

## ORIGINAL RESEARCH ARTICLE

# Postnatal exercises: perceived barriers and self-efficacy among women at maternal and children hospital at Najran, kingdom of Saudi Arabia

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## Abstract

Sedentary lifestyle is very high in the Saudi population in general and significantly high among females. Furthermore, some postpartum tradition imposes limited activities during postpartum periods. For women to be active during the postpartum period, they should have enough self-efficacy (SE) to overcome perceived barriers (BP). This study aimed to evaluate postnatal exercises' PB and SE among postpartum women. A descriptive cross-sectional research design was followed in this study. This study was conducted at the outpatient department/ Maternal and Child hospital in Najran city, KSA. The study comprised a convenience sample of 368 postnatal women. Data collection was done using a questionnaire composed of three parts; socio-demographic data and obstetric history, exercise benefits/barriers scale and exercise self-efficacy scale. Data were analyzed using SPSS 23.0. The relationships between variables were assessed using the Chi-square or Fisher's exact test. The correlations were assessed using Pearson correlation. The study results illustrated that 52.4% of the postpartum women had moderate SE to exercise, and 71.5% had moderate PB. Also, there were statistically significant relationships between the study participants' SE and PB and their educational level and nationality ( $p < 0.05$ ). In addition, significant negative correlations existed between the participants' SE and their Body Mass Index (BMI), age, gravidity, parity, number of children, and PB ( $p < 0.05$ ). On the other hand, significant positive correlations were observed between the participants' PB and their BMI, age, gravidity, parity, and number of children. This study concluded that about two-thirds of the postpartum women in Najran had low or moderate SE to practice postnatal exercises, and the majority of them had moderate or high BP. Efforts to enhance postnatal exercises should be directed to increase SE to overcome BP concerning postnatal exercises. (*Afr J Reprod Health* 2020; 24[4]: 164-172).

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**Keywords:** Postnatal exercises, perceived barriers, self-efficacy, Saudi Arabia

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## Résumé

Le mode de vie sédentaire est très élevé dans la population saoudienne en général et significativement élevé chez les femmes. En outre, certaines traditions post-partum imposent des activités limitées pendant les périodes post-partum. Pour que les femmes soient actives pendant la période post-partum, elles doivent avoir suffisamment d'auto-efficacité (SE) pour surmonter les barrières perçues (TA). Cette étude visait à évaluer le PB et SE des exercices postnatals chez les femmes en post-partum. Une conception de recherche transversale descriptive a été suivie dans cette étude. Cette étude a été menée au service de consultation externe / hôpital maternel et infantile de la ville de Najran, en Arabie Saoudite. L'étude comprenait un échantillon de commodité de 368 femmes postnatales. La collecte des données a été effectuée à l'aide d'un questionnaire composé de trois parties; données sociodémographiques et antécédents obstétricaux, échelle des avantages / obstacles à l'exercice et échelle d'auto-efficacité à l'exercice. Les données ont été analysées à l'aide de SPSS 23.0. Les relations entre les variables ont été évaluées à l'aide du test du chi carré ou exact de Fisher. Les corrélations ont été évaluées à l'aide de la corrélation de Pearson. Les résultats de l'étude ont montré que 52,4% des femmes en post-partum avaient une SE modérée à l'exercice et 71,5% avaient un PB modéré. De plus, il y avait des relations statistiquement significatives entre l'ES et le PB des participants à l'étude et leur niveau d'éducation et leur nationalité ( $p < 0,05$ ). De plus, des corrélations négatives significatives existaient entre le SE des participants et leur indice de masse corporelle (IMC), l'âge, la gravité, la parité, le nombre d'enfants et le PB ( $p < 0,05$ ). En revanche, des corrélations positives significatives ont été observées entre le PB des participants et leur IMC, leur âge, leur gravité, leur parité et le nombre d'enfants. Cette étude a conclu qu'environ deux tiers des

femmes en post-partum à Najran avaient une SE faible ou modérée pour pratiquer des exercices postnatals, et la majorité d'entre elles avaient une TA modérée ou élevée. Les efforts visant à améliorer les exercices postnatals devraient être dirigés pour augmenter SE pour surmonter BP concernant les exercices postnatals. (*Afr J Reprod Health* 2020; 24[4]: 164-172).

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**Mots-clés:** Exercices postnatals, barrières perçues, auto-efficacité, Arabie saoudite

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## Introduction

Saudi community is high parity due to cultural values and beliefs. Frequent pregnancy and childbirth are known to deplete females' bodies and the musculoskeletal system is severely affected. There is relaxation in the muscles and ligament; exaggerated lordosis resulted in lower back pain, forward neck flexion, and downward shoulder movement. In addition, the muscle and ligament relaxation resulted in increased mobility and widening of the sacroiliac and symphysis pubic joints. Other numerous physiological changes take over the female body, including the cardiovascular, respiratory, digestive, and endocrine systems<sup>1</sup>. Weight gain is also a normal physiological event that occurs during pregnancy.

During the postpartum period, all the body systems work in synchronization to return to the pre-pregnancy condition. Postnatal exercises play an essential role in this process. It can help muscles regain their tone, the body restores its normal alignment, maintains psychological wellbeing, decreases the incidence of stress incontinence, and regresses normal body weight<sup>2</sup>. From a physiologic perspective, postnatal exercises improve aerobic fitness, high-density lipoprotein, and cholesterol level. In addition, it can improve insulin sensitivity and body metabolism. It also can decrease anxiety, stress, and depression associated with childbearing<sup>3,4</sup>. Consequently, postnatal exercises contribute to maternal physical, psychological, and social wellbeing during the postpartum period.

The beginning and maintenance of regular postnatal exercise programs is a challenge for postpartum women in general and Saudi women, specifically. The sedentary lifestyle is common for the Saudi population in general, and for Saudi females, it puts them at higher risk of serious health problems. Al-Nozha *et al.* conducted a cross-sectional study to investigate the physical activities and inactivity prevalence among the Saudi population aged 30 to 70 years. They reported that the sedentary lifestyle was very high in the Saudi population in general (96.1%) and significantly high among females (98.1%)

compared to males (93.9%) among their study participants. The Saudi population's sedentary lifestyle was associated with low education, aging, residence, and body mass index<sup>5</sup>.

According to Al-Eisa and Al-Sobayel the sedentary lifestyle among the Saudi population might be attributed to numerous factors. These factors included, but were not limited to, health beliefs, values, and traditions. They further added that the majority of sedentary lifestyles among Saudi females was contributed to obesity<sup>6</sup>. In addition, some Saudi traditions impose to the females some form of activity limitation. Furthermore, some postpartum tradition imposes limited activities during postpartum periods<sup>7,8</sup>.

Recently, KSA 2030 national vision emphasized the importance of physical activities and a healthy lifestyle. The government also supported this concept with new legalizations that enhance female movement and participation in sport activities. The activation of a healthy, active lifestyle requires the researchers to identify the barriers and enablers for physical activities. Therefore, it is urgent to identify the barriers that may prohibit women's physical activities during the postpartum period. Postpartum women have numerous barriers to exercises, such as fatigue, childcare, home activities, and beliefs regarding the postpartum period. SE is the corner stone for women's ability to perform postnatal exercises. High SE is related to improved self-perception concerning physical activities. According to SE theory principles: intervention would be linked to enhancements in perceptions of one's physical abilities to continue exercise (task Self-Efficacy), self-management capabilities concerning exercise completion (self-regulatory efficacy); satisfaction with one's body; overall negative mood; and actual physiological changes<sup>4,9</sup>. This justifies the urgent need for assessing the postnatal exercise barriers and SE.

### **The study aim**

This study aimed to evaluate postnatal exercises' PB and SE among postnatal women.

### Research questions

- What are the PB to postnatal exercises among study participants?
- What is the level of postnatal exercises' SE among study participants?
- Are there relationships between postnatal exercises' PB and SE among study participants and their demographic characteristics?

### Methods

#### Research design

A descriptive cross-sectional research design was followed in this study.

#### Setting

This study was conducted at the outpatient department, Maternal and Children hospital in Najran City, Saudi Arabia.

#### Subjects

The study comprised a convenience sample of 368 postnatal women. Inclusion criteria were women who had undergone normal vaginal delivery with or without episiotomy, free from physical handicaps, free from medical conditions requiring mobility restriction, six weeks to twelve months post-delivery, and agreed to participate in the study.

The sample size was calculated based on the previous year's census report of maternal and child hospital. The total number of women who attended the outpatient clinic after delivery = 4756 women. The sample size was calculated using Yamane, formula<sup>10</sup>.

$$n = \frac{N}{1+N(e)^2} = \frac{4756}{1+4756(0.05)^2} = 368.4 \text{ postnatal women}$$

Where: n= sample size, N= total population (4756), e= margin error (0.05)

#### Instrument of data collection

Data collection was done using a questionnaire composed of three parts.

#### Part I: Socio-demographic data and obstetric history questionnaire

It was developed by the researchers to collect socio-demographic data such as: age, residence, educational level, working status, marital status, weight, and height. It included also data regarding obstetric history such as gravidity, parity, number of children, and medical history.

#### Part II: Exercise benefits/barriers scale (EBBS) (adult version)

The whole scale has 43 items developed by Sechrist *et al.* to assess the perceived benefits and barriers to exercises. EBBS may be scored and used in its entirety or as two separate scales. The barrier scale involves 14 items, which was used in the study as a separate scale. The barrier scale items have a four-response, forced-choice Likert-type format with responses ranged from 4 (strongly agree) to 1 (strongly disagree)<sup>11</sup>. The total subscale score ranged from 14-56. The woman was considered to have low (14-28), moderate (29-42), and high exercise barriers (43-56) according to her total score. Farahani *et al.* tested EBBS reliability using Cronbach's alpha coefficient test ( $r= 0.82$ ) for the barriers subscale<sup>12</sup>.

#### Part III: Exercise self-efficacy scale (ESES)

Postnatal exercise' SE was evaluated using ESES. It is a self-report measure that includes ten statements. The participants were instructed to choose a suitable answer on the 4-point Likert scale. The score was (1) for not at all true, (2) rarely true, (3) moderately true, (4) always true. The maximum score of ESES = 40<sup>13</sup>. The total scale score ranged from 10-40. The woman was considered to have low (10-20), moderate (21-30), and high SE (31-40) according to her total score. Hatef *et al.* calculated the reliability of ESES as being over 0.7 using Cronbach's alpha coefficient test<sup>14</sup>.

The researchers developed the instrument; then, it was tested for content validity by a jury of 5 experts in the obstetrics and gynaecology nursing field and biostatistician.

### Procedures

A pilot study was carried out on 10% of the participants to ascertain the tools' clarity and applicability; then, the necessary changes were undertaken. The pilot study participants were excluded from the main study. The data collection started from January to April 2020. The researchers visited the previously mentioned setting three days/week (Sunday, Monday, and Wednesday) from 8.00 am to 12.00 pm according to the outpatient department schedule. After reviewing the patient medical record, each woman was interviewed to ensure her eligibility for the study, explain the study's aim, and asked to participate. Upon consent to participate, the participant was asked to fill the questionnaire, including demographic characteristics, EBBS, and ESES. The average time for the completion of questionnaires (10-15 minutes). The number of the participants/week ranged from 25-30 postnatal women.

### Data analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS 23.0). Descriptive statistics as mean and standard deviation were used for reporting normally distributed numerical variables. Numbers and percentages were used to describe categorical variables. The relationships between categorical variables (demographic variables, SE, and PB categories) were assessed using the Chi-square test or Fisher's exact test (FET). The correlations between continuous numerical variables were assessed using Pearson correlation. The statistical significance set at  $p \leq 0.05$ .

### Results

Table 1 shows that 66.6% of the study participants were university educated. Most of the study participants (94.3%) were urban area residence and Saudi (91.8%). In addition, 85.9% of the study participants were free from chronic diseases. The mean age, gravidity, parity, number of children, and

BMI were  $33.83 \pm 9.00$ ,  $3.83 \pm 2.45$ ,  $3.48 \pm 2.27$ , and  $3.32 \pm 2.17$ , and  $27.64 \pm 5.24$ , respectively.

Table 2 illustrates that more than half (52.4%) of the postpartum women had moderate SE, and about one-third (32.9%) of them had high SE to exercise. In addition, only 14.7% of them had low SE to practice postnatal exercise. Also, 71.5% of the postnatal women had moderate PB to practice postnatal exercises. Only a small proportion of the women had high (15.5%) PB or low (13.0%).

Table 3 clarifies that statistically significant relationships ( $p < 0.05$ ) exist between the study participants' SE and PB with their educational level and nationality. However, no significant relationships ( $p > 0.05$ ) were observed between the participants' SE and PB with their residence and past history chronic diseases.

Table 4 shows significant negative correlations ( $p < 0.05$ ) between SE, BMI, age, gravidity, parity, number of children, and PB. On the other hand, significant positive correlations ( $p < 0.05$ ) were observed between PB, BMI, age, gravidity, parity, and number of children.

### Discussion

Postnatal exercises are well reported to be essential and advantageous for postnatal women's general health and reproductive system involution. Many studies have shown that engaging in regular physical activity after delivery was linked to many physical and mental health benefits. These benefits include but were not limited to pregnancy-related weight loss, improved physical activities, quality of sleep, low risk of postpartum depression, decreased anxiety and stress, and improved positive moods<sup>3,15-17</sup>.

The current study was carried out to evaluate the SE and PB for postnatal exercise among Saudi women. In the present study, it was interesting to record that more than one-half of the postnatal women had moderate exercise SE, and about one-third presented with high SE level. In addition, SE had significant negative correlations with BMI, age, gravidity, parity, number of children, and PB.

**Table 1:** Basic data of the study participants (n=368)

Basic data	No (%)
<b>Education</b>	
Read and write	27(7.3)
Secondary school	96(26.1)
University	245(66.6)
<b>Residence</b>	
Urban	347(94.3)
Rural	21(5.7)
<b>Nationality</b>	
Saudi	338(91.8)
Non-Saudi	30(8.2)
<b>Chronic diseases</b>	
Yes	52(14.1)
No	316(85.9)
<b>Age (Mean ± SD)</b>	33.83±9.00
<b>Gravidity (Mean ± SD)</b>	3.83±2.45
<b>Parity (Mean ± SD)</b>	3.48±2.27
<b>Children number (Mean ± SD)</b>	3.32±2.17
<b>BMI (Mean ± SD)</b>	27.64±5.24

**Table 2:** Total SE and PB scores among study participants (n=368)

Total	High No(%)	Moderate No(%)	low No(%)
Total SE	121(32.9)	193(52.4)	54(14.7)
Total PB	57(15.5)	263(71.5)	48(13.0)

These findings mean that the younger age, lower parity, smaller number of children, and lower PB had higher exercises SE. Also, there were statistically significant relationships between the participants' SE and their educational level and nationality.

These findings were supported by Adeniyi *et al.* who had explored the postnatal exercise profile and SE of 228 Nigerian women. They noted that close to half of their participants presented with moderate exercise SE. They also added that high exercise SE was associated with younger age and higher income. However, Adeniyi *et al.* reported different results concerning gravidity and parity. They mentioned that SE was positively correlated to higher parity and gravidity while it was negatively correlated in the current study. This difference may be attributed to the fact that higher parity in the Saudi population may reach grand-multiparity, according to Saudi culture<sup>4</sup>.

Cramp and Bray investigated the postnatal exercise barriers, SE, and leisure time activities among postpartum women. Around half of their participant had moderate SE to practice postnatal

exercises. They elaborated that leisure-time physical activities were low among their participants during the postpartum period compared to pregnancy. They further added that postnatal leisure time activities were positively correlated to SE and PB, especially 12 weeks postnatal. They also mentioned that numerous barriers could limit the women's ability to begin and maintain physical exercise program<sup>18</sup>. Furthermore, Bauer *et al.* compared the pregnancy and postnatal exercises physical leisure time activities and their relation to weight retention during the postpartum period. They concluded positive statistically significant correlations between leisure-time physical activity score, SE, and weight retention. The top identified barriers for physical exercise were insufficient time, lack of motivation & support, and childcare during the postnatal period<sup>19</sup>. Da Costa and Ireland also stated that lower exercise SE had been significantly associated with increased physical activities' barriers in leisure-time during pregnancy<sup>20</sup>. Moreover, Cheah examined the relationship between socio-demographic characteristics and physical activity participation among adults in Malaysia. He found significant associations between the age and high educational attainment with SE to engage in physical activity<sup>21</sup>.

On the contrary, Hajimiri *et al.* evaluated how SE can influence a healthy lifestyle during the postpartum period with PB as a mediator. They surveyed 318 postnatal women in Iran through a cross-section technique. They reported that SE was relatively high, and PB was relatively low. They further added that there was a statistically significant correlation between SE and PB. They further stated that PB act as a mediating factor between SE and physical activities<sup>22</sup>. In other words some women may have high SE to practice exercise but actually they didn't engaged in any physical activities due to the high PB. Also, Hinton and Olson studied the importance of SE in practicing postpartum exercise and food intake. They elaborated that SE is strongly associated with body weight and exercises at one-year postpartum<sup>23</sup>.

In Saudi Arabia, the culture imposed certain dietary habits that encourage increased amounts of food and carbohydrate intake during the postnatal period to increase breast milk secretion.

**Table 3:** Relationship between study participants' SE, PB, and selected demographic variables. (n=368)

Demographic variables	Self-efficacy			$\chi^2/$ FET	P	perceived barriers			$\chi^2/$ FET	P
	High	Moderate	low			High	Moderate	low		
<b>Educational level</b>				13.812	0.008*				15.743	0.003*
Read and write	33.3	44.5	22.2			33.3	44.5	22.2		
Secondary school	18.7	62.5	18.8			9.4	72.9	17.7		
University	38.4	49.4	12.2			15.9	73.8	10.2		
<b>Residence</b>				4.924	0.851				4.108	0.128
Urban	33.1	51.3	15.6			16.4	70.6	13.0		
Rural	28.6	71.4	0.00			0.0	85.7	14.3		
<b>Nationality</b>				6.275	0.043*				6.861	0.032*
Saudi	33.1	53.6	13.3			16.9	69.8	13.3		
Non-Saudi	30.0	40.0	30.0			0.0	90.0	10.0		
<b>Chronic diseases</b>				1.048	0.592				0.009	0.995
No	32.0	52.8	15.2			15.5	71.5	13.0		
Yes	38.5	50.0	11.5			15.4	71.1	13.5		

\* significant at 0.05,  $\chi^2$  Chi-Square test, FET Fisher Exact Test

**Table 4:** Correlation coefficient between the participants' SE, PB and selected demographic variables. (n=368)

Demographic variables	Self-efficacy		Perceived barriers	
	r	P	R	P
BMI	-0.173	0.001*	0.299	0.000*
Age	-0.176	0.001*	0.103	0.049*
Gravidity	-0.232	0.000*	0.135	0.010*
Parity	-0.241	0.000*	0.109	0.036*
Number of children	-0.266	0.000*	0.129	0.013*
Perceived barriers	-0.591	0.000**		

r correlation coefficient test \* significant at 0.05 \*\* significant at 0.01

These beliefs may hinder weight loss or even lead to increased weight during the postnatal period. In the current study, BMI was positively associated with PB and negatively associated with SE. Besides, the sedentary lifestyle is common among Saudi females, specifically during the postnatal period, which leads to more weight gain, a sense of physical weakness, and decreased SE to practice postnatal exercises.

On the other hand, Irom *et al.* investigated the relationship between SE and some socio-demographic data. Their findings indicated no significant relationship between age and SE to engage in physical activity<sup>24</sup>. The difference between the present study result and Irom *et al.* study may be attributed to different cultures between Saudi Arabia and Iran. Where in Saudi Arabia, certain constrictions are imposed on older females' physical activities. They are not allowed to go out or to practice sport without a male relative. Especially during the postnatal period, they have many restrictive traditions.

Moreover, this study showed that most postnatal women had a moderate to high PB level to practice postnatal exercises. A positive statistically significant correlation was observed between PB and BMI, age, gravidity, parity, and number of children. The study results also clarified that statistically significant relationships exist between the participants' PB with their educational level and nationality. The highest PB and the low participation in physical activity programs can be attributed to many factors. The first factor is cultural barriers, such as the need to separate sexes while wearing sportswear, like many countries in the Middle East, where women may feel that wearing sportswear is inappropriate. The second factor is internal barriers such as lack of time to participate in physical activity, embarrassment, and lack of motivation. In this regard, Al-Otaibi investigated the status of physical activity in the Saudi population in Al Ahsa city. He found that the females had lower mean scores of SE and increased the external physical activity barriers than males.

She further added that the main barrier among the females was in inadequate time<sup>25</sup>.

Nowadays, the Saudi government begins to encourage female participation in different sport activities in response to the KSA 2030 vision. More sports clubs are available for females now; also, females are encouraged to practice walking in public parks, which are available in different KSA regions. In addition, the ministry of health begins to make great efforts to increase community public awareness about physical activities benefits.

Furthermore, Madanat and Merrill found that insufficient time was the main PB to participate in physical activity among Jordanian women<sup>26</sup>. Also, in the United States, the most frequent barriers to participate in physical activity are lack of time, followed by a lack of motivation<sup>27</sup>. The same findings are reported by Saligheh *et al.* who investigated the postpartum exercise barriers and enablers among postpartum women. They elaborated that insufficient time, caring for children and husband, lack of motivation and family support, lack of access to sport places were the most PB among their participants<sup>28</sup>. However, if Saudi women perceived the exercise benefits, they can overcome the PB and find time and place to exercise. Exercise can be easily practiced at home using simple sport devices; therefore the corn stone is to increase the females SE to exercises. In addition, a sedentary lifestyle and using a car to move everywhere, especially for females, may discourage sport. They may link sport to male-only; however, Al-Nozha *et al.* reported that a sedentary lifestyle is common among 98.1% of Saudi females compared to 93,9% among males. Al-Nozha *et al.* studied the prevalence of sedentary lifestyles among the Saudi population. They further linked the inactivity prevalence to age, residence, and BMI<sup>7</sup>. Al-Eisa and Al-Sobayel studied other contributing factors for the Saudi sedentary lifestyle. These factors include, but were not limited to, health beliefs, values, and traditions. They further added that most sedentary lifestyles among Saudi females are contributed to obesity. In addition, some Saudi traditions impose on the females some form of activity limitation<sup>6</sup>. According to the pre-mentioned results, health care providers should pay great attention to encourage the woman to practice postnatal exercise. This can be achieved by teaching

them ways to overcome the PB and improve women's SE to engage in physical activity programs. There is a need for more studies aimed to improve women's behaviors and adopting a healthy lifestyle to meet the women's needs. In this regard, El Sayed *et al.* stated that improving postnatal women's SE to engage in physical activity may help them overcome PB; consequently, it can help them to begin and maintain physical activity<sup>29</sup>.

## Ethical Considerations

Official permission was obtained from the deanship of scientific research at Najran University. Ethical approval reference number is 01-10-02-2019 EC. Another official letter was directed from the applied medical science college to the health affairs administration at Najran to obtain their permission to carry out the study. Informed consent was taken from each participant before data collection. The participants have the right to refuse participation. Furthermore, all data were confidential and used for the research purpose only.

## Limitation of the Study

This research reflects only one geographical area in Saudi Arabia; therefore, further studies should include larger samples from different geographical areas.

## Conclusion

This study concluded that about one-half of the postnatal women had moderate SE to practice postnatal exercise, and three-quarters of them had moderate PB. There were statistically significant relationships between study participants' SE and PB toward postnatal exercises and their educational level and nationality. Also, there were significant negative correlations between study participants' SE and BMI, age, gravidity, parity, number of children, and PB. The same demographic variables were positively correlated with PB.

## Strengths and Implication of the Study

This study is culturally congruent and used standardized validated instruments for data

collection. KSA 2030 vision made particular emphasis on healthy lifestyle and sport. Especially during the postpartum period, exercises have unlimited health benefits. This study results showed that most Saudi females had moderate to low SE and moderate to high BP to practice postnatal exercises. Efforts to enhance postnatal exercises should be directed to enhance SE to overcome BP concerning postnatal exercises. Data available from this study can be used to design evidence-based exercise programs for postnatal women. Measures to increase exercise SE and decrease PB should be integrated into the antenatal care programs.

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## Consent for Publications

The authors have read and approved the publication of the manuscript in its current form.

## Competing Interests

The authors declare they have no conflict of interest.

## Authors' Contributions

*Alshhrani* conceived the initial idea, wrote the research methodology. *Al- Abdullah* reviewed literature and contributed intellectually, *Elgzar* collected data, and discussed findings. *Ibrahim* participated in data collection, make statistical analysis, and wrote the initial draft. *Eltohamy* reviewed literature, contributed intellectually, and wrote the initial stage of the manuscript. All authors agree on the current version of the manuscript.

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