ORIGINAL ARTICLE

Quality of life and Eating disorders in women with Polycystic Ovary Syndrome

Qualité de vie et troubles du comportement alimentaire chez les femmes atteintes du syndrome des ovaires polykystiques

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Abstract

Introduction: Polycystic ovary syndrome (PCOS) is a common endocrine disorder affecting women worldwide, posing a major public health concern. This multifaceted condition significantly impairs quality of life (QOL) across multiple domains.
Aim: To assess QOL and eating disorders (EDs) in patients with PCOS.
Methods: A cross-sectional descriptive and comparative study was conducted on women with confirmed PCOS who were followed in the Endocrinology Department of Hedi Chaker Hospital, Sfax, Tunisia, and a targeted group of women with PCOS recruited through Google Forms. The PCOSQ-42 questionnaire for unmarried women, the PCOSQ-47 for married women, and the SCOFF questionnaire were used as assessment tools. Participants were divided into two groups: Group 1, consisting of French participants, and Group 2, consisting of Tunisian participants.
Results: A total of 71 French participants (Group 1) and 101 Tunisian participants (Group 2) were included in the study. All participants reported a compromised QOL. Among married women, the psychological well-being domain had the lowest score (2.86 ± 0.7), while the menstrual and fertility disorders domain was the most affected among unmarried women, with an average score of 2.84 ± 0.8. EDs were identified in 70.93% of participants, with a higher prevalence among unmarried women. A better QOL was observed among married women in Group 2 compared to their counterparts in Group 1.
Conclusion: The findings reveal a high prevalence of impaired QOL and EDs in women with PCOS, with cultural and marital status differences warranting tailored interventions.

Keywords: Eating disorders, Polycystic Ovary Syndrome, Quality of life, Women's health

Résumé

Introduction: Le syndrome des ovaires polykystiques (SOPK) est un trouble endocrinien qui touche les femmes dans le monde entier. Cette pathologie altère considérablement la qualité de vie (QV) dans de nombreux domaines.
Objectif : Évaluer la QV et les troubles du comportement alimentaire (TCA) chez les patientes atteintes du SOPK.
Méthodes : Une étude descriptive et comparative transversale a été menée auprès des femmes atteintes du SOPK suivies dans le service d'endocrinologie de l'hôpital Hedi Chaker, Sfax, Tunisie, et un groupe de femmes atteintes du SOPK recrutées via Google Forms. Le questionnaire PCOSQ-42 pour les femmes célibataires, le questionnaire PCOSQ-47 pour les femmes mariées et le questionnaire SCOFF ont été utilisés comme outils d'évaluation.
Résultats : Au total, 71 participantes françaises (groupe 1) et 101 participantes tunisiennes (groupe 2) ont été incluses dans l'étude. Toutes les participantes ont signalé une QV compromise. Parmi les femmes mariées, le domaine du bien-être psychologique avait le score le plus bas (2,86±0,7), tandis que le domaine des troubles menstruels et de la fertilité était le plus touché chez les femmes célibataires, avec un score moyen de 2,84±0,8. Des TCA ont été identifiés chez 70,93% des participantes, avec une prévalence plus élevée chez les femmes célibataires. Une meilleure QV a été observée chez les femmes mariées du groupe 2 par rapport à leurs homologues du groupe 1.
Conclusion : L'altération de la QV et la fréquence élevée des TCA chez les femmes atteintes de SOPK varient selon le contexte socioculturel et le statut marital, appelant des prises en charge ciblées.

Mots clés : Qualité de vie, Santé des femmes, Syndrome des ovaires polykystiques, Troubles du comportement alimentaire

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Introduction

Polycystic ovary syndrome (PCOS) is a growing condition with a rapidly increasing prevalence. It is the most common endocrinopathy among women of reproductive age, with prevalence estimates ranging from 5% to 20% [1–3]. Although PCOS has been studied for many years, its high prevalence, ongoing controversies, and the numerous unresolved questions regarding its pathogenesis and treatment continue to make it one of the most significant challenges in endocrinology and obstetrics. Over 900 articles in the National Library of Medicine (PubMed) address and examine various aspects of this disorder [4]. Given the complexity and widespread impact of PCOS, it is crucial to explore how this condition affects various aspects of women's lives. Does it significantly alter their QOL across different domains? In this context, the study aimed to describe the QOL and EDs in women with PCOS, as well as identify the predictive factors of QOL related to nationality through a comparative analysis.

Methods

We conducted a cross-sectional study of descriptive and analytical nature from February to March 2023. Data were collected from patients under follow-up in the Endocrinology department of Hedi Chaker Hospital of Sfax, Tunisia through telephone interviews. Additionally, an online survey was conducted using Google Forms to reach a targeted group of French and Tunisian women with PCOS.

We included all women with confirmed PCOS who provided informed consent. Exclusion criteria included incomplete or incorrectly completed questionnaires and cases where participants could not be reached by phone despite repeated attempts.

The first step consisted of questions addressing sociodemographic data, such as age, occupation, marital status, and socioeconomic level. Socioeconomic status was defined according to WHO criteria and categorized as follows:

- High : >1000 Tunisian Dinars (TND)
- Medium : 500–1000 TND
- Low : <500 TND

The second step involved a questionnaire designed to assess the QOL in patients with PCOS. A PCOS-specific quality of life questionnaire is available in two versions [5,6] :

PCOS Quality-of-Life Scale-42 (PCOSQ-42) for unmarried women: This version comprises 42 items grouped into five domains:

- Psychological and emotional state (8 items)
- Fertility and menstrual disorders (7 items)
- Body image (7 items)
- Hair and acne disorders (11 items)
- Coping (9 items)

PCOS Quality-of-Life Scale-47 (PCOSQ-47) for married women: This version includes 47 items, also divided into five domains:

- Psychological and emotional state (9 items)
- Fertility and sexual life (10 items)
- Body image (11 items)
- Hair and acne disorders (11 items)
- Obesity and menstrual disorders (6 items)

Scoring was based on a 5-point Likert scale, with each item reflecting the participant's experience as follows:

- Never = 5 (no impact on health-related quality of life)
- Rarely = 4
- Sometimes = 3
- Often = 2
- Always = 1 (maximum impact on quality of life)

The Domain Score was calculated and expressed as the mean ± standard deviation (SD), using the formula: Domain score= (Sum of points per domain) / (Number of items in the domain). To derive the Final Health-Related Quality of Life Score (S.HRQoL), the following formula was used: S.HRQoL = (Sum of domain scores) / (Total number of items).

Scores within the final interval (1 to <3 points) indicate a significant negative impact on health-related quality of life (HRQoL). Scores in the second interval (3 to <4 points) reflect marginal or moderate effects on HRQoL. Scores in the third interval (4 to <5 points) suggest minimal effects on HRQoL. A score of 5 represents no impact on HRQoL. Therefore, the closer the score is to 5, the better the individual's perceived quality of life.

The third step of this study involved a simple 5-question test designed to screen for the potential presence of an ED : the Sick, Control, One Stone, Fat, and Food (SCOFF) questionnaire [7]. Each 'yes' response was awarded one point. The final score was calculated as the sum of points from the five questions. A total score greater than 2 indicates a probable case of anorexia nervosa or bulimia.

The sample was divided into two groups: Group1 (G1), comprising French women, and group2 (G2), comprising Tunisian women. A comparative analysis was conducted between these two groups, focusing on the patients' general characteristics, various domains of QOL, and the presence of EDs.

The first part of the study involved a general description of the cohort. This was followed by an analysis of QOL among married and unmarried women. Subsequently, we examined EDs in single and married women. Finally, we compared the two groups (G1 and G2) to identify predictive factors for QOL levels based on nationality.

Results

Participants' characteristics

This study included 172 women, of whom 101 were Tunisian (G2) and 71 were French (G1). The average age of participants was 27.34 [14-49] years. Of the participants, 83 were single (48.26%) and 89 were married (51.74%). The majority were professionally active (73.81%) and reported a high socioeconomic level in 62.21% of cases. A university education was reported by 70.93% of participants, with only 2.91% being illiterate. Smokers accounted for 16.86%, and 11.63% consumed alcohol. The majority had comorbidities (79.07%) and

irregular menstrual cycles (76.16%). Contraceptive use was reported by 88.62% of participants. Among the married women, 67.42% reported hypofertility. Only 44.94% of women were able to conceive, while 72.50% had children. The average BMI was 28.66 kg/m², with a range from 16.41 to 53.25, and 75% of participants were overweight or obese. Hirsutism was present in 69.19% of participants, while 89.47% experienced fatigue, and approximately half had acne (51.74%). Sixty percent of participants were following a dietary regimen, and only 36.05% were receiving treatment for PCOS.

Quality of life

Half of the single women reported a marginal overall quality of life (50.60%), while 39.76% of patients exhibited markedly impaired HRQoL. Notably, none of the patients had an optimal HRQoL. The analysis of HRQoL by domain revealed that the menstrual and fertility disorders domain was the most affected among single women, with a low mean score of 2.84±0.8. In contrast, the coping domain had the highest mean score, at 3.38±0.8 (Figure 1).

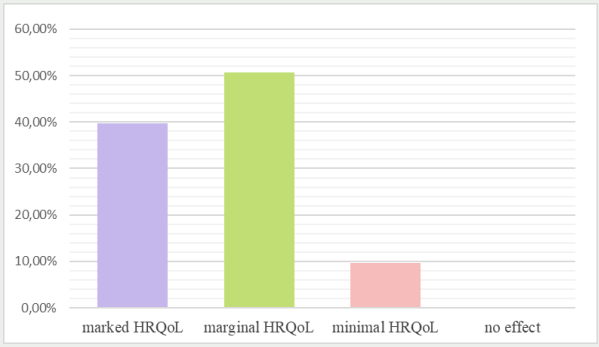

Figure 1. HRQoL ranking for Single Women

Regarding the quality of life for married women, 48.31% experienced a marked deterioration in HRQoL, while 39.33% had marginal to moderate deterioration in HRQoL. The lowest average score of HRQoL was observed in the domain of psychological and emotional state (2.86 ± 0.7), while the highest average score was in the domain of fertility and sexual life (3.26 ± 0.9), indicating it was the least affected domain (Figure2).

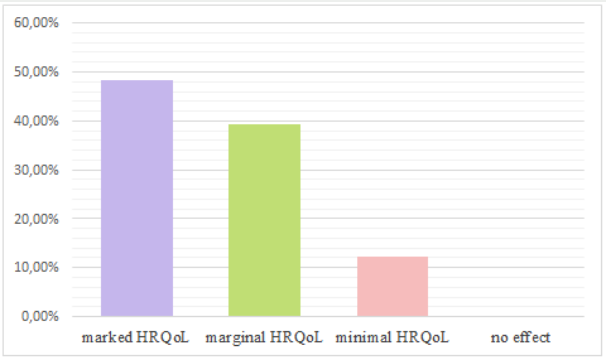

Figure 2. Ranking of HRQoL for married women

Eating disorders

The majority of women (70.93%) exhibited an eating disorder, either anorexia nervosa or bulimia (Figure 3). Eating disorders were observed in 79.52% of single women compared to 62.92% of married women, indicating a higher prevalence among single women (p = 0.01).

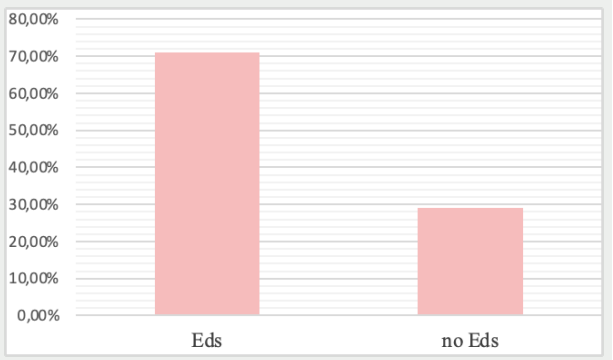

Figure 3. Screening for Eating Disorders in the Total Population

QOL Level according to nationality

The comparative study (Table 1, Table 2) between the two patient groups revealed that French women were more professionally active (81.43% vs. 68.37%, p=0.05) and more frequently married (63.38% vs. 43.56%, p=0.01) compared to Tunisian women. However, Tunisian women had a higher educational level (5.63% vs. 0.99%, p=0.003). The statistical analysis also showed that menstrual irregularity was more common among French women than Tunisian women (84.51% vs. 70.3%, p=0.03). Infertility was more frequently reported among married French women compared to married Tunisian women (88.89% vs. 45.45%, p=0.00001). There was no difference between the two groups regarding pregnancy occurrence. Obesity was reported in 47.8% of French women compared to 32.6% of Tunisian women. Additionally, fatigue (94.37% vs. 85.15%, p=0.05) and hirsutism (76.06% vs. 64.36%, p=0.1) were more commonly observed in French women. However, acne was more common among Tunisian women (39.40% vs. 53.47%, p=0.5).

Therapeutically, French women were more likely treated. compared to Tunisian women (50.70% vs. 25.74%, p=0.0007). The mean global quality of life score for unmarried Tunisian women was higher compared to French women (3.28 vs. 2.83, p=0.0026). A better quality of life was also observed among married Tunisian women compared to French women (3.8 vs. 2.6, p=0.0001).

The statistical analysis by domain confirmed the global score results. The findings showed that the mean scores for quality-of-life domains were higher among unmarried Tunisian women in all areas, particularly in body image and psychological state (3.2 vs. 2.1, p=0.0001 and 3.8 vs. 2.4, p=0.004, respectively). Similarly, married Tunisian women had higher mean scores across all domains compared to French women. The multivariate analysis confirmed that only single Tunisian women had a significantly better quality of life compared to French women (P = 0.01). When analyzing quality of life by domains, the difference was significant only among single women (P = 0.03).

Table 1. Sociodemographic and occupational characteristics according to nationality

	G1 : French		G2 : Tunisian		p value
Variables	**Effectif (n)**	**Percentage (%)**	**Effectif (n)**	**Percentage (%)**	
Marital status					0,01
Single	26	36,62	57	56,44	
Married	45	**63,38**	44	**43,56**	
Area					0,000
Urban	40	43,66	94	93,07	
Rural	31	56,34	7	6,93	
Age (Mean, Standard deviation)	26,39±4,3		28±5,9		0,04
Profession					
Yes	57	**81,43**	67	**68,37**	0,05
No	13	18,57	31	31,63	
Socioeconomic status					
High	42	59,15	65	64,36	0,5
Medium	6	8,45	5	4,95	
Modest	23	32,39	31	30,69	
Educational level					
Illiterate	4	**5,63**	1	**0,99**	0,003
Primary	1	1,41	2	1,98	
Secondary	25	35,21	17	16,83	
University	41	**57,75**	81	**80,20**	

Table 2. Clinical and therapeutic data of French and Tunisian women

	French		Tunisian		p value
Variables	**Effectif (n)**	**Percentage (%)**	**Effectif (n)**	**Percentage (%)**	
Fatigue					
Yes	67	**94,37**	86	85,15	0,05
No	4	5,36	15	14,85	
Acne					
Yes	35	39,40	54	53,47	0,5
No	36	50,70	47	46,53	
Hirsutism					
Yes	54	76,06	65	64,36	0,1
No	17	23,94	36	35,64	
BMI (kg/m2)					
20 - <25	17	23,94	26	25,74	0,1
25 - <30	15	21,13	33	32,67	
30 - <35	13	**18,31**	18	**17,82**	
=<35	21	**29,58**	15	**14,85**	
PCOS treatment					
Yes	36	**50,70**	26	**25,74**	0,0007
No	35	49,30	75	74,26	
Sport					
Yes	22	30,99	27	27	0,5
No	49	69,01	73	73	
Diet					
Yes	27	38,03	42	41,58	0,6
No	44	61,97	59	58,42	

Discussion

Our study revealed a high prevalence of menstrual irregularities, hirsutism, obesity, and eating disorders among women with PCOS, with significant differences in quality of life and clinical characteristics between Tunisian and French participants.

To address our research question, we will discuss the main results and compare them to literature.

Regarding the general description of the population, our study reported that 81.91% of women had no children, and only 27.33% had become pregnant. In contrast, Moghadam et al. (2018) reported that approximately 64.3% of women with PCOS had no children, with nearly 77.27% having been pregnant [8].

Most women had irregular menstrual cycles (76.16%), similar to the results of an Indian study (63%) (Rao et al., 2022) [9].

We observed that 27.91% of participants were overweight, and 18.02% were obese. These results are close to those of Moghadam et al. (2018), which indicated that 35.5% of women were overweight and 26.5% were obese [8].

Among our patients, the majority (69.19%) had hirsutism, and about half had acne (51.74%). These values are higher than those reported by Rao et al. (2022), where only 46% of women had hirsutism and 32% had acne [9].

Regarding the quality of life for single women with PCOS, 39.76% had markedly altered quality of life, and half (50.60%) had a moderately or marginally altered quality of life. These results differ from those of a study in Iraq in 2022 using the same questionnaire, which found that the majority of single women reported a marked reduction in quality of life (71.8%), and only 23.2% had marginal quality of life [5].

For the domains of the questionnaire for single women, our analysis indicated that the domain of menstrual disorders and fertility was the most affected (mean score 2.84 ± 0.8). In contrast, the adaptation domain was the least concerning for our population, with a higher mean score (3.38 ± 0.86). In Odhaib's study, the domain of hair disorders and acne was the most affected with a mean score of 2.17 ± 0.74. The result is similar to ours, where the domain with the highest score was adaptation (2.61 ± 1.15) [5].

Conversely, Lidaka et al. (2022) showed that the body hair domain had the lowest result (mean score 4) and the infertility domain had a high score, exceeding 6, in a Latvian adolescent population. This domain was relatively less concerning in this population [10].

For married women's quality of life, it was reported to be more impaired compared to single women. This could be explained by the pressures of marital life, especially as this syndrome affects fertility.

Regarding the domains for married women, our study found that the psychological and emotional state domain was the most affected, with a low score of 2.86 ± 0.79. This result could be explained by the lack of support and social stigma associated with this syndrome. The least affected domain was fertility and sexual life (mean score 3.26 ± 0.9). This domain might be a taboo subject in our

society, and many women might have been reluctant to answer the items sincerely.

In contrast, an Iranian study using the PCOSQ questionnaire found that the lowest quality of life score was for infertility (3.43 ± 1.63 out of 7), and the highest was for weight (4.32 ± 1.80 out of 7) [8]. Our results also differed from those of Frene et al. (2015) in Belgium, who reported that weight was the most affected domain (mean score: 2.7 ± 1.8), while the body hair domain was the least affected (mean score: 4.8 ± 3.7) [11].

Regarding the screening of eating disorders, we found that the majority of participants (70.93%) had an eating disorder of either anorexia or bulimia. In contrast, a 2019 review by Branco and Naumova suggested that eating disorders were observed in 21% of women with PCOS using a different measurement instrument [4].

Additionally, a study in Saudi Arabia revealed a significant correlation (P = 0.005) with a high risk of developing binge eating disorder in PCOS patients [12]. Another Tunisian study indicated that eating disorders were less frequent among women with PCOS compared to controls, using a different measurement instrument [13].

Indeed, several articles have shown that dissatisfaction with physical appearance can trigger stress and unhealthy eating habits, especially during adolescence, when young people are more concerned with their physical appearance.

Regarding the comparative study between Tunisian and French groups, this was a novel approach not previously addressed by authors. Our study showed that menstrual irregularity was more common among French women than Tunisians, with a significant difference (p=0.03). This could be explained by lifestyle or psychological factors such as stress. However, hirsutism and acne were not associated with nationality (p=0.1; p=0.5, respectively).

In terms of treatment, French women more frequently followed a therapeutic approach than Tunisian women (p=0.0007). This significant association may highlight the availability of developed treatments for PCOS in Europe.

Fatigue was reported more frequently by French women, as evidenced by our study with a significant association (p=0.05). This could be explained by the fact that French women worked more than Tunisian women. This was also reflected in our analysis, where a significant correlation was observed between profession and nationality (p=0.05).

Regarding quality of life, unmarried Tunisian women had a better quality of life than their French counterparts (p=0.0026). This result may relate to Tunisian women adapting better to the syndrome. This idea could be justified by the noticeable difference in the adaptation domain of the quality-of-life questionnaire. Our study showed that the mean score for this domain was higher among Tunisians (p=0.009).

For married women, our study found that Tunisian women were less concerned than French women about the fertility domain (p=0.02). This contrasts with a study conducted in an Austrian center, which found that fertility was more affected in Muslim women compared to local women [14].

Thus, hypofertility seems to be less concerning among Tunisian Muslim women, possibly due to religious beliefs. However, an Austrian infertility center study found lower quality of life scores across all domains, especially in the infertility domain, for Muslim immigrant women compared to local women. This contrasts with our results, which indicated higher scores for the infertility domain among Tunisian Muslim women compared to French women (2.94 ± 0.77 vs. 2.62 ± 0.87) [15].

This study has several limitations that should be acknowledged. First, the reliance on self-reported data from a relatively small and non-random sample of French and Tunisian women may limit the generalizability of the findings to the broader PCOS population. Second, cross-sectional design prevents establishing causal relationships or tracking changes in QOL and EDs over time, restricting insights into long-term outcomes. Additionally, cultural differences in interpreting QOL domains and potential biases in translated questionnaires may affect the comparability of results between the two national groups. These limitations highlight the need for larger, longitudinal, and culturally adapted studies to further validate these findings.

Conclusion

This study demonstrates that PCOS significantly impacts women's QOL and mental health, with married women and French participants showing particularly pronounced effects.

The findings call for urgent implementation of two key measures: first, integrating routine mental health screening and personalized support programs into PCOS care protocols, and second, advancing cross-cultural research to identify and address disparities in symptom management and treatment outcomes across different populations.

These targeted interventions would address both the immediate healthcare needs and systemic gaps in our understanding of this complex condition.

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