



Article

Relationship Between Health-Related Quality of Life and Sociodemographic Characteristics Among Women with Polycystic Ovarian Syndrome

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Abstract: This study aims to determine the relationship between health-related quality of life (HRQoL) in women with polycystic ovary syndrome (PCOS) and their sociodemographic characteristics. A descriptive correlational design was used for this study, conducted from December 2023 to May 2024. A non-probability (convenience sampling) sample of 400 women was selected from infertility clinics in Babylon City, Iraq. Data were collected using a questionnaire that included sociodemographic characteristics and the PCOS-related HRQoL scale. Data analysis was performed using the SPSS software version 27, applying non-parametric statistical tests such as Spearman's correlation, Mann-Whitney U test, and Kruskal-Wallis test. The results showed that the average age of the participants was 28.95 years, with an average marriage duration of 7.43 years. There were significant correlations between HRQoL dimensions and women's sociodemographic characteristics. Specifically, the study found a positive relationship between body mass index (BMI) and HRQoL, while there was a negative relationship between the number of children and HRQoL. Women with more children tended to have better PCOS-related quality of life in terms of physical symptoms. In contrast, women without children or with fewer children experienced worse quality of life related to infertility, acne, and overall HRQoL. The study indicates that the fewer children women with PCOS have, the poorer their health-related quality of life is in terms of infertility, acne, and overall HRQoL. Conversely, the more children they have, the better their quality of life is in terms of physical symptoms. Additionally, there is a relationship between BMI and HRQoL in women with PCOS, with higher BMI being associated with better HRQoL in terms of weight, physical symptoms, and overall scale.

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1. Introduction

Polycystic ovary syndrome (PCOS) is the most common endocrine condition in women of reproductive age. It is currently recognized as a syndrome characterized by ovarian dysfunction and endocrine abnormalities, with key indicators including excess androgens, hyperinsulinemia, and metabolic disturbances (1). The worldwide incidence of PCOS is approximated to affect 8–21% of women in their reproductive year (2). Polycystic Ovary Syndrome (PCOS) is characterized by a complex and multifaceted pathophysiology, which is influenced by a combination of genetic factors. Moreover, alterations in the epigenome caused by lifestyle factors can significantly impact ovarian

function, leading to irregularities in the development of follicles and difficulties with ovulation (3-5).

Quality of life (QoL) stands out as a crucial subject in infertility counseling (4), with a growing emphasis on evaluating it and pinpointing the factors that impact it significantly (5). The range of feelings associated with infertility is vast and intricate, frequently impeding the overall quality of life and well-being of individuals affected by this condition (6). Health-Related Quality of Life (HRQoL) is a multidimensional and dynamic concept encompassing various facets, including physical, psychological, and social aspects associated with a specific disease or its management (7,8).

The issue of infertility is a significant matter that has a profound impact on the quality of life of around 16% of couples in Canada who are of reproductive age (9). Polycystic ovary syndrome is associated with reduced QoL (10). Determining factors in the daily way of life and recognizing their consequences on the escalation of PCOs can be instrumental in averting the progression of the illness (11-14). Lifestyle adjustments, such as improving diet, increasing physical activity, ensuring adequate sleep, managing emotional stress, and quitting smoking, are necessary to improve reproductive outcomes in individuals with polycystic ovary syndrome (15,16). So, the study aims to determine the relationship between health-related quality of life for women with polycystic ovarian syndrome and their sociodemographic characteristics.

2. Materials and Methods

Design of the Study:

A descriptive correlational design was used to guide this study. Correlational research provides valuable information about the relationships between variables in a natural setting. The study was conducted from December 12th, 2023 to February 29th, 2024.

Settings of the Study

The study was conducted for the period from December 12th, 2023 to February 29th, 2024 in infertility clinics at Babylon City, Iraq.

Sample of the Study

The study included a convenience sample of women who experience both primary and secondary infertility. Convenience sampling involves selecting study participants based on their easy accessibility and availability at a particular time and place. The researchers relied on a medium effect size, an alpha error probability of 0.05, a power of 0.95, and 10 groups to calculate the recommended sample size which was 390. The final sample size is 400.

Study Instrument:

- a. Part I: The study instrument includes couples' sociodemographic (age, wife's level of education, husband's level of education, household's occupation, and family's monthly income (Iraqi Dinar). It also includes wife's weight (kg) and weight (cm), duration of marriage (years), number of children, age of last children (if any), family type (couple only, couple and husband's parents, and extended one), receiving infertility treatment (Yes/No), duration of infertility treatment (years), type of treatment.
- b. 2.4.2 Part II: The PCOSQ Jones et al. (17) measures health outcome of PCOS upon quality of life. The PCOSQ includes 21 items that are distributed into Weight (5 items), Acne and Body Hair (5 items), Emotions (5 items), Infertility (3 items), and Menstrual Problems (3 items). These items are measured on a 7-point Likert scale of 1 for (Poorest function), to 7 for (Optimal function). The total score ranges

between 21-147. A higher score indicates better functioning in PCOS-related quality of life. The PCOSQ displayed satisfactory internal consistency reliability Weight (0.95), Acne and Body Hair (0.95), Emotions (0.93), Infertility (0.92), and Menstrual Problems (0.89). The PCOSQ displayed satisfactory construct validity as there was a good positive correlation between the 'emotions' scale of the PCOSQ and the 'mental health' and 'role-emotional' scales of the SF-36.

Data Collection and Analysis

Data were coded and analyzed using the statistical package for social science (IBM), version 27. Data was not normally distributed. So, non-parametric statistical measures were used. The Spearman's rho correlation, Mann-Whitney U-Test, and Kruskal-Wallis Test were used.

3. Results

Table 1. Participants' sociodemographic characteristics (N = 400)

	Variable	F	P
Age (Years): Mean: 28.95	6.59	97	24.25
	16-23	166	41.5
	24-31	112	28.0
	32-39	25	6.25
	40-47		
Wife's level of education	Unable to read and write	8	2.0
	Read and write	53	13.3
	Elementary school	41	10.3
	Middle school	58	14.5
	High school	53	13.3
	Diploma	83	20.8
	Bachelor's degree	93	23.3
	Postgraduate diploma	6	1.5
	Master's degree	5	1.3
Husband's level of education	Unable to read and write	17	4.3
	Read and write	38	9.5
	Elementary school	61	15.3
	Middle school	42	10.5
	High school	47	11.8
	Diploma	66	16.5
	Bachelor's degree	101	25.3
	Postgraduate diploma	13	3.3
	Master's degree	11	2.8
	Doctoral degree	4	1.0

Family's	< 300.000	45	11.3
Monthly	300.000-600.000	98	24.5
Income	601.000-900.000	110	27.5
(Iraqi	901.000-1.200.000	59	14.8
Dinar)	1.201.000-1.500.000	62	15.5
	≥ 1.501.000	26	6.5

SD: Standard deviation

The descriptive analysis in table 3-1 shows that nurse' average age is 28.95 ± 6.59 years and 41.5% of samples are seen with the group of "24-41-years". The level of education variable refers to wife's level of education 23.3% & 20.8% of wife hold bachelor and diploma degree respectively. While husband's level of education most them hold bachelor's degree (25.3%), followed by those who are elementary school graduates (15.3%). Regarding monthly income (27.5% - 24.5%) of family reported ranges between 601.000-900.000 ID and 300.000 - 600.000 ID, respectively.

Table 3. Participants' reproductive profile (N = 400)

Variable	F	P
Duration of marriage (Years): Mean (SD): 7.43 ± 5.46	1-5	48.25
	6-10	25.75
	11-15	16.0
	16-20	8.25
	≥ 21	1.75
How many children do you have?	0	56.3
	1	31.5
	2	9.0
	3	2.3
	4	0.5
Do you receive infertility treatment?	5	0.5
	Yes	89.0
	No	11.0

The study results display that the mean of duration of marriage is 7.43 ± 5.46 and less than a half have been married for 1-5-years (n = 193; 48.25%). While the results show that more than a half have no children (56.3%), followed by those who have one child (n = 126; 31.5%). The majority reported that they receive treatment for infertility (n = 356; 89.0%) compared to those who do not receive it (n = 44; 11.0%).

Table 5. Spearman's rho correlations among study variables

Variables	Age	socioeconomic status	BMI	Duration of marriage	Number of children	Last child's age
Affection	-.029	.027	-.060	.040	-.211**	-.180*
Weight	.049	-.008	.477**	.092	.056	.018
Body Hair	.002	.000	.074	.016	.038	-.178*
Infertility	.001	-.172**	.050	-.003	-.427**	-.010
Acne	-.367**	.022	-.172**	-.269**	-.113*	-.034
Menstruation	.024	.016	-.011	.043	-.007	-.091
Physical Symptoms	.308**	.209**	.186**	.285**	.168**	-.032
Quality of Life	-.018	.027	.172**	.048	-.113*	-.135

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed)

The study results reveal that there is a statistically significant inverse correlation between women's age and their polycystic ovarian syndrome health-related quality-of-life in terms of acne ($r = -.367$ at $p = 0.01$). On the other hand, there was a statistically significant positive correlation between women's age and their polycystic ovarian syndrome health-related quality-of-life in terms of physical symptoms ($r = .308$ at $p = 0.01$).

There is a statistically significant inverse correlation between family's socioeconomic status and women's polycystic ovarian syndrome health-related quality-of-life in terms of infertility ($r = -.172$ at $p = 0.01$). On the other hand, there was a statistically significant positive correlation between family's socioeconomic status and women's polycystic ovarian syndrome health-related quality-of-life in terms of physical symptoms ($r = .209$ at $p = 0.01$).

There is a statistically significant inverse correlation between women's BMI and their polycystic ovarian syndrome health-related quality-of-life in terms of acne ($r = -.172$ at $p = 0.01$). On the other hand, there were statistically significant positive correlations between women's BMI and their polycystic ovarian syndrome health-related quality-of-life in terms of weight, physical symptoms, and overall polycystic ovarian syndrome health-related quality-of-life ($r = .477$ at $p = 0.01$; $r = .186$ at $p = 0.01$; $r = .172$ at $p = 0.01$) respectively.

There is a statistically significant inverse correlation between women's duration of marriage and their polycystic ovarian syndrome health-related quality-of-life in terms of acne ($r = -.269$ at $p = 0.01$). On the other hand, there was a statistically significant positive correlation between women's duration of marriage and their polycystic ovarian syndrome health-related quality-of-life in terms of physical symptoms ($r = .285$ at $p = 0.01$).

There are statistically significant inverse correlations between the number of children women have and their polycystic ovarian syndrome health-related quality-of-life in terms of body hair, infertility, acne, and overall polycystic ovarian syndrome health-related quality-of-life ($r = -.178$ at $p = 0.05$; $r = -.427$ at $p = 0.01$; $r = -.113$ at $p = 0.05$; $r = -.113$ at $p = 0.05$) respectively. On the other hand, there was a statistically significant positive correlation between the number of children women have and their polycystic ovarian syndrome health-related quality-of-life in terms of physical symptoms ($r = .168$ at $p = 0.01$).

4. Discussion

The study results revealed that there was a statistically significant inverse correlation between women's age and their polycystic ovarian syndrome health-related quality-of-life in terms of acne. This finding implies that the younger the woman, the better the polycystic ovarian syndrome health-related quality-of-life she enjoys in terms of acne. In other words, older women experience more in terms of having acne.

On the other hand, there was a statistically significant positive correlation between women's age and their polycystic ovarian syndrome health-related quality-of-life in terms of physical symptoms. This finding implies that the older the woman, the better the polycystic ovarian syndrome health-related quality-of-life she enjoys in terms of physical symptoms. This finding could be explained as younger women could not be enduring enough to bear the physical symptoms associated with PCOS. This finding goes in line with that of Shishehgar et al. (18) who concluded that age significantly affects health-related quality of life.

There was a statistically significant inverse correlation between women's BMI and their polycystic ovarian syndrome health-related quality-of-life in terms of acne. The excessive sebum production in the skin caused by obesity is implicated in the exacerbation of AV (19-20). This finding is supported by that of Sas and Reich (19). who concluded that adolescents who are overweight or obese are more prone to experiencing inflammatory acne, including papulo-pustular or nodule-cystic acne, in comparison to teenagers who are underweight, slim, or of normal weight. Moreover, Bazarganipour et al. (21) concluded that the higher the BMI, the lower the scores reported on the weight subscale of PCQS. In contrast, Alowairdhi et al. (18) revealed that there was a significant relationship between acne vulgaris (AV) and body mass index (BMI), with findings suggesting that a higher BMI corresponded to a lower likelihood of experiencing AV by nearly 3%.

On the other hand, there were statistically significant positive correlations between women's BMI and their polycystic ovarian syndrome health-related quality-of-life in terms of weight, physical symptoms, and overall polycystic ovarian syndrome health-related quality-of-life. This finding goes in line with that of Shishehgar et al. (22) who concluded that BMI significantly affects health-related quality of life.

There was a statistically significant inverse correlation between women's duration of marriage and their polycystic ovarian syndrome health-related quality-of-life in terms of acne. This finding implies the longer the duration of marriage, the poorer the polycystic ovarian syndrome health-related quality-of-life in terms of acne. This finding could be explained as the longer the duration of marriage, the poorer the self-esteem these women experience. This finding is supported by that of Coffey and Mason (23) who concluded that women with PCOS reported low self-esteem.

On the other hand, there was a statistically significant positive correlation between women's duration of marriage and their polycystic ovarian syndrome health-related quality-of-life in terms of physical symptoms. This finding implies the longer the duration of marriage, the more severe the physical symptoms women experience.

There were statistically significant inverse correlations between the number of children women have and their polycystic ovarian syndrome health-related quality-of-life in terms of infertility, acne, and overall polycystic ovarian syndrome health-related quality-of-life. This finding implies that the less (or childlessness), the poorer the polycystic ovarian syndrome health-related quality-of-life in terms of infertility, acne, and overall polycystic ovarian syndrome health-related quality-of-life. This finding goes in line with that of Abdolvahab Taghavi et al. (24) who stated that women who are infertile are under social pressure to have children.

On the other hand, there was a statistically significant positive correlation between the number of children women have and their polycystic ovarian syndrome health-related

quality-of-life in terms of physical symptoms. This finding implies that the more children the women have, the better the polycystic ovarian syndrome health-related quality-of-life in terms of physical symptoms they enjoy. This finding goes parallel to that of Ligocka et al. (25) who concluded that there was an association between the assessment of quality of life and factors such as having children and experiencing negative emotions.

5. Conclusion

While the etiology of PCOS is not definitively known, it is widely accepted that the severity and symptom manifestation are linked to a combination of genetic, environmental, and lifestyle factors (26-28). The study conducted showed that the older the woman, the health-related quality of life she enjoys is better in terms of physical symptoms. The longer the duration of marriage, the poorer the polycystic ovarian syndrome health-related quality-of-life in terms of acne and the physical symptoms the more severe women experience. The less (or childlessness), the poorer the polycystic ovarian syndrome health-related quality-of-life in terms of infertility, acne, and overall health-related quality-of-life. This indicates that the more children the women have, the better the polycystic ovarian syndrome health-related quality of life in terms of physical symptoms they enjoy. The study also found that there is relationship between BMI and polycystic ovarian syndrome health-related quality of life in terms of weight, physical symptoms, and overall scale.

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