



Healthcare Providers' Knowledge, Attitudes and Practices towards Exercise during Pregnancy: A Cross-sectional Study

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ABSTRACT

Background: Exercising during pregnancy can provide physical and mental health benefits for expectant mothers. **Purpose:** To assess healthcare providers' knowledge, attitudes and practices regarding exercise during pregnancy in hospitals. **Methods:** A cross-sectional design was used. A convenience sample comprised (142) healthcare providers who work in four public hospitals in the southern region of Jordan. Descriptive analysis and inferential statistics were used to answer the research questions. **Results:** The results showed that some of the participants (39.4%) were familiar with the American College of Obstetricians and Gynaecologists guidelines for exercise during pregnancy, while the majority of participants were knowledgeable about the benefits of exercise during pregnancy. Healthcare providers' attitudes were positive. Regarding the level of practice, the findings showed that approximately 50.7% of the participants provided advice about exercise. Demographic characteristics had no significant correlation with healthcare providers' attitudes. **Conclusion:** Although healthcare providers' attitudes towards exercise during pregnancy were positive, not everyone knew of the American College of Obstetricians and Gynaecologists' guidelines. **Implications for Nursing:** Healthcare Providers should undertake workshops and lectures and then highlight the need to practice exercise during pregnancy, also they should start by making a full and comprehensive assessment of the pregnant woman and then provide appropriate advice as advocated by the WHO and ACOG guidelines. Educational programmes, booklets and pamphlets should be available for free in all the hospitals and maternal healthcare centres to increase awareness among women in the community.

Keywords: Attitudes, Exercise, Healthcare providers, Knowledge, Practices, Pregnancy.

What does this paper add?

1. HCPs lack knowledge though they have positive attitudes regarding American College of Obstetricians and Gynecology guidelines for exercise during pregnancy. They are aware of its maternal and foetal benefits.
2. Few studies conducted on this topic measure HCPs'

knowledge, attitudes and practices. This study will provide the fundamental basis for future effective strategies for the promotion of antenatal physical activity.

3. Exercise is an important part of pregnancy, providing benefits to both the mother and the foetus.

Introduction

In Jordan, pregnant women are given exceptional care throughout their entire pregnancy. According to a study by Hijazi et al. (2018), almost all (99%) of these women receive antenatal care from trained professionals (physicians, nurses, midwives). Attention is paid to pregnant women at all stages.

The healthcare system in Jordan includes public and private sectors that offer services to Jordanians and non-Jordanians. Midwives provide different services for pregnant women and children in hospitals and health care centres, including antenatal care, childbirth, postnatal care, family planning, newborn and child health, breastfeeding, and immunization. Antenatal and postnatal care are provided mainly in primary health care centres, while labour and birth take place in hospitals (Jordanian Nursing Council, 2016). Additionally there are 431 maternity centres distributed throughout the Kingdom of Jordan, through which all the needs and care of pregnant women are covered and advice is provided to them by the health staff (Jordanian Ministry of Health, 2020).

It is the responsibility of healthcare providers to ensure that pregnant women receive the necessary health promotion, screening, diagnosis, and disease-prevention interventions during and after pregnancy. Healthcare providers (HCPs) must adhere to the guidelines set out by the World Health Organization (WHO) and the American College of Obstetricians and Gynaecologists (ACOG) (WHO, 2020). The WHO issued recommendations in 2016 for antenatal care that aimed to provide a positive pregnancy experience. One of these recommendations highlights the significance of counselling pregnant women on healthy eating and exercise habits (WHO, 2016).

For pregnant women who are healthy and experiencing a normal pregnancy, engaging in exercise is generally safe. However, it is crucial to consult with a healthcare provider or gynaecologist before starting any exercise routine during pregnancy.

Background

Exercising while being pregnant has numerous benefits, ranging from reducing back pain and easing constipation to lowering the risk of gestational diabetes, pre-eclampsia, and Caesarean delivery (ACOG, 2019). Regular exercise can also promote healthy weight gain during pregnancy, improve overall fitness, strengthen

the heart and blood vessels, and aid in losing baby weight after giving birth (ACOG, 2019).

Physical activity is well known to have enormous benefits for women in all phases of life, including pregnancy (Albahhar et al., 2021). Many studies have reported that exercise during pregnancy reduces the incidence of high blood pressure and diabetes mellitus (Lawan et al., 2018). The benefits include the reduction of excessive weight gain, enhancement of psychological well-being, lowering of risk for depression and anxiety, and improvement of sleep (Harrison et al., 2018). Labonte-Lemoyne et al. (2017) revealed that exercise during pregnancy complements cerebral maturation for the newborn.

To promote a healthy pregnancy, it is recommended that expectant mothers engage in a minimum of 150 minutes of moderate-intensity aerobic activity each week, distributed evenly throughout each day. For those who are new to exercise, it is advisable to begin with just five minutes a day and gradually increase the duration by five minutes each week until reaching a daily goal of 30 minutes of activity (ACOG, 2019).

However, HCPs' advice on weight gain and exercise during pregnancy is insufficient and often inappropriate (Schlüssel et al., 2018). Previous studies have shown that HCPs lack exercise benefits and thus cannot actively participate in physical-activity counselling with pregnant women (Joy et al., 2013; Malta et al., 2016). In the Arab world, a study conducted by Al-Youbi and Elsaid (2020) on pregnant women reported that 84.2 per cent did not perform physical activity during pregnancy; 41.62 per cent of pregnant women in Saudi Arabia had a high level of physical activity awareness and practice; and 58.37 per cent had a low level of awareness and practice. Pregnant women become anxious and concerned about a possible adverse effect of exercise on pregnancy due to their lack of knowledge about particular health risks during pregnancy. To promote physical activity, social and cultural beliefs should be taken into consideration (Al-Youbi & Elsaid, 2020).

Educating women to acquire appropriate knowledge will help them to develop an effective attitude towards health during pregnancy (Walasik et al., 2020). Exercising during pregnancy is affected by a lack of time, feeling tired during pregnancy, or lack of child care, whereas the factor that encourages exercising is family presence and support (Walasik et al., 2020). The most

commonly recommended exercises are swimming, walking, and home aerobics (Coll et al., 2017; Walasik et al., 2020). ACOG (2019) guidelines advised safe exercises such as walking, swimming, modified yoga and Pilates, and stationary bicycling. The 2019 Canadian Guideline for Physical Activity Throughout Pregnancy recommends that all women without contraindications should be physically active throughout pregnancy (Mottola et al., 2018). Most of the named exercises apply to Jordanian women and are not in conflict with the culture as long as they are practised in closed gyms.

It is crucial to evaluate the knowledge, attitude, and practice of HCPs working in hospitals in the southern region of Jordan regarding exercise during pregnancy, as it is their responsibility to provide health education. Few studies have been conducted to assess the level of understanding, attitudes and practices of HCPs in Jordan and the Arab world regarding exercise during pregnancy. The purpose of this study is to explore the aforementioned factors and analyze the relationship between HCPs' attitudes and their demographic characteristics.

Methodology

A cross-sectional design was used. This study was conducted to evaluate the level of knowledge, attitudes and practices of HCPs regarding exercises during pregnancy and to explore if there is a relationship between these variables and selected demographic data. The research was conducted in the southern region of Jordan, spanning four public hospitals: Karak Governmental Hospital, Ghour Alsafi Governmental Hospital, Ma'an Governmental Hospital, and Queen Rania Hospital. These hospitals were selected for their accessibility to the researchers, as well as their representation of all public hospitals in the area. The study focused on HCPs working within maternity departments, including maternity centres, delivery units, and post-partum units. To identify participants, a convenience sampling method was utilized in recruitment. Inclusion criteria targeted healthcare providers working in the selected Jordanian hospitals and employed in maternal-care departments (mother and child health, labour unit and post-partum). Also, they needed to be available during the time of data collection and willing to participate in the study, with a minimum of six months' work experience.

G* Power 3.0.10 analysis was used to determine the appropriate sample size, resulting in an estimated 133

participants. To achieve this, 150 questionnaires were distributed both on paper and online, of which 142 completed questionnaires were returned, with a response rate of 94.7%.

The researchers utilized a self-developed questionnaire by Bauer et al. (2010) to evaluate HCPs' knowledge, attitude towards and practice of exercising during pregnancy. The tool consisted of 30 questions in the English language, divided into four main sections. The first section included six questions designed by the researchers to assess demographic information, including age, gender, practice location, speciality, years of experience, and percentage of practice. One item in demographic variables asking about race was not applicable in Jordan and was omitted.

The second section assessed participants' knowledge using two items, and the third section assessed participants' attitudes by using ten questions about exercise during pregnancy. A four-point Likert scale was used (from strongly agree to strongly disagree). The cut-off points of attitude score ($1 < 2.5$) were categorized as a negative attitude and scores of 2.5-4 were categorized as a positive attitude. The fourth section of the questionnaire assessed the participants' practices (12 items) regarding exercise during pregnancy: a four-point Likert scale was used, including never, seldom, often, and always (Bauer et al., 2010).

The tool was reliable and valid. In this study, Cronbach's alpha (α) was calculated for the attitude section as $\alpha = 0.75$. The Kuder-Richardson value was calculated for the knowledge section as $KR21 = 0.75$. In the same manner, the Kuder-Richardson value for practice questions was calculated as $KR21 = 0.80$. $KR21$ was used to measure the reliability of the knowledge section and the practice section due to the different patterns of answers in these sections. The answers in these sections were converted to be dichotomic and then the $KR21$ values were calculated.

The study received approval from the Ethics Committee at the Faculty of Nursing, Mutah University. An official letter was sent from Mutah University's Deanship of Graduate Studies to the Ministry of Health, being then forwarded to the administrators of the selected settings to facilitate data collection.

Before data collection began, the study participants were asked to complete a consent form either on paper or online. It is important to note that participation in the study was entirely voluntary and participants had the

right to withdraw at any point without any negative consequences. For those participating online, the introduction to the questionnaire provided all the necessary information about the study and the consent process.

Before the study, the participants were assured that their information would remain confidential. To gather data, the heads of departments provided paper questionnaires to the designated sample. After completion, the questionnaires were stored in a locked cabinet and on a password-protected laptop accessible exclusively to the researchers to ensure maximum security.

Data Collection

Following the necessary approvals, the researchers had permission to gather data from the hospitals. The questionnaires were subsequently delegated to the heads of departments and their representatives for distribution among their respective teams. Upon completion, participants were advised to return the questionnaires to the head nurse's office. Data collection was from June to August 2020. A pilot study was conducted before the final distribution of questionnaires to the targeted sample to evaluate the clarity of the questions and their appropriateness and to establish the timeframe for data

collection. A sample of 20 participants was chosen; they were excluded from the study sample. There were no negative comments about the questionnaire or unclear items or questions. The time required to complete the questionnaire was 15-20 minutes.

Data Analysis

Data was analyzed using statistical analysis performed with SPSS, version 22 (IBM Corp., Armonk, NY). Descriptive statistics (frequencies, percentages) were calculated on the demographic variables. Descriptive analysis and inferential statistics (chi-square of independence test) were used. An alpha level of 0.05 was used for all the statistical tests to determine significance.

Results

Study Participants' Socio-demographic Characteristics

Out of 142 respondents, female HCPs constituted the majority (119), comprising 83.8% of the sample. Most (69) were from the age group 30-39 years (48.6%) (Table 1). Most of the participants (54) had practised for 6-10 years (38%). Concerning speciality, most (51) were nurses working in maternity units (35.9%).

Table 1. Socio-demographic characteristics (N=142)

Study variable	Frequency	Percentage (%)
Gender:		
Male	23	16.2
Female	119	83.8
Age:		
<30 years	45	31.7
30-39 years	69	48.6
40-49 years	24	16.9
50-59 years	4	2.8
Years of practicing:		
1-5 years	24	16.9
6-10 years	54	38.0
11-15years	41	28.9
16-20 years	14	9.9
>20 years	9	6.3
Type of specialty:		
Midwife	46	32.4
Nurse midwife	16	11.3
Registered nurse	35	24.6
Resident physician	12	8.5
Place of working:		
Al-Karak Hospital	87	61.3
Ma'an Hospital	55	38.7

Percent of practising in obstetric unit:

100%	67	47.2
75%	45	31.7
50%	23	16.2
25%	7	4.9

Knowledge, Attitudes, and Practices of HCPs Regarding Exercise during Pregnancy

Results showed that only 56 participants (39.4%) were familiar with ACOG guidelines for exercise during pregnancy. The knowledge question (benefits of

exercising during pregnancy) is shown in Figure 1. The majority of HCPs believed in the benefits of exercise during pregnancy, mainly that it decreases the risk of gestational diabetes (108; 76.1%), followed by weight management (98; 69%) (Figure 1).

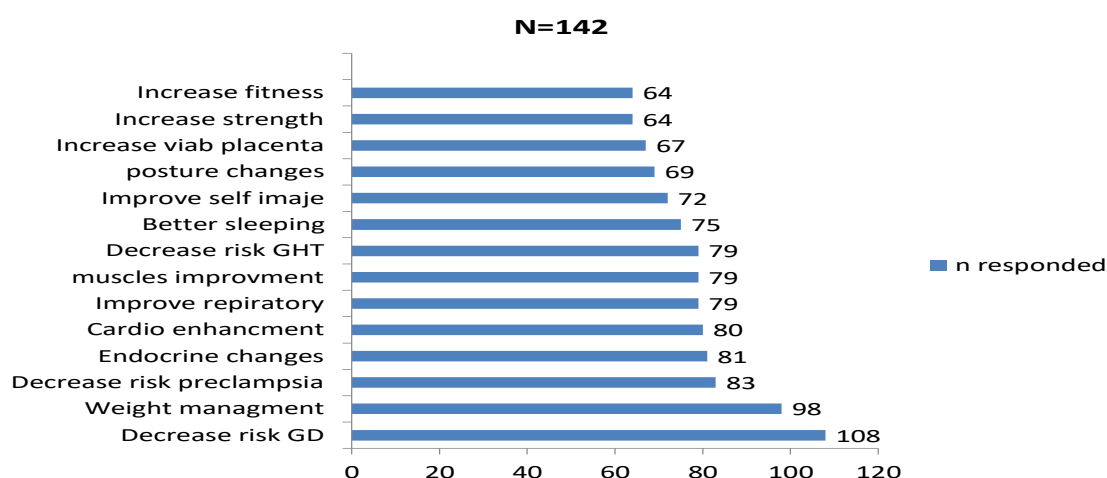


Figure (1)
Benefits of exercise during pregnancy as answered by participants

The attitude scores are categorized into negative and positive levels based on the item means. Table 2 shows that 77.5% of the participants believed that exercise during pregnancy is beneficial. The majority of the participants (69.7%) believed that advising patients on exercise during pregnancy is not a major component of prenatal care. At the same time, 70.4% of the participants believed that discussing exercise with other staff should not include individualized recommendations. The majority of the participants (71.8%) felt that pregnant women followed the advice that was given during their clinic visit. More than a half of the participants (62%) believed that sedentary women

with uncomplicated pregnancies should not begin exercise, while 63.3% of the participants felt that women who regularly exercised should continue their exercise during pregnancy. The majority of participants (77.4%) mentioned that a strength training programme during pregnancy is not advisable for pregnant women and recommended that pregnant women should practise exercise at moderate intensity. Less than a half of the sample (46.4%) believed that exercise during pregnancy increases the risk of low birth weight, while 71.9% of the participants believed that the possible harmful effects of exercise on the foetus are minimal or non-existent.

Table 2. Participants' attitude regarding exercise during pregnancy (N=142)

Item	Mean \pm SD	Direction
1-Exercising during pregnancy is beneficial.	2.93 \pm 0.81	Positive

Item	Mean \pm SD	Direction
2-Advising patients on exercise during pregnancy is not a major component of prenatal care.	2.26 \pm 0.72	Negative
3-If exercise is discussed by you or your staff, it does not include individualized recommendations.	2.2 \pm 0.69	Negative
4-Pregnant patients follow the advice given during their office visits.	2.75 \pm 0.69	Positive
5-A sedentary woman with an uncomplicated pregnancy should not begin an exercise program during pregnancy.	2.32 \pm 0.82	Negative
6-Pregnant women who are chronic exercisers should be encouraged to continue an exercise program throughout pregnancy.	2.70 \pm 0.83	Positive
7-Pregnant women should not participate in a strength-training program during pregnancy.	3.0 \pm 0.80	Positive
8-During pregnancy, women should be recommended to exercise at moderate intensity.	2.83 \pm 0.68	Positive
9-Exercising during pregnancy increases the risk of low birth-weight babies	2.58 \pm 0.77	Positive
10-The possible harmful effects of exercise on the fetus are minimal if non-existent.	2.79 \pm 0.67	Positive
Total	2.64\pm0.25	Positive

Moreover, based on the cut-off point of attitude explained earlier, 99 participants (69.7%) had a positive attitude towards exercise during pregnancy, compared to 43 participants (30.3%) who had a negative attitude.

The current practice of HCPs regarding exercise during pregnancy is summarized in Table 3. Advice regarding exercise was provided to pregnant women by 72 (50.7%) of the participants, and this advice was mainly given by the nurse (38; 52.7%). Moreover, 20 HCPs (27.8%) mentioned on the initial visit that pregnant women can practise exercise safely, compared to ten (13.8%) in the second trimester, while only two

(2.8%) answered correctly all the above options.

In addition, 27 of 72 of the participants (37.5%) advised pregnant women to practise exercise for 21-30 minutes. Also, nearly a half of the participants (37; 51.3%) mentioned that pregnant women seldom ask questions regarding their exercise during pregnancy, and 31 participants (43.1%) seldom distributed informational pamphlets regarding exercise during pregnancy. Only nine participants (6.3%) provided an individualized exercise programme for pregnant women to follow.

Table 3. Responses of HCPs toward practicing questions regarding exercise during pregnancy

Question	Number of participants n (%)	
1-Does your office advise your pregnant patients about pregnancy and exercise? (n=142)	Yes 72(50.7)	No 70(49.3)
(1. a) Who, in your office, gives this advice? (n=72)	Yourself 34(47.2) Initial 20(27.8)	Nurse 38(52.8) 1 st trimester 19(26.4)
(1.b) At what stage in pregnancy would this occur? (n=72)	2 nd trimester 10(13.8) postpartum 11(15.4)	3 rd trimester 10(13.8) All above 2(2.8)
(1. c) How long would a typical exercise advice session last?(n=72)	5-10min 23(32) 21-30min 27(37.5)	11-20min 15(20.8) >30min 7(9.7)
2- Do your pregnant patients ask you questions about exercising during pregnancy?	Never 18(25)	Seldom 37(51.3)

Question	Number of participants n (%)	
(n=72)	Often 14(19.4)	Always 3(4.16)
3- Do you provide informational pamphlets on pregnancy and exercise to your patients? (n=72)	Never 19(26.4)	Seldom 31(43.1)
4- Do you give each pregnant patient an individualized exercise program for her to follow? (n=142)	Often 16(22.2)	Always 6(8.3)
5- Do you obtain exercise histories on your pregnant patients? (n=142)	Never 44(31.0)	Seldom 57(40.1)
6- Do you routinely give exercise restrictions to your pregnant patients? (n=142)	Often 32(22.5)	Always 9(6.3)
7- What intensity would you recommend your patients to exercise at? (n=142)	Never 53(37.3)	Seldom 46(32.4)
8- Do you recommend your patients to avoid certain types of exercise? (n=133)	Often 36(25.4)	Always 7(4.9)
9- Would you or someone from your practice team be interested in attending a workshop on pregnancy and exercise if offered? (n= 97)	Yes 45(31.7)	No 97(68.3)
10- Are you aware of any exercise classes or trainers in your area that could benefit your patients? (n=81)	Low 67(47.2)	Moderate 72(50.7)
10a) Do you recommend your patients to get any of these opportunities? (n=36)	Vigorous 3(2.1)	
11-Whom do you refer your pregnant patients to for exercise recommendations? (n=45)	Yes 72(54.1)	No 61(45.9)
12- Do you recommend your patients to exercise during pregnancy? (n=45)	Yes 72(74.2)	No 25(25.8)
	Yes 36(44.4)	No 45(55.5)
	Never 14(38.8)	Seldom 13(36.1)
	Often 6(16.6)	Always 3(8.3)
	Personal trainer 18(40)	Bio kinetics 4(9)
	Physio-therapist 10(22.2)	Other 13(28.8)
	Yes 38(84.4)	No 7(15.5)

At the same time, 53 participants (37.3%) mentioned that they never obtained a pregnant woman's exercise history during clinic visits. Furthermore, 97 (68.3%) did not routinely mention exercise restrictions to pregnant women, and 72 participants (50.7%) believed that moderate-intensity exercise was enough to gain health benefits. Furthermore, 72 participants (54.1%) recommended that pregnant women avoid certain types of exercise, such as running, diving, and climbing. In contrast, 38 (84.4%) advised pregnant women to practise exercises, such as walking, swimming, and aerobics. Approximately three-quarters of the participants (74.2%) were interested in participating in or attending a workshop or taking a training course regarding exercise during pregnancy.

When assessing the referral practice for pregnant women, less than a half of the sample (44.4%) were aware of exercise classes or trainers in their area that

could help, while a very small minority of participants (3; 8.3%) reported that they always referred pregnant women to an exercise class or trainer, compared to 14 participants (38.9%) who said that they never referred pregnant women. On the other hand, 18 participants (40%) indicated that they would send pregnant women to personal trainers and 13 (28.8%) would refer them to others.

The Relationship between Demographic Characteristics and HCPs' Attitudes towards Exercise during Pregnancy

To examine the correlation between demographic variables and attitude level, the chi-square of independence was used. The results are summarized in Table 4. There is no significant correlation between demographic variables and HCPs' attitude towards exercise during pregnancy ($p > 0.05$).

Table 4. The correlation between demographic variables and attitude level (N=142)

Demographic characteristics	Attitude level		Test statistic	P-value
	Negative n (%)	Positive n (%)		
Gender			1.018 ^b	0.3
Male	9(39.1)	14(60.9)		

Female	34(28.6)	85(71.4)		
Age			4.177 ^a	0.2
<30 years	14(31.1)	31(68.9)		
30-39years	18(26.1)	51(73.9)		
40-49 years	8(33.3)	16(66.7)		
50-59 years	3(75.0)	1(25.0)		
Years of practising			5.593 ^a	0.2
1-5 years	3(12.5)	21(87.5)		
6-10 years	17(31.5)	37(68.5)		
11-15 years	15(36.6)	26(63.4)		
16-20 years	4(28.6)	10(71.4)		
>20years	4(44.4)	5(55.6)		
Type of specialty			5.564 ^a	0.2
Midwife	13(28.3)	33(71.7)		
Nurse midwife	5(31.3)	11(68.8)		
RN	11(31.4)	24(68.6)		
GP	7(58.3)	5(41.7)		
Obstetrician	7(21.2)	26(78.8)		
Percent of practice in obstetric unit			3.111 ^a	0.4
25%	4(57.1)	3(42.9)		
50%	7(30.4)	16(69.9)		
75%	11(24.4)	34(75.6)		
100%	21(31.3)	46(46.7)		

a =Fisher exact test b= chi square (χ^2).

b= significant statistical level $p = 0.05$.

Discussion

The findings of this study revealed that 60.6 per cent of participants were not familiar with ACOG guidelines on exercises that can safely be practised by pregnant women. Regular physical activity is a new consideration for HCPs to maintain pregnant women's social, emotional, and physical health balance. The majority of adults are inactive at the recommended level of exercise guidelines (Al-Youbi & Elsaid, 2020) and HCPs play an important role in advising pregnant women about exercises.

However, to change a behaviour is not easy: it is a long and slow process that requires patience. This process should be started with the HCPs themselves by increasing their knowledge. Culturally, in the south of Jordan, a rural area, it is not easy to convince HCPs to start educating women on exercise, as they believe women there will not

adhere to these guidelines due to social norms and traditions in terms of inheriting the culture of physical inactivity. Also, they may be afraid of judgement by members of their society if any maternal or foetal harm were to occur. Therefore, HCPs should enhance maternal awareness and enrich their knowledge by educating pregnant women about the benefits of exercises. It is clear that health professionals acknowledge the importance of exercise during pregnancy; however, according to Bauer et al. (2010), many do not advise pregnant women about exercise, mostly due to time constraints. This finding is consistent with the results of McGee et al. (2018) and Whitaker et al. (2016).

On the other hand, Lawan et al. (2018) showed that HCPs were aware that physical activity has a lot of benefits for pregnant women, such as weight-gain management, decreased risk of gestational diabetes, and

respiratory function improvement. In the current study, the participants were also knowledgeable about these benefits. Watson et al. (2018) indicated that 71% of their study participants believed in the benefits of exercise for weight management, while the results of the current study indicate that the large majority of participants believed in the benefits of exercise for decreasing the risk of gestational diabetes and weight management.

A systematic literature review study found that the intensity of exercise during pregnancy should be moderate (Schlüssel et al., 2018). In the current study, the results indicated that a half of the participants believed that moderate-intensity exercise is enough to gain health benefits, which indicates the compatibility of the results of the two studies.

The ACOG guidelines reported that a typical exercise session should last between 21 and 30 minutes, while this study showed that just 37.5% of the participants advised pregnant women to practise exercise for this period, the rest advising 10-15 minutes.

The study findings revealed HCPs' positive attitude towards exercise during pregnancy. HCPs play an integral role in educating pregnant women and promoting their health through effective preventive strategies, including encouraging physical activity during pregnancy. Albahhar et al. (2021) also found a positive attitude among Saudi physicians, as did Crampton et al. (2018) in England. However, this is inconsistent with other studies, such as a systematic review conducted in Iran (Whitaker et al., 2016), which indicated that HCPs' attitudes were negative. Whitaker et al. (2016) contended that HCPs discussed weight gain, physical activity, and nutrition during prenatal care visits and patients accurately recalled this advice. This result did not match the results of the current study, which revealed that 69.7% of the participants believed that advising patients on exercise during pregnancy is not a major component of prenatal care. This may be due to the lack of educational programmes offered to HCPs in southern Jordan that focus on the importance of providing advice and counselling pregnant women regarding exercise in prenatal care. The HCPs considered this topic to be outside their role and not a priority due to shortage of time.

Furthermore, Schlüssel et al. (2018) showed that there is no association between specific activities and low birth weight babies. This finding is conflicting with the current study results, which indicate that 46.4% of the participants believed that exercise during pregnancy

increases low birth weight. Bauer et al. (2010) reported that 99% of the participants accepted that physical activity during pregnancy is helpful and beneficial; this is consistent with the current study, which showed that 77.5% of HCPs believed that exercise during pregnancy is beneficial.

The current study showed that most of the participants (71.8%) felt that pregnant women followed the advice given during their clinic visits. This is in line with the study by Watson et al. (2018), which indicated that 73.9% of pregnant women follow the advice given during their office visits. This implies the effective role of antenatal visits and the awareness of pregnant women.

In the current study, 51.3% of the participants mentioned that pregnant women seldom ask questions about exercise during pregnancy. This may be because exercise during pregnancy is not a priority for these women, and it reflects a lack of awareness regarding the importance and benefits of exercising during pregnancy. This is in consistence with the study by Albahhar et al. (2021), in which women reported interest in attending workshops (95.5%) and local educational sessions (96%) in prenatal physical activity.

Crampton et al. (2018) indicated that very few practitioners (19%) provide written advice or information manuals, and only 18% of the practitioners provide individualized exercise prescriptions. This is consistent with the current study, which indicated that only 6.3% of HCPs provided individualized exercise programmes for pregnant women to follow.

Watson et al. (2018) showed that only 12% of the participants obtained exercise histories for pregnant women. This corresponds to the result of the current study, which revealed that 37.3% of the participants never obtained an exercise history for pregnant women during clinic visits. In addition, Watson et al. (2018) indicated that 71% of practitioners were interested in attending continuous professional development seminars and workshops on exercise and pregnancy. The results agree with the findings of this research, which indicated that approximately three-quarters of the participants are interested in participating in a workshop or taking a training course concerning exercise during pregnancy.

The ACOG (2019) guidelines indicate that certain types of exercise should be avoided during pregnancy, such as ice hockey, boxing, soccer, basketball, skydiving, diving, water skiing, surfing, off-road

cycling, gymnastics, and horseback riding. In the current study, 54.1% of the participants recommended that pregnant women avoid certain types of exercise, such as running, diving, and climbing.

The current study's results indicated that the participants were not aware of ACOG guidelines highlighting the benefits of exercise during pregnancy, such as reducing back pain, preventing constipation, reducing the risk of gestational diabetes, reducing pre-eclampsia, reducing the need for Caesarean delivery, and contributing to healthy weight gain during pregnancy. Also, 84.4% of the participants advised pregnant women to practise exercises such as walking, swimming, and aerobics during pregnancy, which is consistent with the ACOG (2019) guidelines, which advise safe exercises, such as walking, swimming, modified yoga and pilates, and stationary bicycling.

The data in this study should be considered in light of some limitations. Firstly, the study used a cross-sectional design and a small convenience sample which represented only the governmental section. Such a sample may limit the generalizability of the study's results to other populations. Secondly, response bias may be a limitation due to the convenience sampling technique. Thirdly, the researchers faced some obstacles before and during data collection, including difficulty reaching the hospitals; so, the access to a part of the sample was online. It took one and a half months for the online questionnaire to be completed by the participants.

Implications for Nursing

HCPs everywhere should undertake workshops and lectures and then highlight the need to practise exercise during pregnancy. HCPs should start by making a full and comprehensive assessment of the pregnant woman and then provide appropriate advice as advocated by the WHO and ACOG guidelines. Educational programmes,

booklets and pamphlets should be available for free in all the hospitals and maternal-healthcare centres to increase awareness among women in the community.

Policymakers should focus on expanding awareness of the need for exercise during pregnancy. Training of HCPs should be provided by qualified experts, and policies should be developed that encourage HCPs to attend continual educational programmes about exercise during pregnancy. Finally, exercise during pregnancy should be added to the curricula of universities and schools.

Conclusion

The results of this study demonstrate that HCPs have positive attitudes, and they acknowledge the benefits of exercising during pregnancy. However, may not be aware of the ACOG guidelines and advice. This study is one of only a handful of studies in the Arab world and the only one in Jordan to assess HCPs' level of knowledge, attitude and practices regarding exercise during pregnancy. It is important to understand the factors and beliefs that affect exercise during pregnancy. Also, we need to bridge the gap between knowledge and practice by continually providing well-structured evidence-based educational programmes and activities to all HCPs providing maternal care. Further studies are recommended, including what types of exercise are allowed for pregnant women in each trimester.

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Conflict of Interests

All authors declare no conflict of interests.

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