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The Impact of Endometriosis Diagnosis on Women's Mental Health-A Cross-Sectional Study

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ABSTRACT

Endometriosis is a chronic condition where tissue similar to endometrium grows outside the uterus. It affects the social and psychological life of women. **Objective:** To evaluate the impact of endometriosis diagnosis on women's mental health. **Methods:** In this cross-sectional study basal data, Endometriosis Health Profile (EHP-30) statuses, and Hospital Anxiety and Depression scale scores were collected from 200 sub-fertile women who were sampled using a non-probability sampling technique. Frequency distribution and chi-square (X^2) analysis were performed using IBM SPSS® version 26.0. **Results:** Out of 200 sub-fertile women 28 (14%) had endometriosis. Positive endometriosis significantly correlated with age (0.09<0.1). The endometriosis-related health statuses significantly correlated with anxiety and depression with two-sided asymptomatic significances of 0.007(<0.05) and 0.000(<0.05) respectively. The highest prevalence of severe anxiety and depression was present in women with bad possible health profiles related to endometriosis. **Conclusions:** It was concluded that endometriosis aggravates with age and its positive diagnosis has a strong negative impact on the social and psychological health of the patients.

INTRODUCTION

Endometriosis is a chronic gynecological condition characterized by the presence of endometrial-like tissue outside the uterus. It affects approximately 10% of women of reproductive age worldwide [1]. Endometriosis is a condition characterized by dysmenorrhea, menorrhagia, and dyspareunia, as well as severe pelvic pain, menstrual difficulties, difficulty walking, ovarian pain, bloating, diarrhoea, cramps, nausea, vomiting, anal pain, painful urinary tract symptoms, fainting, sciatica during menstruation, and right chest pain [2, 3]. It is also linked to sub-fertility or infertility, where women struggle to conceive due to the presence of endometrial polyps, fibroids, and PCOS. Retrograde menstruation, where endometrial cells flow back through fallopian tubes, is a major factor contributing to endometriosis [4]. Endometriosis causes significant psychological distress in

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women, including anxiety, depression, and reduced self-esteem due to fertility uncertainty, and management challenges [5]. Chronic pain, sexual dysfunction, and fertility issues associated with endometriosis can lead to decreased sexual satisfaction, communication difficulties, and relationship dissatisfaction [6]. Social support systems in Pakistan play a crucial role in addressing the challenges of endometriosis, with the laparoscopic diagnosis affecting 16.8-55% of women with infertility [7]. Endometriosis negatively impacts women, causing pain, psychological effects, and future uncertainty due to recurrent surgeries and prolonged medical treatment [8]. The physical impact was linked to symptoms, unfavourable therapeutic side effects, and physical changes, causing many individuals to struggle with daily activities like walking and exercising [9]. Reduced sex frequency, avoiding sex due to pain or bleeding, and lack of orgasm can cause frustration and strained relationships, leading to some couples' divorces due to misunderstanding [10]. Healthcare practitioners can give early diagnosis, and suitable management options, enhance patient care, and contribute to evidence-based decision-making by evaluating the prevalence of endometriosis in this specific group. Understanding the socio-psychological effects of endometriosis will also allow for the development of targeted interventions, support mechanisms, and counselling services to address these women's mental health and well-being, thereby improving their overall treatment experience and reproductive outcomes [11]. Teens' primary concern is education, with two-thirds of women experiencing academic performance issues, including time away from school, decreased productivity, and missed work opportunities due to endometriosis [12]. Endometriosis affects roughly 10-15% of women of reproductive age, according to prior research; the socio-psychological effects of endometriosis on women have been inadequately explored [13]. However, due to a lack of study in this group, the real prevalence of endometriosis among women having diagnostic laparoscopy for infertility remains unknown. It is difficult to appropriately identify and manage endometriosis in women seeking reproductive therapy without a firm awareness of its prevalence [14].

This research aimed to assess the socio-psychological effects of endometriosis on women having sub-fertility conducted at Arif Memorial Teaching Hospital in Lahore.

METHODS

The study incorporated a structured questionnaire and patient medical histories for data on endometriosis with informed consent. Demographic factors such as age, weight, height, waist, monthly income, marriage duration, ethnicity, family system, education, and working condition; medical history on alcohol consumption, smoking, abortion, previous surgeries and accidents; and menstruation-related analysis of irregularity, pain, duration, and bleeding patterns were measured. The demographic factors were quantitative variables while the rest of the measured variables were qualitative. Endometriosis Health Profile-30 (EHP-30) and the Hospital Anxiety and Depression Scale (HADS) tools were used to investigate the objectives. The EHP-30 assesses pain control, emotional well-being, social support, and sexual function, with scores ranging from 0 to 100. The scale findings were divided into four categories, (0-25) worst possible health status, (26-50) bad possible health status (51-75) good possible health status and (76-100) better possible health status. The HADS, a widely used scale, assesses anxiety and depression symptoms in patient's endometriosis, with scores ranging from normal to severe. This scale was divided into four categories for anxiety and depression normal (0-7), mild (8-10), moderate (11-15) and severe (16-21) [15, 16]. Data were analyzed using IBM SPSS® version 26.0. Descriptive statistics of the demographic, medical history, and menstruation-related factors were performed followed by the Pearson chi-square analysis of endometriosis with age and weight. A Chi-square association test was also applied between EHP and HADS anxiety and EHP and HADS depression. The study received approval from The University of Lahore and hospital Institutional Review Boards (IRBs) (research ethical committee, REC-UOL-/130/08/23).

RESULTS

The proportion of respondents with clinically diagnosed positive endometriosis was analyzed. It accounts for 14% of our study respondents among 200 sub-fertile women (Figure 1).

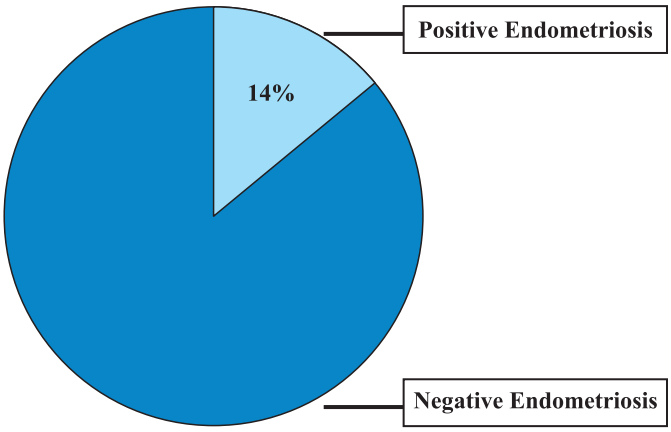

Figure 1: Proportion of Women with Clinically Diagnosed Endometriosis

A major proportion of the sub-fertile women were between 30-39 years (64%), while none were below 19 years of age. The major 58% proportion of sub-fertile women belonged

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to the weight range of 61-80kg. Women with a weight range of 61-80 kg are more prone to sub-fertility as supported by our study statistics of 58%. The highest proportion of sub-fertile women were more than average height (53%). In our study, 131 out of 200 sub-fertile women had a waist size of 88. A maximum number of sub-fertile women resided in nuclear family systems (53.5%) and played the roles of housewives (51.5%). 49% of the sub-fertile women were graduates and those with 1-5 years of marriage were sub-fertile (80.5%) (Table 1).

Table 1: Socio-Demographic Analysis of Sub-Fertile Women

Socio-Demographic Factors		Frequency (%)
Age (Years)	Below 19	0
	20-29	49 (24.5)
	30-39	128 (64)
	40-49	23 (11.5)
Weight (kg)	<40	-
	41-60	57 (28.5)
	61-80	116 (58)
	81-100	26 (13)
	>100	1 (0.5)
Height Foot' Inches"	4-4.5	2 (1)
	4.6-5	85 (42.5)
	5.1-5.5	1 (0.5)
	5.6-6	106 (53)
	>6	6 (3)
Waist	<88	45 (22.5)
	88	131 (65.5)
	>88	24 (12)
Ethnicity	Punjabi	198 (99)
	Prefer Not to Say	2 (1)
Family System	Joint	93 (46.5)
	Nuclear	107 (53.5)
Education	Primary	-
	Higher Secondary	76 (38)
	Graduate	98 (49)
	Post Graduate	26 (13)
Working Condition	Private Jobs	79 (39.5)
	Government Jobs	17 (8.5)
	Housewives	104 (51.5)
Monthly Income (Rs.)	<30k	2 (1)
	31k-60k	58 (29)
	61k-90k	109 (54.5)
	>90k	-
Marriage Duration (years)	1-5	161 (80.5)
	6-10	21 (10.5)
	11-15	16 (8)
	16-20	2 (1)

A general health status analysis of sub-fertile women was done which concluded that 57% of the women were in a good state of health; only 3.5% used to smoke and 2% consumed alcohol. There had been no previous abortions, surgeries, or accidents in 81.5%, 90.5%, and 87.5% of the sub-fertile women (Table 2).

Table 2: Medical History Analysis of Sub-Fertile Women

Medical History		Frequency (%)
Abortion	Yes	37 (18.5)
	No	163 (81.5)
Smoking	Yes	7 (3.5)
	Quitted	8 (4)
	Sometime	8 (4)
	No	177 (88.5)
Alcohol Consumption	Yes	4 (2)
	No	194 (97)
	Quitted	2 (1)
Previous Surgeries	Yes	12 (6)
	No	181 (90.5)
	Don't know	7 (3.5)
Previous Accidents	Yes	20 (10)
	No	175 (87.5)
	Don't know	5 (2.5)

The factors associated with the menstruation cycle of sub-fertile women are often assessed for predisposition to endometriosis. The majority of women were not undergoing any hormonal therapy (83.5%). There was menstruation regularity, slight pain, and normal bleeding patterns in 73.5%, 52% 64% of the sub-fertile women (Table 3).

Table 3: Menstruation-Related Analysis of Sub-Fertile Women

Menstruation-Related Conditions		Frequency (%)
Menstruation Irregularity	Yes	53 (26.5)
	No	147 (73.5)
Menstruation Pain	No	75 (37.5)
	Slight Pain	104 (52)
	Heavy Pain	21 (10.5)
	Light	35 (17.5)
Bleeding Patterns	Normal	124 (62)
	Heavy	41 (20.5)
	<3	22 (11)
Duration of Menstruation (Days)	3	15 (7.5)
	3-7	163 (81.5)
	>7	-

Table 4 indicates the chi-square cross-tabulation of endometriosis with age and weight. Frequency distribution shows that among the sub-fertile females with positive endometriosis, four were 30-39 years old and weighed around 41-60 Kgs. Person-associated p-value determines a correlation between age and positive endometriosis (0.0907<0.1) (Table 4).

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Table 4: Cross-Tabulation Analysis of Positive Endometriosis with Age and Weight

Variables		Endometriosis		Total (n)	Pearson Chi-Square Value	p-value
		Positive (%)	Negative (%)			
Age	20-29	12.5	87.5	8	2.758[a]	0.097
	30-39	20	80	20		
Total		17.8	82.1	28		
Weight	41-60	30.7	69.3	13	0.219[a]	0.640
	61-80	6.6	93.3	15		
Total		17.8	82.1	28		

The study reveals that individuals with normal anxiety are predominantly in the 'normal' or 'good health' category (11.1%), with minor representation in the 'bad possible health' category (7.4%). Mild anxiety is found in 'Better Possible Health Status' (3.7%), 'Bad Possible Health' (3.7%), and 'Worse Possible Health Status' (7.4%). Moderate anxiety is most common in the 'Bad Possible Health' group (11.1%), while severe anxiety is most frequently observed in the 'Bad Possible Health' (37%) and 'Worse Possible Health Status' (14.8%) groups, indicating a strong link between severe anxiety and poorer health conditions, highlighting a significant relationship between these mental health conditions and health status. Depression is most prevalent in individuals with 'Normal or Good Health' (11.1%); mild depression is found in 'Better Possible Health Status' (3.7%) and 'Bad Possible Health' (7.4%). Moderate depression is mostly found in 'Bad Possible Health' (7.4%), and severe depression is high in 'Bad Possible Health' (40.7%) and 'Worse Possible Health Status' (25.9%). This highlights a significant relationship between mental health conditions and health status (Table 5).

Table 5: Cross Tabulation Frequency Analysis of EHP Categories and HADS Anxiety and Depression

Variables		Endometriosis Health Profile (EHP)					
		Better Possible Health (%)	Normal or Good health (%)	Bad possible health (%)	Worse possible health (%)	Total (%)	Pearson X^2 (p-value)
HADS Anxiety	Normal	0	11.1	7.4	0	18.5	22.802 (0.007)
	Mild	3.7	0	3.7	7.4	14.8	
	Moderate	0	0	11.1	3.7	14.8	
	Severe	0	0	37	14.8	51.8	
Total		3.7	11.1	59.2	25.9	100	
HADS Depression	Normal	0	11.1	3.7	0	14.8	30.141 (0.000)
	Mild	3.7	0	7.4	0	11.1	
	Moderate	0	0	7.4	0	7.4	
	Severe	0	0	40.7	25.9	66.6	
Total		3.7	11.1	59.2	25.9	100	

DISCUSSION

The study reveals that endometriosis is a complex clinical issue with symptoms overlapping with other disorders, mistaking them for menstrual pain. Out of 200 sub-fertile women, 28 (14%) were positive for endometriosis after being diagnosed with laparoscopy and 16% were diagnosed positively for endometriosis after pelvic ultrasound and laparoscopy [17, 18]. In the two studies which comprised 169 and 100 women with primary infertility, the highest frequency (57% and 55.9%) belonged to the age group 20-30 years which contradicts the findings of this study i.e. 64% sub-fertile women aged 30-39 years [17, 19]. Marriage duration was also assessed with 61.5% of sub-fertile women being married for 2-4 years which aligns with the frequency of 80.5% being married for 1-5 years [17]. It is deduced from this study that 51.5% of sub-fertile women are housewives; this is supported by the 58% highest prevalence of housewives being sub-fertile. The study conducted by Ahmed et al., also assesses the menstruation cycle related to sub-fertility. Menstruation cycle, amount of loss, and dysmenorrhea were analyzed which are equivalent to menstruation irregularity, bleeding patterns, and menstruation pain in this study. The frequency distributions of these factors in both studies are highest for the same categories [19]. A study conducted in 2024 concluded that infertile women with no pain (predisposition of endometriosis) had higher income and higher education levels than fertile women; this supports the findings of this study which inferred that 54.5% of sub-fertile women earned more than ninety thousand rupees and 51.5% were graduates. Moreover, 83.5% of the women with primary infertility in this study underwent no hormonal therapy which complements the findings of the cross-sectional study where 80% of the women using hormonal therapy had no association with infertility [20]. The conducted study analyzed that severe anxiety (37%) and depression (40.7%) were present in women with bad possible health category of EHP-30; this lines up with the under-discussion study results in which worst scores for depression and anxiety were seen in women with both pain and infertility [21]. In a systematic review which assessed the impact of endometriosis on depressive and anxiety symptoms and quality of life, HADS was used in 22.2% of the 18 included studies; while EHP-30 was used as an assessment tool in 28.6% of the 28 included studies. In all of the studies that incorporated HADS-d and HADS-a scales significantly strong associations were declared between anxiety, depression, endometriosis, and quality of sleep. Similarly, in all the studies that utilized EHP-30 the QOL scores indicated endometriosis-related depression, dysmenorrhea, dyspareunia, acyclic pain, and fatigue [21]. This study is the first of its kind where associations between EHP-30 and HADS-a and EHP-30 and HADS-d were statistically analyzed resulting in significant Pearson p-values of 0.007 and 0.000 respectively.

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CONCLUSIONS

It was concluded that endometriosis aggravates with age and its positive diagnosis has a strong negative impact on the social and psychological health of the patients. Women with bad possible health status related to endometriosis will have severe anxiety and depression. It is advised to health clinicians and women, in general, to work on the early diagnosis and treatment of endometriosis before it interferes with the social and psychological health of the women.

Authors Contribution

Conceptualization: SH
Methodology: SH, MS
Formal analysis: NA, AT
Writing review and editing: MS, ZA, HT, AM, NS, AT

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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