

# Quality of Life and Health Status of Jordanian Women Users of Various Contraceptive Methods and Associated Factors: Implications for Contraceptive Policies

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**Aim:** The study aimed at investigating the differences in health status of women users and non-users of contraceptive methods and assess differences in contraception quality of life (CQoL) according to method used.

**Methods:** Across sectional study with 372 women between the ages of 18 and 49 years old were recruited. Participants completed the health status and the CQoL questionnaire, which was validated using factor analysis combining three factor loading measures with a good Cronbach's alpha reliability coefficient.

**Results:** Results showed that there were no significant differences in health status between users and non-users. There was a significant difference in QoL according to the method used at the  $p < 0.05$  level for the three conditions  $F(2193) = 6.0$  and  $p = 0.003$ . Post hoc analysis indicated that the total CQoL was significantly higher in IUD users ( $M = 55.7$ ,  $SD = 9.6$ ) than users of natural methods ( $M = 50$ ,  $SD = 9.0$ ,  $p < 0.01$ ). In addition, the total CQoL was significantly higher among women from the southern region ( $M = 56.7$ ,  $SD = 9.0$ ) than from the northern and mid-regions ( $M = 49.5$ ,  $SD = 10.07$  and  $M = 52$ ,  $SD = 10$ , respectively,  $p < 0.01$ ).

**Conclusion:** The physiological changes of women's QoL was affected by the use of the IUD method with significantly lower QoL scores than those who used oral contraceptives and non-hormonal methods. In addition, there was no significant difference in health status between users and non-users of contraceptive methods.

**Implications:** The study has implications for contraceptive counselling on quality of life of women users of IUD and women from the south region and provides opportunities for the advancement of the reproductive health services in Jordan.

**Keywords:** contraceptive methods, health status, Jordanian women, quality of life

## Introduction

The quality of life (QoL) of women of reproductive age is becoming an important aspect of the social and economic wellbeing of countries with high population growth. Family planning and the QoL of women are subjects of great interest to practitioners and researchers. The use of contraceptives may affect the psychosocial, sexual and physiological aspects and health status of women. Women's choices of contraceptive methods are largely affected by the safety and efficacy of the methods as well as by changes in their QoL, such as their subjective experience, sexual life and economic and societal influences.<sup>1</sup> Anxiety regarding possible adverse effects of the contraceptive methods on their QoL and sexual function is one of the common concerns;<sup>2</sup> Li et al<sup>3</sup> found that combined oral contraceptive (COC) pills, injectables, intrauterine contraceptive devices (IUDs) and female sterilisation do not have significant adverse impacts on the QoL and sexual function, while female sterilisation improved sexual satisfaction and sexual drive. Williams et al<sup>4</sup> found that women who used any form of contraception were more likely to have average or better mental health QoL than those who did not use

any type of contraception. Women using injectable contraception were less likely than those using combined hormonal methods to have average or better physical health-related QoL. Pérez-Campos et al<sup>5</sup> developed and validated a Spanish contraception QoL (CQoL) questionnaire to assess the impact of contraceptive methods on the health-related QoL (HRQoL) of women. Women using contraceptive effectively had good HRQoL in all specific contraception QoL (SEC-QoL) dimensions, except for breast symptoms. Heavier menstrual bleeding, more androgenic and breast symptoms, menstrual pain, and not using hormonal contraceptive methods were associated with lower HRQoL. In addition, the SEC-QoL scale was found to be valid and showed moderate correlations with a psychological wellbeing index and obtained a Cronbach's  $\alpha$  of 0.88 and an intraclass correlation coefficient of 0.82.

Bahri et al<sup>6</sup> conducted a study with 500 Iranian women users of contraceptive methods to assess their QoL. They used the Short-Form 36 (SF-36) QoL questionnaire. Results showed that women with tubal sterilisation had significantly worse physical functioning than those preferring the male condom (reference group). Women whose husbands had vasectomies also had, on average, significantly better scores of general health perceptions than condom users, while users of the withdrawal method showed, on average, higher scores of vitality than condom users.

The HRQoL was also examined by Kristjánsdóttir et al<sup>7</sup> to see whether there were changes in HRQoL after 3 months of hormonal contraceptive use in adolescents. A total of 431 young women aged 14–20 years completed the 36-item SF-36 questionnaire and were divided into two groups (test group,  $n=193$ , control group,  $n=238$ ). Researchers concluded that after 3 months of hormonal contraception both the number of days of menstrual bleeding and the use of medication to relieve menstrual pain were reduced, but there were no significant changes in HRQoL perception.

Alspaugh et al conducted an integrative review of 19 qualitative studies on women's contraceptive perceptions, beliefs, and attitudes and revealed the following themes; The power imbalance between partners and health care providers; societal and communal discourses on femininity and motherhood; distrust of hormonal contraception; the ability to enhance personal agency through contraceptive decision-making; and a need for open, patient-focused communication arose from the included in the review. They also found that non-hormonal methods of contraception and having control over one's contraception, including the ability to freely stop and start, are important to many women. Other women reported that contraception increases their risk of cancer and cause harm to later fertility, women disbelief in contraception, especially in relation to contraception's adverse effect profile, efficacy, and short- and long-term safety in 4 other studies. Women also fear IUDs based on a misunderstanding of its placement anatomically.<sup>22</sup>

A recent study by Alyahya et al<sup>8</sup> on Jordanian women examined the impact of modern family planning (FP) methods on their QoL. The study used the WHO5 QoL-BREF scale to collect data from 548 women of reproductive age. Results showed that women who used IUDs and those whose husbands used condoms had better QoL regarding physical health, psychological health, social relationship and environmental domains than those who used oral contraceptives (OCs); in contrast, women who had permanent sterilisation showed lower QoL in all domains.

Results of studies on the impacts of contraceptive methods on the QoL of women are inconsistent in different populations with different QoL measures. More studies are needed to evaluate the impact of different contraceptive methods on QoL. Currently, there are no studies addressing the impact of contraceptive methods on the QoL of Jordanian women using various methods. Therefore, the aims of this study were to investigate the differences in QoL according to various contraceptive methods and to identify predictors of QoL of women users of those contraceptive methods.

## Jordanian Women and Contraceptive Use

The Jordan Population and Family Health Survey (2017–2018)<sup>9</sup> showed that the current total fertility rate is 2.7, with urban–rural differences (2.7 children in urban areas and 3.1 in rural areas). Jordan has witnessed a drop in fertility from 3.5 in 2002 to 2.7 in 2018. Results also showed that the median age at first birth is 24.6 years and 5% of women aged 15–19 have started childbearing. Around 17% of currently married women want to have another child soon, 18% want to wait at least 2 years, and 49% want no more children. The desired number of children for women and men is 3.9 and 3.8, respectively.

The most commonly used method is the IUD (21%), followed by withdrawal (13%), OCs (8%), and the male condom (5%). Contraceptive use declined from 61% to 52% between 2012 and 2015. The decline was mainly due to decreases in the use of the male condom (from 8% to 5%) and the rhythm method (from 4% to 1%). The discontinuation rate was

quite high (30%); the most common reason for that was the desire to become pregnant (54%) and complaints that the method was inconvenient to use (12%). The unmet need for FP is 14%; women want to space or limit births but are not currently using contraception, and 57% of the total demand for FP is satisfied by modern methods.<sup>9</sup>

The significance of the study arises from the evidence that women of reproductive age are still interested in more children, have unmet needs and show a high discontinuation rate and still rely on natural methods. In addition, some women do not want to have more children at any time in the future or want to delay having another child, which implies that a high percentage may have a potential need for FP services for either limiting or spacing births. Women's need for evidence that choices of methods may influence their QoL and enhance their sexual health is essential. Findings of this study will provide women with informed choices of FP methods and their impact on their QoL, which it is to be hoped will increase the prevalence rate of modern contraceptive methods and decrease discontinuation rates. Healthcare providers can promote FP methods based on their effect on the QoL and not on their own biases. Studies from Jordan showed that providers' personal beliefs greatly influence their counselling. Most healthcare providers were not convinced by the small family size concept, instead emphasising the importance of a large family for one's social status and the preference for a male child. The providers' religious beliefs influenced the type of method they recommended, and many providers indicated that they recommend short-term methods to married women with low parity and would not suggest, for example, the IUD for such women for fear that it would affect their fertility.<sup>10</sup>

## Methods

### Design and Setting

A cross-sectional study was conducted with married Jordanian women between the ages of 18 and 49 residing in one of the three regions of Jordan (north, central and south) during 2017. Three comprehensive health centres from each region were selected for recruiting women. Three female research assistants, one from each region, were trained on the data collection process.

### Participants

A total of 372 women participated in the study. The minimum sample size was calculated to detect a medium effect size of 0.3 (based on previously found in research in same particular field), a power of 80% and a significance level of 0.05.<sup>11</sup> A total of 180 women users was required to be able to detect differences according to types of method used (three groups); this was then increased to 196. In addition, a sample of 176 women non-users were selected to compare them to women users regarding health status and menstrual symptoms variables. Data were obtained from women of reproductive age (18–49 years), non-pregnant, who visited the Ministry of Health Primary Health Care Centers for reproductive and no-reproductive reasons. We defined users as the users of any method of contraception by the respondents or their husbands with the aim of controlling births. Non-users were women who reported the non-use of any type of contraception. The group of women users of contraceptive were selected according to whether they are users of any contraceptive method (OCs, IUDs, condoms, Lactation Amenorrhoea Method LAM, injectables or any other natural method).

### Measurement Tools

The study used a self-reported questionnaire consisted of sociodemographic and FP data, perceived health status and the CQoL measures. The sociodemographics involved six questions (age, number of children, working status, education, family income, relationship with husband). We compared the demographic characteristics of women users with women non-users of contraception, which showed no differences by age, education, income, number of children and employment status. The FP data included questions on method used, intensity of menstruation, length of menstrual period, premenstrual breast changes and intensity of pain during menstruation (0 = no pain and 10 = severe pain).

## The Perceived Health Status EQ-5D-3L

The “Arabic version for Jordan” version by Aburuz et al<sup>12</sup> is a trademark of the European Quality of life Group to assess women’s health status (EQoL 2007). Women were asked to select the statement that best described their status in relation to mobility, self care, usual activities, pain/discomfort and anxiety/depression. The perceived health status is determined by the EQ VAS, which is a continuous scale that measures how good or bad the health status is: women were asked to indicate, from 1 to 100, how good or bad their health was on that day by drawing a line from the box to whichever point on the scale best indicated their health state. The authors reported a Cohen’s  $\kappa$  for test–retest reliability ranging from 0.48 to 1.0.

## The Contraception QoL Scale

The CQoL measure was developed by the researchers and was based on the review of domains related to contraceptive use, women’s preference of contraceptive methods, perceived side effects and previous CQoL measures<sup>3–5,12</sup>

We constructed 20 questions encompassing all identified QoL domains related to contraceptive changes, such as psychological, social, sexual and physiological changes. Items were constructed with the support of experts in the area of maternal health/FP. The questionnaire was initially developed in the English language to check for the content and face validity, which was achieved through an expert panel of three reproductive health specialists. The English version was then translated into Arabic and back into English by two independent bilingual translators to ensure equivalence of terms.

Responses to the items were measured on a scale of 1–5 (always, frequently, sometimes, rarely and never for physiological and sexual and breast changes; a higher score indicated severe changes and low QoL). The psychosocial changes were measured on a Likert scale, on “strongly agree” to “strongly disagree” (a higher score indicated greater agreement with the changes indicating low QoL).

Two forms were created after comparing both versions of the questionnaire, and the Arabic version was used for data collection since Arabic is their native language. The CQoL questionnaire was pilot-tested with 10 women meeting the same eligibility criteria.

The CQoL questions were factor-analysed using principal component analysis with Varimax rotation. The analysis yielded three factors: Factor 1 was labelled psychosocial domain (eight items) and explained 23% of the variance in CQoL with a factor loading between 0.53 and 0.78. Factor 2 was labelled physiological domain (seven items) and explained 13% of the variance in CQoL with a factor loading between 0.33 and 0.67. Factor 3 was labelled as the sexual domain (four items) and accounted for 9% of the variance in CQoL with a factor loading between 0.48 and 0.68. The internal consistency showed a Cronbach’s alpha of 0.76, suggesting good internal consistency of the scale ([Appendix 1](#): Principal component analysis of the CQoL scale).

Women non-users of contraceptives completed all sections of the questionnaire except for the CQoL measure, since it is a tool designed to measure changes as a result of contraceptive use; therefore, it is a specific CQoL measure.

## Data Collection and Analysis

The study complies with Helsinki Declaration for ethical principles on research involving human subjects. Prior to data collection, the study was approved by the Institutional Review Board at Jordan University of Science and Technology (JUST) Grant #585-2016 and the Ministry of Health. In addition, women who met the inclusion criteria and agreed to participate signed a consent form, which explained the purpose of the study and a statement ensuring confidentiality of data. Women were approached at the Health Center and asked to complete the structured questionnaire during their waiting time and before visiting the healthcare provider (a doctor or a nurse). The data collection process lasted for 6 months.

Data was double-entered into a computer by two independent data entry staff using SPSS version 22 (SPSS Inc., Chicago, IL, USA). Continuous variables were described in mean  $\pm$  standard deviation ( $M \pm SD$ ), and categorical variables were reported as frequencies and percentages. Descriptive analysis and inferential analyses were used, with ANOVA and  $t$ -tests for comparisons of QoL according to methods used and  $t$ -tests for comparisons between users and non-users in health status and other continuous variables. Multiple linear regression was used to predict factors

influencing the QoL of women users of contraceptives. A p-value of  $<0.05$  was considered statistically significant. The appropriate assumptions for logistic regression were met for the model; we reported adjusted R, and  $p$  values  $<0.05$  were considered significant.

## Results

A total of 372 married women of reproductive age, non-pregnant, and users and non-users of contraception were included in the analysis. Women who reported recent use of any contraceptive method constituted 53% of the total sample ( $n = 196$ ), and were similar to women no-users (47%,  $n = 176$ ) in demographic characteristics such as age, education, income, number of children and employment (Table 1). Women users visited the health centres for regular checkup (50%), counselling (17%) and change of FP method (15%), and 18% visited for other reasons, while women non-users visited for regular checkup (61%) and counselling (7%) and 23% for other reasons.

## Contraceptive Profile

Among women who reported current use of contraceptives (53%,  $n = 196$ ), the highest percentage was reported for IUD (44%,  $n = 85$ ) followed by OCs (20%,  $n = 40$ ), male condom (13%,  $n = 26$ ), traditional methods (12%,  $n = 24$ ), rhythm (5%,  $n = 10$ ), injectables (2%,  $n = 4$ ), and LAM (1%,  $n = 2$ ). We classified women users into three groups; OC, IUD, non-hormonal methods (including traditional methods (12%,  $n = 24$ ), rhythm (5%,  $n = 10$ ) and LAM (1%,  $n = 2$ ) and condoms (13%,  $n = 26$ ) Table 2.

**Table 1** Sociodemographic Characteristics of Study Participants ( $n = 372$ )

Variable	Users $n = 196$ (53%)	Non-Users $n = 176$ (47%)	Total	p-value
Mean Age	35 (7.8)	32 (8.8)	34 (8.4)	0.1
Education Level 0.3				
Secondary or less	40%	48%	44%	
Diploma	24%	19%	22%	
Bachelor's and above	76%	33%	34%	
Region 0.05				
North	24%	14%	19%	
Middle	31%	36%	34%	
South	45%	50%	47%	
Income in JD	436	421	435 (197)	0.9
Total number of children	4	3	3 (2)	0.8
Employment status	50%	36%	43%	0.008

**Table 2** Type of Contraceptive Method Used ( $n = 196$ )

Contraceptive Method	Frequency	Percentage
Oral contraceptives	40	20%
Contraceptive devices (IUD, injectables)	94	49%
Non hormonal	62	31%
Total	196	100

**Table 3** Menstrual Symptoms and Complaints Among Users and Non-Users (n = 372)

	Users (196)	Non-Users (176)	Sig P ≤ 0.05	Total %
<b>Menstrual frequency</b>				
Regular	79% (155)	81% (143)	0.4	80%
Irregular	21% (41)	19% (33)		20%
<b>Menstrual blood loss</b>				
Heavy	12% (24)	14% (25)	0.1	13%
Normal	78% (153)	72% (74)		88%
Little	9% (19)	14% (25)		12%
<b>Breast symptoms</b>				
Pain	40% (78)	24% (42)	0.01	32%
Increased sensation	8% (15)	13% (23)		10%
Increased size	10% (20)	3% (5)		7%
Secretion	10% (20)	6% (11)		8%
Pain and engorgement	9% (18)	2% (4)		5%
Pain, engorgement, secretion, increase size and sensation	15% (29)	46% (80)		31%
No symptoms	8% (16)	6% (11)		7%
<b>Abdominal pain</b>	5.2 (2)	4.8 (2.3)	0.2	M (SD) 5 (2.7)

Women non-users, who constituted 47% of the sample, gave six reasons for not using any contraceptive method. The highest percentage was reported as the need for more children (27%, n = 47), fear of complications (22%, n = 39), husband's refusal (19%, n = 34), do not know about them (15%, n = 26), unsafe methods (8%, n = 23), religious factors (7%, n = 3) and social pressure (2%, n = 4).

## Menstrual Symptoms and Complications

Assessment of menstrual symptoms of women users and non-users showed that there were no differences in menstrual frequency or menstrual blood loss except for differences in breast symptoms (Table 3).

## Perceived Health Status

All participants were asked to select the statement that best described their current health status in relation to mobility, self care, usual activities, pain/discomfort and anxiety/depression. Results showed that majority of women did not complain of any problems, with no significant differences in mobility, self care, usual activities, pain/discomfort or anxiety/depression between users and non-users of contraceptives ( $p \geq 0.05$ ). The results of the assessment of the EQ VAS, which measures how good or bad a health state is, from 1 to 100, indicated that the mean health state for users was  $66.9 \pm 19$  and  $65.6 \pm 18.6$  for non-users. Results of the *t*-test showed that there was no significant difference in current evaluation of their health between the two groups ( $t = -0.5$ , *df*, 362,  $p \geq 0.05$ ).

**Table 4** Differences in QoL of Women Users of Contraceptive Methods According to Type

	Oral n = 40	IUD n = 94	Natural n = 62	F	Significance (p-value)
Total quality	52.5 (10)	55.7 (9.6)	50 (9.0)	6.0	0.003
Physiological	2.5 (1.1)	2.7 (0.7)	2.4 (0.8)	6.0	0.005
Sexual	2.6 (0.8)	2.7 (0.6)	2.3 (0.5)	3.2	0.04
Psychosocial	2.5 (0.5)	2.6 (0.6)	2.3 (0.6)	2.8	0.06

**Note:** Significant at P value less than 0.05.

## Contraception QoL of Women Users

Women users ( $n = 196$ ) completed the CQoL questionnaire. Results revealed a total mean of  $53.4 \pm 10$  with a range of 28–80. The mean CQoL score for users of OCs was  $52.5 \pm 10$ , for IUDs  $55.7 \pm 9.6$  and for natural methods  $50 \pm 9.0$ . A one-way ANOVA between subjects was conducted to compare QoL for women using OCs, IUDs and natural methods. Results showed a significant difference in QoL and type of method used at the  $p < 0.05$  level for the three conditions  $F(2,193) = 6.0$  and  $p = 0.003$  (Table 4).

Post hoc analysis indicated that the total CQoL was significantly higher in users of IUDs ( $M = 55.7$ ,  $SD = 9.6$ ) than natural methods ( $M = 50$ ,  $SD = 9.0$ ,  $p < 0.01$ ). The results showed that there were significant differences in physiological symptoms among users ( $F(2,193) = 5.4$ ,  $p < 0.01$ ). Post hoc analysis indicated that the physiological symptoms were significantly higher among women users of IUDs ( $M = 2.7$ ,  $SD = 0.5$ ) than natural methods ( $M = 2.4$ ,  $SD = 0.6$ ,  $p < 0$ ), which indicates that users of IUDs had worse QoL than those using natural methods. In addition, a significant difference in QoL between regions was reported at the  $p < 0.05$  level ( $F(2,193) = 7$ ,  $p = 0.001$ ). Post hoc analysis indicated that the total QoL was significantly higher in the southern region ( $M = 56.7$ ,  $SD = 9.0$ ) than in the northern and mid-regions ( $M = 49.5$ ,  $SD = 7$  and  $M = 52$ ,  $SD = 10$ , respectively,  $p < 0.01$ ), which indicated a worse QoL for those in the south than in the north and mid-regions.

A multiple linear regression was calculated to predict the QoL of women users of contraception based on type of method used, region, menstrual pain, total number of children and age. A significant regression equation was found ( $F(7,188) = 6.021$ ,  $p < 0.0001$ ,  $R^2 = 0.183$ ). Participants' predicted CQoL ( $B$  for total 49.02; age: 0.158; number of children: 0.45; pain intensity: 0.981; south region: 3.474; and oral method: 1.620). Age, number of children and pain were measured as continuous variables, region was dummy-coded as north (10), south (01) and mid-region (00), method of contraceptive was coded as oral (10), IUD as (01) and natural as (00). Both the southern region and intensity of pain were significant predictors of CQoL of women users of contraception.

## Discussion

This study is the first to describe the QoL of Jordanian women using a CQoL-specific measure, since majority of studies used general QoL measures. It provided information on Jordanian women's contraceptive profile, menstrual symptoms and health status of women users and non-users of contraception and described and examined the CQoL of women users of various contraceptives and the factors predicting CQoL.

The study found that the women's contraceptive preference is for IUDs, which is consistent with the national pattern reported by DOS (2019),<sup>9</sup> which reported a similar finding. In addition, the percentage of women users of IUDs was higher (49%) than that reported at the national level (21%), followed by withdrawal (13%), OCs (8%), and the male condom (5%). Although women in this study were young and well educated, some were still using traditional/natural methods (31%). Women users of traditional methods are taking the risk of using less reliable method which may indicate that they still need more children. These findings are consistent with that reported in the population and fertility survey for 2017–2018 showed that around 17% of currently married women want to have another child soon, and 49% want no more children. The desired number of children for women and men is 3.9 and 3.8, respectively.<sup>9</sup> Women use of traditional methods in this study reflects distrust of hormonal methods which supports that reported by Alspaugh et al integrative review of qualitative research for women's contraceptive perceptions, beliefs, and attitudes that non-hormonal methods of contraception make women feel that they are in control over one's contraception and can freely stop at any time, thinking that contraception can increase their risk of cancer and cause harm to later fertility; women disliked anything they considered unnatural, such as a method that stop or alter normal menstruation.<sup>22</sup>

Women non-users of any contraceptive methods in this study still wanted more children, seemed to be scared of complications, and were influenced by the cultural pressure for a large family size and the dominance of the husband over the women's wishes.<sup>13</sup> The cultural-religious influence of a preference for a large family is evident in the Muslim Arab culture; currently, married women want 3.9 children on average, and navigate strong social norms around the desire for pregnancy immediately after marriage and a preference for sons.<sup>9</sup> A qualitative study found that couples would continue childbearing beyond their ideal number of children to give birth to a boy, and if subsequent children were not boys,

anecdotal evidence from certain geographical areas suggests that the husbands might resort to marrying another woman to have a son.<sup>14</sup>

Hamdan-Mansour et al<sup>15</sup> studied the role of men in FP in the south and found that, although they had positive attitudes and a good knowledge about FP, this was not translated into practical contraceptive use. Many cited the bias and effectiveness of many health service providers and the approach of health systems towards changing behaviours around family size, reducing provider biases around informed choice and the provision of hormonal method, and the fear of liability issues concerning miscarriage.<sup>16</sup>

Investigation into women's health status in this study showed that both users and non-users of contraceptive methods enjoyed a good health status in relation to mobility, self care, usual activities, pain/discomfort and anxiety/depression with no significant difference between users and non-users ( $p \geq 0.05$ ). These findings can be explained within the broader context of the young age of the participants (mean age was 34 years) and the less severe menstrual symptoms reported by women in this study. Women users and non-users of contraceptive methods both had less problems of menstrual signs and symptoms except for pain during menstruation; women users of contraception reported higher mean scores of abdominal pain associated with menstruation. The impact of menstrual symptoms on the daily life of women depends on the severity of such symptoms,<sup>17</sup> which in turn influence QoL. Therefore, the evidence that contraceptive use is safe and does not affect the health status of women can be used by health providers to promote FP and increase the prevalence of contraceptive use in countries with high fertility.<sup>18</sup>

## Quality of Life of Women Using Contraceptive Methods

The present study showed that there was a significant difference in QoL according to the method used; women with IUDs had a significant worse QoL relating to contraceptive use, mainly in the physical domain, than those using natural methods. This finding contradicts a recent finding by Alyahya et al,<sup>8</sup> who found that Jordanian women who use IUDs and whose husbands used condoms had better physical and psychological health, social relationships and environmental domains of QoL than those who used OCs. Prior studies also supported the evidence that there was no significant difference in all the WHOQoL domains in the use of COC pills, injectables and IUCD did not have significant adverse impact on QoL.<sup>3,4</sup>

The differences in findings can be attributed to the fact that the authors of previous studies used the WHO QoL-BREF scale and not a CQoL-specific measure. In addition, differences in findings can be explained within Jordanian women's preferences and their choice for IUDs; women use IUDs even though they experience unpleasant symptoms such as the bleeding and pain associated with menstruation. The link between the use of IUDs by young women and the risks of adverse outcomes shows inconsistencies. Jatlaoui et al<sup>19</sup> considered IUDs as a safe method, and that adverse outcomes such as perforation, infection and heavy bleeding among young IUD users are rare and may not be clinically meaningful, while others see that IUDs can cause heavy or irregular bleeding immediately after insertion. Additional menstrual changes and symptoms depend on the women's experiences of the type of IUD used: women using hormonal IUDs may experience lighter or irregular periods and those with copper IUDs may experience heavier bleeding than usual. Low complications and side effects of IUDs such as amenorrhea and pelvic pain are also document in the literature,<sup>20</sup> and a significant increases over time were observed in rates of perforation of the uterine wall in all groups.

The study findings are in line with those revealed by Pérez-Campos,<sup>5</sup> who developed and validated an SEC-QoL questionnaire to assess the impact of contraceptive methods on the HRQoL of women of childbearing age using and not using contraceptive methods.

Results also showed that women from the southern region had worse CQoL than those from the mid- and northern regions. The difference according to region can be explained within the context of the current use of contraceptives and access to reproductive health services in the south. The south of Jordan has the lowest use of any method of contraception compared to the north and mid-region. The DOS (2019)<sup>9</sup> report showed that contraceptive prevalence rate for any method was 48%, and 33% for modern methods including IUDs. Reproductive health services in the south are limited to the government sector, and women have less access to other sources such as the private sector, international organisations and NGOs, which may indirectly contribute to the low QoL. The intensity of menstrual



pain and living in the southern region were significant predictors of QoL and explained 18% of the variance in CQoL of women users, while other variables such as age and number of children were not significant predictors. Intensity of abdominal pain is may be explained by the use of copper IUD which reported to aggravate the severity of hospital referral for unexplained abdominal pain and OC is not always efficient in decreasing abdominal pain as this depends on the duration of use.<sup>21</sup>

These results suggest the need for further studies including other variables that might reveal stronger variance in the QoL of women using contraception. The main strength of this study is the use of contraceptive-specific measurement tool, which was factor-analysed and revealed three factors with a high loading. Although the study used a convenience sample, strength is added by the fact that it was a national survey.

## Implications

The study has implications for contraceptive counselling in improving quality of life of women users of IUD and women from the south region and reducing the severity of symptoms. Findings can also provide opportunities for the advancement of the reproductive health services in Jordan. Future research should focus on perspective studies following women using various contraceptive methods.

## Strengths and Limitations

The strengths of the study come from the fact that it addresses a research priority for reproductive health in Jordan. It is the first study in its focus that uses contraceptive QoL measures, and the use of a national sample. Never the less, the study has its limitations which come from the nature of the cross-sectional design and the convenience sample used; future studies can use a probability sample and ensure sufficient sample size for each contraceptive method to detect differences in QoL.

## Conclusions

The results indicated that physiological aspects of women's QoL is affected by the use of IUDs, with significantly lower QoL scores than those who use OCs or non-hormonal methods. Furthermore, women from the southern region had lower QoL than those living in the mid- and northern regions. There are no significant difference in the health status of women users and non-users of contraceptives in relation to mobility, self care, usual activities, pain/discomfort or anxiety/depression and no significant difference in the evaluation of their health status. Healthcare professionals need to pay more attention to differences in QoL of women using IUDs and being from the southern region.

## Data Sharing Statement

Data will be sent upon request.

## Ethics Approval and Consent to Participate

This research got an Approval from Jordan University of Science and Technology IRB (Grant #585-2016). Consent form was signed by all participants.

## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

## Disclosure

The authors report no conflicts of interest in this work.

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