Pap Smear Test and Clinical Correlation. Asia-Pacific journal of oncology nursing, 2018; 5(3): 337–341.

17. Asan Ali Qasim Al Niyazee, Sarab K.Abedalrahman, Luma Abdulrazzaq Mohammed Saleh. Prevalence of cytological abnormality of cervical papanicolaou smear. World Family Medicine, 2019; 17(11): 16-21.

18. zur Hausen H. Papillomaviruses and cancer: From basic studies to clinical application. Nat Rev Cancer, 2002; 2: 342–50. http:// doi.org/10.1038/nrc798.

19. Moore KN, Bannon RJ, Lanneau GS, Zuna RE, Walker JL, Gold MA, et al. Cervical dysplasia among women over 35 years of age. *Am J Obstet Gynecol,* 2008; 199: 471.e1–5

20. Morrison C, Prokorym P, Piquero C, Wakely PE Jr, Nuovo GJ. Oral contraceptive pills are associated with artifacts in ThinPrep Pap smears that mimic low-grade squamous intraepithelial lesions. *Cancer*, 2003; 99(2): 75-82.

21. Qasim, Asan & Abedalrahman, Sarab & Saleh, Luma. Prevalence of Cytological Abnormality of Cervical Papanicolaou Smear. World Family Medicine Journal/Middle East Journal of Family Medicine, 2019; 17: 16-21.

22. Essmat, A., Meleis, M. , Elsokkary, H. , Ahmed, S. and El-Soody, E. Study of Prevalence of Abnormal Cervical Cytology in Al-Shatby Maternity University Hospital. Open Journal of Obstetrics and Gynecology, 2021; 11: 434-449.

23. Kapila K, Sharma PN, George SS, Al-Shaheen A, Al-Juwaiser A, Al-Awadhi R. Trends in epithelial cell abnormalities observed on cervical smears over a 21-year period in a tertiary care hospital in Kuwait. Sultan Qaboos Univ Med J, 2015; 15: e112–15.

24. Kapila K, Sharma PN, George SS, Al-Shaheen A, Al-Juwaiser A, Al-Awadhi R. Trends in epithelial cell abnormalities observed on cervical smears over a 21-year period in a tertiary care hospital in Kuwait. *Sultan Qaboos Univ Med J.,* 2015; 15: e112–15.

25. Nasar A, Waad A, Atheer A, Nasra A. Awareness of cervical cancer and Pap smear testing among Omani women. *Asian Pac J Cancer Prev,* 2016; 17: 4825–30. doi: 10.22034/APJCP.2016.17.11.4825.