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Anxiety and Depression Symptoms in Saudi Married Women Using Oral Contraceptives

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The present study aims at revealing the relationship between anxiety and depression symptoms in Saudi married women using oral contraceptives, as well as examining the differences according the variables of age, education, duration of marriage, duration of using the medication, and symptoms accompanying the use of contraceptives. **Method:** The research sample consists of 590 Saudi married women using oral contraceptives, whose ages range between 21-60 years (mean age = 35.74 □7.62). The research instruments included: Anxiety scale and Beck's Depression Inventory. **Results:** The study found that more than half the research participants (52.2%) suffered above average anxiety symptoms, while 9.15% of participants had severe anxiety symptoms. Additionally, most participants (72.03%) did not have any depression symptoms, while 2.03% had severe depression symptoms. The study also found that anxiety and depression symptoms in Saudi women using oral contraceptives decline the higher the age. The results revealed that the higher levels of depression were associated with an increase in premenstrual syndrome (PMS), followed by a decreased libido. Finally, the lowest level of depression was associated with irregular menstrual periods. Moreover, severe levels of anxiety in Saudi married women using oral contraceptives were accompanied with severe levels of depression and vice versa.

Key words: *Anxiety symptoms, depression symptoms, oral contraceptives, age, education, marriage duration, duration of using contraceptives, libido, period regularity, premenstrual symptoms severity.*

Introduction

The prevalence rates of mood disorders and anxiety are higher in women than men (Hughes and Majekodunmi, 2018) and women are twice as likely to become depressed throughout their life compared to men (Kuehner, 2017).

More than 100 million women around the world use hormonal contraceptives (Brent, 2018). The use of contraceptives among Saudi women in Jeddah is 67.7%. The most popular method among Saudi women is oral contraceptives, followed by the intrauterine device (IUD) (Alhusain et al., 2018).

Oral contraceptives have also been the most popular contraceptive method among Saudi women in Abha city (49.5%) (Al-musa, et al., 2019). Al-Harazi and colleagues revealed in their study that the present prevalence of contraceptives in the research population was 62% (N = 1873) in all regions of Saudi Arabia; 30.5% of participants belonged to the occupational group and 80.6% of women were university graduates; years of marriage differed among participants (0-5 years to over 11 years); and oral contraceptives were their first choice (40.3%) (Al-Harazi et al., 2019).

However, the risk of depression increases by 70% among hormonal contraceptive users compared to non-users. Moreover, mood swings symptoms are one of the common reasons for quitting hormonal contraceptives or using a different type (Hughes and Majekodunmi).
Additionally, the risk of anxiety and depression among women using contraceptives is higher compared to women who do not use contraceptives (Ejigu et al., 2020). There is also a growing correlation between using oral contraceptives and suicidal ideation and suicide attempts, where the type of association relies on the existence of a depression history (Jung et al., 2019).

In this regard, it was found that one of the reasons for the irregular use of oral contraceptives or stopping its use is their side effects and fear of these side effects. These side effects include mood disorders, and lower libido, whereas the fear of side effects also includes the risk of venous thromboembolism (VTE) (Jung et al., 2019).

Another study pointed out that the links between the use of hormonal contraceptives and mood disorders are still unclear, despite the assumption that estrogen and progesterone play a role in mood problems (Keyes et al., 2013).

Anxiety and depression share a long and recent history in pathology and the treatment of mental disorders. Additionally, the common genetic risk factors are largely responsible for

this comorbidity, which is attributed to the genetic differences in personality traits that predispose individuals to anxiety and depression (Hettema, 2008).

In addition, the use of hormonal contraceptives and the hormonal changes in the menstrual cycle may have effects on mood disturbances (Brent, 2018), as the use of oral contraceptives was accompanied by emotional brain reactivity (Gingnell et al., 2013). Robinson and his colleagues found that users of oral contraceptives had higher depression, anxiety, fatigue, nervous symptoms, sexual disorders, and negative effects of menstruation compared to non-users (Robinson et al., 2004).

It was also found that women who suffered temper-related side effects due to the current use of combined oral contraceptives showed higher levels of somatic effects of stress and anxiety compared to women who did not suffer any temper-related side effects (Borgström, et al., 2008).

However, a study by Duke et al. (2007) contradicts the findings of the previous studies as they did not find an independent effect of oral contraceptives use on depression symptoms in Australian young women (Duke et al., 2007).

Rapkin and colleagues also found that the use of oral contraceptives was associated with a decline in neuroactive steroids and neuroactive steroid precursors as well as in E2, but this decline was not associated with anxiety and depression symptoms (Rapkin et al., 2006).

The duration of oral contraceptives' use has also been inversely correlated to some elements in Beck's Depression Inventory (lack of satisfaction, waking up early, loss of interest in sex and arousal, loss of interest in people) (Toffol et al., 2011). Another study found that using oral contraceptives leads to the improvement in condition of women suffering severe pre-menstrual mood symptoms, both in negative and positive mood and the effect on daily life (Nyberg, 2013). This is consistent with the finding that oral contraceptive users suffer less changes over their full menstrual cycle and lower negative effects during menstruation (Oinonen & Mazmanian, 2002).

Moreover, Wiebe and colleagues (2011) found that out of 1311 women (mean age = 28 years), 978 (77%) have used hormonal contraceptive methods; 482 of these women (51%) reported at least one mood side effect, and 358 (38%) reported at least one sexual side effect, and they were younger and had better education (Wiebe et al., 2011). Duke and others (2007) also examined the relationship between depression symptoms and the duration of using oral contraceptives, and they found an inverse relationship, i.e. the ratio of women who had depressive symptoms declined with the increase in number of years of oral contraceptives use (Duke et al., 2007).

In this regard, the biopsychosocial model of depression indicates that the causes of psychological disorders are biological, psychological and social aspects that collaborate and interact in a complex manner (Garcia-Toro & Aguirre, 2007), as biopsychosocial factors contribute in increasing women's vulnerability to suffer severe depression (Basha, 2015; Desai and Jann, 2000).

Thus, addressing the differences according to age, level of education, duration of marriage, duration of using contraceptives, libido, period regularity, severity of premenstrual symptoms' variables in general in the present study warrant more investigation.

Furthermore, the aforementioned review demonstrates that using oral contraceptives is linked to anxiety and depression symptoms, and these symptoms differ according to age, level of education, duration of marriage, duration of using contraceptives, and symptoms accompanying using the contraceptive variables. Consequently, the present research problem raises the following questions:

1. What is the level of anxiety symptoms and depression symptoms in Saudi women using oral contraceptives?
2. How much do the anxiety and depression symptoms vary in Saudi women using oral contraceptives according to some demographic variables (age, level of education, and duration of marriage)?
3. How much do the anxiety and depression symptoms vary in Saudi women using oral contraceptives according to some variables related to the use of oral contraceptive drugs (duration of using the drug, symptoms accompanying using the drug)?
4. What is the magnitude and type of relationship between anxiety and depression symptoms in Saudi women using oral contraceptives?

The study seeks to identify the level of anxiety symptoms and depression symptoms in Saudi women using oral contraceptives, and examining the relationship among these variables. It also aims at examining the differences according to age, level of education, duration of marriage, duration of using the drug, and symptoms accompanying using the drug as variables of the study.

Material and Methods

Research Methodology

The present study uses the descriptive method, both the correlative and comparative, to identify the relationship between the anxiety and depression symptoms in Saudi women using oral contraceptives. The differences were examined according the variables of age, level of

education, duration of marriage, duration of using the drug, and symptoms accompanying using the drug.

Research Population and Sample

The research population is composed of all Saudi women using oral contraceptives. In order to collect research data, an online questionnaire was sent to 1284 women, whose age ranged from 20 to 55 years of age, from the various administrative regions in Saudi Arabia. 590 women (46%) reported that they used oral contraceptives. Thus, they completed the questionnaire which included basic information followed by anxiety and depression scales. These women composed the research sample.

Description of the Research Sample Characteristics

The research sample consists of 590 Saudi women using oral contraceptives from different age groups. The majority of participants came from Riyadh region, and were holders of a university degree or an equivalent degree. The detailed results of the sample's demographic variables are as follows:

Demographic variables:

1. Age: the participants' ages ranged between 21 and 60 years old (M = 35.74, SD= 7.62). Participants The largest age group was 30-39 years old (271 women, 45.93%), followed by 40-49 years (160 women, 27.12%), then 20-29 years (130 women, 22.03%) and finally, 50 years and older (29 women, 4.29%).
2. Administrative division: The majority of participants (82%) are from Riyadh province, followed by participants from Makkah province (36 women, 6.10%), Al-Qasim (23 women, 3.90%), Eastern Province (22 women, 3.73%), Aasir Province (12 women, 2.03%), Medinah (9 women, 1.53%) and less than 1% from other provinces (4 women, 0.68%).
3. Level of Education: The majority of participants (67.12%) are holders of a university degree or an equivalent degree, followed by holders of a graduate degree or an equivalent degree (112 women, 18.98%), then holders of a secondary or an equivalent degree (78 women, 13.22), and the smallest group was the group of women holding only a primary certificate (4 women, 0.68%).
4. Marriage duration: The sample's distribution according the duration of marriage variable varied. The majority of participants were married for over 10 years (11 years or longer) (54.6%), 22.71% were married for 6-10 years, and 22.71% were married for 1-5 years.

Variables related to the oral contraceptives:

1. Duration of using oral contraceptives: The majority of participants used oral contraceptives for a prolonged period. More than 80% of participants (474 women) reported that they used oral contraceptives for one year or longer, whereas 59 participants (10%) used oral contraceptives for six months, 28 participants (4.75%) for three months, and 29 participants (4.92%) for less than three months.
2. Using the same type of oral contraceptives: Most participants (66.44%, 392 women) did not change the type of oral contraceptive, whereas 198 women (33.56%) changed it.
3. The effect of oral contraceptives on libido, period regularity, and severity of pre-menstrual symptoms: After asking research participants about the changes that happened to them after using oral contraceptives, we found that the most prominent changes representing the effect of using oral contraceptives are the following:

- Libido
- Period regularity
- Severity of premenstrual symptoms

With respect to libido, 247 women (41.87%) reported their libido was affected by the use of oral contraceptives, whereas 343 participants (58.14%) did not report any changes. Also, 467 women (79.15%) did not report any changes in the severity of period pain, whereas 123 women (20.85%) reported changes. Moreover, 508 participants (86.10%) did not report changes in period regularity, whereas 82 women (13.90%) reported changes. Thus, affected libido is the most prevalent symptom (41.86%), followed by more severe premenstrual symptoms (20.85%), and finally period irregularities (13.9%).

Research Instruments

1. Beck's Depression Inventory-II (BDI-II)(Abdel-Fattah, 2000; Basha, 2015):

Abdel-Fattah (2000) prepared this scale, which is considered the most recent developed version of BDI. The BDI-II is scored by adding the scores of the 21 items. Each item is scored on a 4-point scale (from 0 to 3). The score 0 is given to the first statement of each item, the second is given 1 point, the third is given 2 points and the fourth is given 3 points. If the subject selects more than one statement for any of the items, the higher score is calculated. The total score for this scale is from 0 to 63 points.

In terms of the psychometric properties of the BDI-II, Abdel-Fattah verified the scale's reliability by two methods. The first method is the retest method, as he applied the questionnaire to 55 university students (31 males and 24 females) twice with a two-week interval. Reliability coefficients of the male sample = 0.75, the female sample = 0.74, and of the overall sample = 0.74. The second method is internal consistency (Chronbach's alpha

coefficient), which is 0.79 for the male sample (N = 70), 0.88 for the female sample (N = 44) and 0.83 for the sample as a whole (N = 114) (Abdel-Fattah, 2000; 23-25).

With respect to the instrument's validity, the calculation of factor validity of the scale has revealed two factors: the first one is the cognitive-affective dimension of depression which includes sadness, pessimism, past failure, loss of pleasure, feelings of sin, feelings of punishment, self-hate, self-criticism, suicidal ideas or desires, crying, irritation and arousal, loss of interest, hesitation, lack of worth, loss of energy, and difficulties in concentration; while the second factor is the somatic dimension of depression which includes suicidal ideas, lack of worth, loss of energy, changes in sleep patterns, anger vulnerability, changes in appetite, difficulties in concentration, exhaustion and fatigue.

In the current study, the reliability of this scale has been verified using Chronbach's Alpha, and the reliability coefficient of the scale is 0.907 which is a high reliability coefficient that indicates the terms of the scale are homogenous and express the same meaning.

2. Trait Anxiety Scale (Abdel-Khaliq, 1992; Basha, 2015):
Abdel-Khaliq (1992) translated this scale into Arabic. It is a sub-scale of the State-Trait Anxiety Inventory (STAI), originally developed by Spielberger, Gorstch, Losheen, Fag and Jacobs in 1983 based on Cattell's distinction between anxiety and trait anxiety. The Trait Anxiety Scale (version Y-2) consists of 20 items measuring relatively stable individual differences in terms of targeting anxiety as a personality trait. It aims at assessing what the subject feels in general according to a 4-point scale from never = 1 to always = 4. This scale can be applied to individuals or groups. Despite the fact that the Trait Anxiety Scale does not have a time limit, healthy samples and university students generally need about 6 minutes to answer it. The scale is scored by giving 1-4 points to each item, where 4 reveals a high level of anxiety in 11 items of the scale, while it indicates the opposite in the other 9 items. The items indicating anxiety are scored by the number that the subject selects using (x) in 1, 2, 3, or 4 and they score 4, 3, 2, 1 respectively. The items that indicate the absence of anxiety (reversely scored) are 1, 3, 6, 7, 10, 13, 14, 16, and 19. The total score of this scale range between 20 (minimum score) and 80 (maximum score).

In terms of the psychometric properties of the Trait Anxiety Scale, Abdel-Khaliq calculated the sample's reliability in a sample of university students (173 males and 178 females) using a retest method. The reliability coefficients after a 30-day interval ranged between 0.71 for males and 0.75 for females. Chronbach's alpha reliability coefficients also ranged between 0.90 for males and 0.91 for females. Both are generally high coefficients. With respect to verifying the scale's validity, the criterion-related validity coefficients ranged between 0.56 and 0.78 (the correlation between Spielberger's trait anxiety and Taylor's trait anxiety).

In the current study, Chronbach's alpha has been used to verify the reliability of the scale. The reliability coefficient of the Trait Anxiety Scale is 0.931 which is a high reliability coefficient that indicates the terms of the scale are homogenous and express the same meaning.

Results

What are the Levels of Anxiety Symptoms and Depression Symptoms in Saudi Women Using Oral Contraceptives?

1. Anxiety scale total score

The anxiety scale total score according to the participants' responses ranged between 22 and 76 (M = 45.02, SD = 11.228). The participants were divided into three groups according to their score on the anxiety scale: normal anxiety (20-40), above average anxiety (41-60), and severe anxiety (61-80). The authors found that more than half the participants (52.2%) had above average anxiety symptoms, whereas 9.15% of participants had severe anxiety symptoms.

2. Depression inventory total score:

The total score of the depression inventory according to the participants' responses ranged between zero to 58 (M = 15.35, SD = 10.137). The participants were divided into four groups according to their total scores on the depression inventory: no depression (zero – 20), minor (21-31), moderate (32-41), and severe (42-63). The results revealed that most research participants (72.03%) did not suffer any depression symptoms, whereas 2.03% of participants suffered severe depression symptoms.

How much did the anxiety symptoms and depression symptoms vary among Saudi women using oral contraceptives according to several demographic variables (age, level of education, and marriage duration)?

1. Anxiety and depression symptoms vary according to the age variable:

In order to study the relationship between age and anxiety and depression symptoms, Pearson's correlation coefficient was used to examine the direction and strength of the relationship between the participants' age one the one hand and the total score of the anxiety scale and depression inventory on the other. The findings showed a weak, but significant, inverse relationship ($p < 0.05$) between the total score of the anxiety scale and the depression inventory and age. This can be explained by the fact that anxiety and depression symptoms in Saudi women using oral contraceptive decline with the increase in age.

After a significant correlation between the age variable and the total scores of the anxiety and depression scales was confirmed, the researchers used ANOVA to examine the existence of significant differences between the mean total score of anxiety and depression scores of the various age groups.

The findings showed that p-value of the anxiety scale was lower than 0.05, which indicates the existence of significant differences between the mean total score of the anxiety level in the age groups. On the other hand, no significant differences could be found between the mean total score of the depression inventory and the age groups.

To examine the magnitude of differences between the age groups, an LSD posttest was conducted. It found the highest group in terms of anxiety was the age group 20-39 years, followed by the age group 40-59 years, and finally the age group 60 or older. In other words, the anxiety level declined with the increase in age. Despite this, these differences were significant only between the age groups 20-39 and 40-59.

2. Anxiety and depression symptoms varied according to the level of education variable:
To examine the relationship between the level of education and anxiety and depression symptoms, ANOVA was used to test the existence of significant differences between the total scores of the anxiety and depression symptoms in the level of education various groups.

Table 1: ANOVA of the anxiety and depression scales total scores and the level of education variable groups

Scale	Variance	Sum of squares	Freedom degree	Mean of squares	F-value	P-Value
Anxiety	Inter-group	435.264	3	145.088	1.152	0.328
	Intra-group	73,819.125	586	125.971		
	Group	74,254.388	589			
Depression	Inter-group	258.997	3	95.332	0.927	0.427
	Intra-group	60,240.674	586	102.8		
	Group	60,526.671	589			

* Statistically significant differences exist when $\alpha = 0.05$

Table 1 demonstrates that the p-value of the anxiety and depression scales are higher than 0.05, which indicates that no statistically significant differences exist between the mean total scores of the two scales of the level of education variable various groups.

3. Anxiety and depression symptoms vary according to the duration of marriage variable:
The researchers used ANOVA to test if significant differences existed between the mean total scores of anxiety and depression scales in the various groups of the marriage duration

variable, in order to study the relationship between the duration of marriage variable and anxiety and depression symptoms. The researchers found that p-value of the anxiety scale was lower than the significance level 0.05, indicating the existence of significant differences between the total score of the anxiety scale in the marriage duration variable groups. On the other hand, no significant differences were found between the mean total score of the depression inventory in the marriage duration variable groups.

In order to study the magnitude of differences between the marriage duration variable, an LSD posttest was conducted. It revealed that the lowest group in terms of anxiety was women whose marriage lasted for 11 years or longer compared to other groups that had higher anxiety levels.

How much do anxiety symptoms and depression symptoms vary in Saudi women using oral contraceptives with respect to a number of variables related to oral contraceptives (duration of using the oral contraceptive, symptoms accompanying the use of oral contraceptive)?

1. Anxiety and depression symptoms varied according to the duration of using oral contraceptive variable:

To study the duration of using oral contraceptive variable with anxiety and depression symptoms, ANOVA test was used to test whether there are statistically significant differences between the mean total scores of the anxiety and depression scales in the groups of the duration of using oral contraceptive variable.

Table 2: ANOVA test of the mean total scores of the anxiety and depression scales between the groups of the "duration of using oral contraceptive" variable

Scale	Variance	Sum of squares	Freedom degree	Mean of squares	F-value	P-Value
Anxiety	Inter-group	1,137.49	3	379.165	3.039	0.029*
	Intra-group	73,116.9	586	124.773		
	Group	74,254.4	589			
Depression	Inter-group	292.052	3	97.351	0.947	0.417
	Intra-group	60,234.6	586	102.789		
	Group	60,526.7	589			

* Statistically significant differences exist when $\alpha = 0.05$

Table 2 shows that p-value of the anxiety score is less than 0.05, indicating the existence of significant differences between the mean total score of the anxiety scale in the groups of duration of using the oral contraceptive variable groups. On the other hand, the research findings did not show any significant differences between the mean total score of the depression inventory in the duration of using oral contraceptive variable groups.

The authors conducted an LSD posttest to study the magnitude of differences between the groups of the duration of using the oral contraceptive variable. It revealed that the highest group in anxiety level was women who have been using oral contraceptives for less than three months; then the level of anxiety started to decline until they reached their lowest in women who have been using oral contraceptives for one year or longer. In other words, it can be said that anxiety levels were at their highest at the beginning period of using oral contraceptives, then they declined gradually with longer durations. Additionally, the differences in anxiety levels were significant only between the group of women who used oral contraceptives for less than three months and the group of women who used oral contraceptives for one year or longer.

Table 3: LSD posttest of the duration of using oral contraceptive variable groups:

Duration (I)	Duration (J)	Mean of differences (I-J)	P-value
Less than 3 months	3 months	2.951	0.319
	6 months	4.854	0.056
	One year or longer	5.877	0.006*

* Statistically significant differences exist when $\alpha = 0.05$

2. Anxiety and depression symptoms varied according to the symptoms accompanying the use of oral contraceptives

Participants were asked about the most significant symptoms associated with the use of oral contraceptives, namely affected libido, period irregularities, and increased premenstrual symptoms. The authors studied the variance of anxiety and depression symptoms according to these symptoms in two phases as follows:

a. Studying the differences in anxiety and depression in women who exhibited these symptoms and women who did not:

- Differences in anxiety levels:

Table 4: Independent t-test to compare anxiety levels in terms of the various symptoms

Symptoms		Scale's mean total score	T-test statistic	P-value
Affected libido	Yes	48.95	-7.388	<0.001*
	No	42.21		
Regular periods	Yes	44.36	3.656	<0.001*
	No	49.2		
Premenstrual symptoms increased	Yes	49.64	-5.232	<0.001*
	No	43.82		

- * Statistically significant differences exist when $\alpha = 0.05$

As shown in table 4, all symptoms accompanying the use of oral contraceptives had a p-value lower than 0.05, which indicates the existence of statistically significant differences in the anxiety levels among women exhibiting these symptoms and women who did not have such symptoms.

- Differences in depression levels:

Table 5: Independent t-test to compare depression levels in terms of symptoms accompanying the use of oral contraceptives

Symptoms		Scale's mean total score	T-test statistic	P-value
Affected libido	Yes	19.47	-8.56	<0.001*
	No	12.39		
Regular periods	Yes	14.59	4.037	<0.001*
	No	20.1		
Premenstrual symptoms increased	Yes	19.89	-5.723	<0.001*
	No	14.16		

- * Statistically significant differences exist when $\alpha = 0.05$

Table 5 shows that the p-value of all symptoms accompanying the use of oral contraceptives was lower than 0.05, which indicates the existence of statistically significant differences in the depression levels among women who exhibited these symptoms and women who did not.

b. Comparing the anxiety and depression levels among the three aforementioned symptoms to determine the symptom that had the greater influence on anxiety and depression.

Participants who exhibited symptoms accompanying the use of oral contraceptives were divided into three groups: women whose libido was affected only, women who suffered period irregularities only, and women who suffered an increase in premenstrual symptoms only. Then the authors compared the three groups using ANOVA to determine whether statistically significant differences between the three aforementioned groups existed in anxiety and depression levels.

Table 6: Anxiety and depression scales total score ANOVA test between the various symptoms

Scale	Variance	Sum of squares	Freedom degree	Mean of squares	F-value	P-Value
Anxiety	Inter-group	309.744	2	154.872	1.296	0.276
	Intra-group	21,273.67	178	119.515		
	Group	21,583.41	180			
Depression	Inter-group	757.738	2	378.869	3.84	0.023*
	Intra-group	17,561.4	178	98.66		
	Group	18,319.14	180			

* Statistically significant differences exist when $\alpha = 0.05$

Table 6 shows that the depression inventory's p-value was less than 0.05, which indicates the existence of statistically significant differences between the mean total score of the depression inventory and the various symptoms accompanying the use of oral contraceptives. On the other hand, no significant differences were found for the total score of the anxiety scale.

The authors conducted the LSD posttest to study the magnitude in differences of depression levels between the three symptoms. The authors found significant differences between the three aforementioned groups. The findings revealed that higher levels of depression were associated with an increase in premenstrual symptoms, followed by an affected libido, and finally the lowest depression level was associated with period irregularities.

Table 7: LSD posttest of the various symptoms

Symptom (I)	Symptom (J)	Mean of differences (I-J)	P-value
Period irregularities	Affected libido	-5.900	0.013*
	Increased premenstrual symptoms	-9.100	0.019*

* Statistically significant differences exist when $\alpha = 0.05$

What is the Type and Magnitude of the Relationship between Anxiety and Depression Levels in Saudi Women Using Oral Contraceptives?

To examine the type and magnitude of the relationship between the anxiety and depression symptoms, the authors calculated Pearson's correlation coefficient between the anxiety and depression scales total score. The authors found a strong direct relationship between anxiety level and depression level in the research participants ($r = 0.798$). This relationship was significant as the p-value was less than 0.05. Based on these results, the authors can deduce

that severe anxiety levels in Saudi women using oral contraceptives are accompanied by severe depression levels and vice versa.

Discussion

The present study found that more than half the participants (52.2%) had above average anxiety, whereas 9.15% of participants had severe depression symptoms. This shows that 62.35% of women using oral contraceptives suffer above average anxiety and severe depression symptoms. Women in Arab societies have higher anxiety levels compared to western societies. This may be due to the fact that women seek others' help when they feel stressed or frustrated more than men, thus women can acknowledge fears and anxiety aspects, which makes them more anxious than men (Basha, 2015; Ebrahim, 2002).

This finding is consistent with the findings of Segebladh and others (2009) who found that women who had continuous or previous negative self-reported mood effects due to oral contraceptives witnessed an increase in the prevalence of anxiety and mood disorders (Segebladh et al., 2009).

However, it differs from the findings of Cheslack-Postava et al. (2015) that there was a prevalence of generalised anxiety disorder over the previous year in women using oral contraceptives (Cheslack-Postava et al., 2015).

The present study also found that most participants (72.03%) did not have depression symptoms, whereas 2.03% only suffered severe depression symptoms. This finding indicates that most participants using oral contraceptives did not have depression symptoms. This can be explained according to the findings of longitudinal analyses by Keyes et al. (2013) that the association between hormonal oral contraceptive and depressive symptoms was stable. Meanwhile, hormonal oral contraceptives may reduce the level of depression symptoms among young women. Additionally, women using hormonal oral contraceptives had below average levels of co-occurring depression symptoms (Keyes et al., 2013).

Francis et al. (2015) pointed out that adolescent girls high in depression symptoms used IUDs more than girls who had the lower threshold of symptoms (Francis et al., 2015).

This finding is consistent with Duke et al. (2007) who did not find an independent effect of using oral contraceptives on depression symptoms in Australian young women (Duke et al., 2007). However it differs from the findings of Skovlund et al. (2016) that found a correlation between using hormonal oral contraceptives, especially among adolescent girls, with the subsequent use of anti-depressants and the first depression diagnosis, which highlights

depression as a potential negative effect of using hormonal oral contraceptives (Skovlund, et al., 2016).

Moreover, there is an inverse relationship between the total score of the anxiety and depression scales and age. In other words, anxiety and depression symptoms in Saudi women using oral contraceptives decreased with the increase in age. This finding is consistent with the findings of Skovlund et al. (2016) that found an association between the use of hormonal oral contraceptives and depression symptoms, whereas the risk declined in higher levels and with older age (Skovlund et al., 2016).

Additionally, the authors found significant differences between the mean total score of the anxiety scale in the age variable groups with the age group 20-39 years. This can be explained by the fact that Saudi women now and within the framework of empowering women and accomplishing the KSA vision 2030, have increased stress. Women receive their education and work like men, but they also do their main tasks of pregnancy, giving birth, and taking care of children as a wife and mother. Therefore, life stresses and anxiety are more challenging for women, especially in the age group 20-39 years old, which is the main fertility period for women. Furthermore, 86% of participants had university education or graduate studies, which accounts for the differences in anxiety in terms of the age variable. However, no significant differences were found between the mean total score of the depression inventory and the age variable groups. Duke et al. (2007) suggest that the association between the use of oral contraceptives and the increase in depression disorder may be related to the users' characteristics and not to the oral contraceptives (Duke et al., 2007). Therefore, no differences exist in depression symptoms in terms of the age variable groups, as such differences may be due to the users' character and not age.

Moreover, there were no significant differences between the mean total scores of the anxiety and depression scales in the various educational level group. This can be explained by the fact that 86% of the research sample had a university degree or graduate degree. Therefore, no differences in terms of the level of education were found between the mean total scores of the anxiety and depression scales. This can also be explained by the fact that women's edification and level of education have both increased, leading to more appreciation to family life and reaching a level of adjustment with marital life, thus a decline in being depressed (Flores-Ortiz, 1991). In this regard, Bennett et al. (2006) pointed out that lower levels of education were more associated with more than double the risk of unwanted pregnancies after one year of giving birth. Depression or the bad use of contraceptives did not medicate this relationship (Bennet et al., 2006).

Statistically significant differences were found between the mean total score of the anxiety scale in the duration of marriage variable groups. The group that had the least anxiety level

was women who have been married for 11 years or longer compared to other groups that had higher anxiety levels. This can be explained by the fact that women who have been married for 11 years or longer were more familiar with using oral contraceptives without worrying to forget taking the pill or the occurrence of unplanned pregnancy. Moreover, they were more competent in fulfilling their multiple roles as wife, mother, and working women. Consequently, they had lower anxiety levels.

The authors did not find significant differences between the mean total score of the depression inventory and the marriage duration variable groups. This can also be explained by the fact that 86% of the sample had higher education or graduate education, and the increase in women's edification and education led to more appreciation of family life and reaching adjustment in marital life; this consequently led to a decline in being depressed (Flores-Ortiz, 1991).

The authors also found significant differences between the mean total score of the anxiety level in the duration of using oral contraceptives' variable groups. The highest level in anxiety level was the group of women using oral contraceptives for less than three months. This can be explained by what Brynhildsen (2014) pointed out, that the main reasons for discontinuing or the irregular use of oral contraceptives were their side effects including mood disorders. Discontinuing the use of oral contraceptives during the first six months of first use is still high (20-25%), which may be due to the elevated worry and fear to forget the pill and consequently have an unwanted pregnancy (Brynhildsen, 2014).

On the other hand, the study did not find significant differences between the mean total score of the depression inventory in the duration of using oral contraceptives' variable groups. This can be explained by the fact that 80% of the participants have been using oral contraceptives for one year or longer, which led to the absence of differences between the mean total score of the depression inventory in the duration of using oral contraceptives variable groups. This is in line with the findings of Berry-Bibee, et al. (2016), as depression scores were not associated with the duration of using oral contraceptives (Berry-Bibee et al., 2016).

Furthermore, the authors found significant differences between women who had some symptoms (affected libido, period irregularities, and more severe premenstrual symptoms) and women who did not. The findings show that higher levels of depression are associated with the increase in premenstrual symptoms' severity, followed by affected libido, and finally the lowest depression level is associated with period irregularities.

This finding is consistent with Sanders et al. (2001) who found that affective side effects, reduced psychological sexual arousal, and PMS, were present in 87% of the subjects using oral contraceptives. The sexual and affective side effects were the best predictor of

discontinuing or changing oral contraceptives (Sanders et al., 2001). It is also in line with Abraham et al. (2003) who that found that healthy women using oral contraceptives experience changes in their menstrual cycle and periods (Abraham et al., 2003). A study by Lee et al. (2017) also found that oral contraceptives may cause FSD in women of childbearing age (Lee et al., 2017). However, it differs from the findings of Sadler et al. (2010) who found an association between the use of any type of hormonal contraceptive and the reduced prevalence of premenstrual symptoms (Sadler et al., 2010), and Westhoff et al. (2007) who did not find any changes in mood or sexual satisfaction during the first three months of using oral contraceptives (Westhoff et al., 2007).

The study findings also show a strong direct relationship between the level of anxiety and depression in research participants. The authors conclude that severe anxiety levels in Saudi women using oral contraceptives may be accompanied by severe levels of depression and vice versa. The association between anxiety and depression can be explained in terms of previous findings (Basha, 2015; Chorpita and Barlow, 1998) that anxiety plays a critical role in negative emotions; also a general common factor existed in the self-reported signs and symptoms of anxiety and depression, namely a negative effect. The rates of anxiety disorders were higher in women, and anxiety disorders were likely to co-occur with depression (Hall et al., 2015). This finding is consistent with the findings of Xie et al. (2012) that a positive relationship exists between anxiety and depression (Xie et al., 2012).

Conclusions

The present study answered its main research questions. The statistical analyses revealed that more than half the participants 52.2% had above average anxiety symptoms, while 9.15% of participants had severe anxiety symptoms. Additionally, most participants (72.03%) were not depressed, whereas only 2.03% had severe depression. Anxiety and depression symptoms in Saudi women using oral contraceptives decline with older age. Moreover, higher levels of depression are associated with an increase in premenstrual symptoms' severity, followed by affected libido, and finally period irregularities. The study also found a positive association between anxiety and depression symptoms. Therefore, the authors recommend on the basis of current findings, that self-esteem, body image distortion, anxiety and depression in women using oral contraceptives should be further studied. There is also a need for preventive programs for married women who wish to conduct family planning or birth limitation, develop their positive aspects and life stressors' coping methods in order to reduce anxiety, tension, and promote the quality of life.

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