

Knowledge, attitudes and practice of primary care physicians in eastern provinces of Saudi Arabia towards exercise during pregnancy

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ABSTRACT

Context: Physical activity is well known to have enormous benefits for women in all phases of life, including pregnancy. **Aims:** The purpose of this study was to assess the knowledge, attitude, and practices of primary care physicians towards exercise during pregnancy in the eastern provinces of Saudi Arabia: Qatif, Dammam, and Al-Khobar. **Methods and Material:** A descriptive cross-sectional study was conducted between January and June 2019 among primary care physicians, based on a 32-item self-administered questionnaire distributed through e-mails and SMS messaging. **Statistical Analysis Used:** Descriptive statistics and Chi-square analysis were used to compare groups. **Results:** The majority of participants (97.3%) believed that exercise during pregnancy is beneficial and showed fair knowledge; however, most of them (86.5%) were unaware of the guidelines and nearly half of them (55.2%) did not give advice on exercise to their patients. **Conclusions:** Primary care physicians demonstrate fair knowledge and positive attitude towards exercise in pregnancy; however, their practice and recommendations did not align with the guidelines. Thus, we need to bridge this gap by providing well-structured evidence based continuous educational programs and activities to all physicians providing maternal care.

Keywords: Maternal care, physical activity, pregnancy, questionnaire

Introduction

Physical activity is well known to have enormous benefits for women in all phases of life, including pregnancy.^[1] Since pregnant women have relatively frequent health care access, the antenatal period provides women the opportunity to modify their behavior and pursue healthier habits.

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Physical activity has been included in several pregnancy care guidelines.^[2] Despite its importance, most pregnant women demonstrate low levels of knowledge regarding safe exercise during pregnancy.^[3-6] Primary care providers play an integral role in promoting mothers and children health through effective preventive strategies, including physical activity encouragement during pregnancy

Subjects and Methods

A descriptive cross-sectional study was conducted to assess the knowledge, attitude, and practice of exercise during pregnancy

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among primary care physicians in primary healthcare centers in three major cities Qatif, Dammam, and Al-Khobar, which represent the majority of primary care physicians in the Eastern Province of Saudi Arabia. The number of primary healthcare centers in Dammam, Khobar, and Qatif is 30, 16, and 31, respectively. The total number of physicians working in the three sectors is 310. Ethical approval obtained from Ministry of health committee 2019, January 1st.

All working physicians in the three sectors were included; however, dentists and physicians with only administrative work were excluded from the study.

After an extensive review of the literature, the questionnaire was adopted from similar studies conducted by Bauer *et al.*^[7] The questionnaire was piloted for content, construct validity, and functionality. It consisted of five sections with 32 questions in total, including questions of physician demographic data and knowledge, attitude, practice, and barriers affecting antenatal physical activity prescription. The online questionnaire was set up to include 4–10 items per page and five screens in total. It was self-administered and sent electronically using Google forms through mobile phones and e-mails using the official list of the physician numbers and e-mails provided by the Ministry of Health.

The Checklist for Reporting Results of Internet E-Surveys (CHERRIES) was followed^[8]; ethical approval was obtained from the ministry of health ethics committee. A questionnaire included an introduction explaining: the target population, study purpose and design, investigator contacts for any clarifications, and the time required for completing the questionnaire (7 minutes). Participants' consent was indicated by voluntarily completing the questionnaire. Personal data and information from the questionnaire were kept anonymous and confidential, and no incentives for participation were provided. The participants could only fill the questionnaire once using their e-mail to log in. Each part of the questionnaire was mandated to answer before going to the next part, to ensure completeness.

The completeness rate was calculated at 0.72 at the end of 4 month-period. Participants were grouped by the age, gender, practice location, degree, and years of experience. Frequency tables and descriptive statistics for all questions were calculated using IBM SPSS Statistics Base 23.0. Chi-square analysis was used to compare the groups. Statistical significance was noted when $P < 0.05$.

Results

Demographic information of the participants is shown in Table 1. Most participants were females (75.8%) and aged between 31 and 40 years (56%). The results showed that 46.6%, 35%, and 18.4% of participants were practicing in Qatif, Al-Khobar, and Dammam sectors, respectively, and around half of them (54.3%) were in family medicine residency program.

The knowledge and attitude answers of the respondents are displayed in Table 2, and they were largely positive. The majority

of respondents (97.3%) believed that the exercise during pregnancy is beneficial. Eighty-six percent of them believed that pregnant women should participate in moderate-intensity exercise and (92.3%) encouraged long-term exercisers to continue it throughout the pregnancy. However, 86.5% were not aware of ACOG guidelines and 45.9% believed that pregnant women should not embark in strength training programs. Figure 1 depicts the physician's opinion towards the benefit of exercise.

Thirty-seven percent of the participants were not confident about exercise counseling during pregnancy; however, they reported interest in attending workshops (95.5%) and local educational sessions (96%) on prenatal physical activity. Tables 3 and 4 provide key statements regarding practice and barriers towards exercise during pregnancy. Despite the participant positive attitude and good knowledge, their practice was not aligned with the guidelines. Sixty-three percent did not obtain exercise histories and nearly half of them (55.2%) did not give exercise advice to their patients.

Nearly all the participants (95.5%) did not provide any informational pamphlets or written advice to their patients. Furthermore, quarter of participants (24.7%) did not recommend their patients to avoid certain types of exercises, and half of them (47.1%) believed that low-intensity exercise is sufficient to achieve maternal and fetal exercise benefits.

Approximately three-quarters of participants agreed that cultural beliefs (80.3%), time lacking in the clinic (82.1%), and incompetency (93.7%), in addition to anticipated fear of maternal and fetal harm (82.5%), were barriers affecting prenatal exercise prescription. Females appeared to be more aware of the current guidelines (15%) compared with males (5%), although this was not statistically significant ($p = 0.057$). Practitioners with higher levels

Table 1: Participant demographic data

Variable	n (%)
Age	
20-30	85 (38.1)
31-40	125 (56.1)
41-50	10 (4.5)
51-60	3 (1.3)
Gender	
Female	169 (75.8)
Male	54 (25.2)
Degree	
Bachelor	40 (17.9)
Resident level	121 (54.3)
Master	14 (6.3)
Diploma in family medicine	14 (6.3)
Family medicine board certified	34 (15.2)
Practice location	
Qatif	104 (46.6)
Dammam	41 (18.4)
Khobar	78 (35)

Table 2: Knowledge and Attitudes of practitioners to key questions (n=223)

Statement	Responders (%) n=223			
	Strongly agree	Agree	Disagree	Strongly disagree
Exercising during pregnancy is beneficial	142 (63.7%)	75 (33.6%)	6 (2.7%)	0 (0%)
Advising patients on exercise during pregnancy is not a major component of prenatal care	13 (5.8%)	40 (17.9%)	104 (46.6%)	66 (29.6%)
A sedentary woman, with an uncomplicated pregnancy, should not begin an exercise program during pregnancy	17 (7.6%)	42 (18.8%)	98 (43.9%)	66 (29.6%)
Pregnant women who are chronic exercisers should be encouraged to continue an exercise program throughout pregnancy	107 (48%)	96 (43%)	17 (7.6%)	3 (1/3%)
Pregnant women should not participate in a strength-training program during pregnancy	24 (10.8%)	80 (35.9%)	105 (47.1%)	14 (6.3%)
During pregnancy, woman should be recommended to exercise at moderate intensity	44 (19.7%)	148 (66.4%)	31 (13.9%)	0 (0%)
Exercising during pregnancy increases the risk of low birth weight babies	0 (0%)	20 (9%)	114 (51.1%)	89 (39.9%)
The possible harmful effects of exercise on the foetus are minimal if not non-existent	63 (28.3%)	145 (65%)	9 (4%)	6 (2.7%)
It is important to discuss prenatal physical activity with patients	127 (57%)	90 (40.9%)	6 (2.7%)	0 (0%)
Are you interested in attending a workshop on antenatal physical activity	141 (63.2%)	72 (32.3%)	10 (4.5%)	0 (0%)
Would a local educational session on antenatal physical activity be helpful	117 (52.5%)	97 (43.5%)	9 (4%)	0 (0%)
Do you feel confident in counselling women about exercise during pregnancy?	21 (9.4%)	119 (53.9%)	69 (30.9%)	14 (6.3%)

Table 3: Response of practitioners to key questions (n=223)

Statement	Responders (%) n=223			
Do you obtain exercise histories on your pregnant patients?	Always 17 (7.6%)	Often 64 (28.7%)	Seldom 89 (39.9%)	Never 53 (23.8%)
Does your office give advice to your pregnant patients about pregnancy and exercise?	No 123 (55.2%)	Yes 100 (44.8%)		
Do you provide informational pamphlets on pregnancy and exercise to your patients?	Always 0 (0%)	Often 10 (4.5%)	Seldom 83 (37.2%)	Never 130 (58.3%)
What intensity would you recommend your patients exercise at?	Low intensity 105 (47.1%)	Moderate intensity 112 (50.2%)	High intensity 6 (2.7%)	
Do you recommend your patients to avoid certain types of exercise?	No 55 (24.7%)	Yes 168 (75.3%)		

Table 4: Response of practitioners to key questions (n=223)

Statement	Responders (%) n=223			
	Strongly agree	Agree	Disagree	Strongly disagree
Cultural beliefs	56 (25.3%)	124 (55.4%)	32 (14.5%)	11 (4.8%)
Lacking time	65 (29%)	118 (53%)	40 (18.1%)	0 (0%)
Lack of competency and experience	80 (36.1%)	128 (57.8%)	0 (0%)	15 (6.1%)
Fear of harmful effect of exercise on mother and foetus	75 (33.7%)	107 (48.2%)	32 (14.5%)	9 (3.6%)
Poor patient adherence	0 (0%)	120 (54.2%)	41 (18.3%)	62 (27.8%)

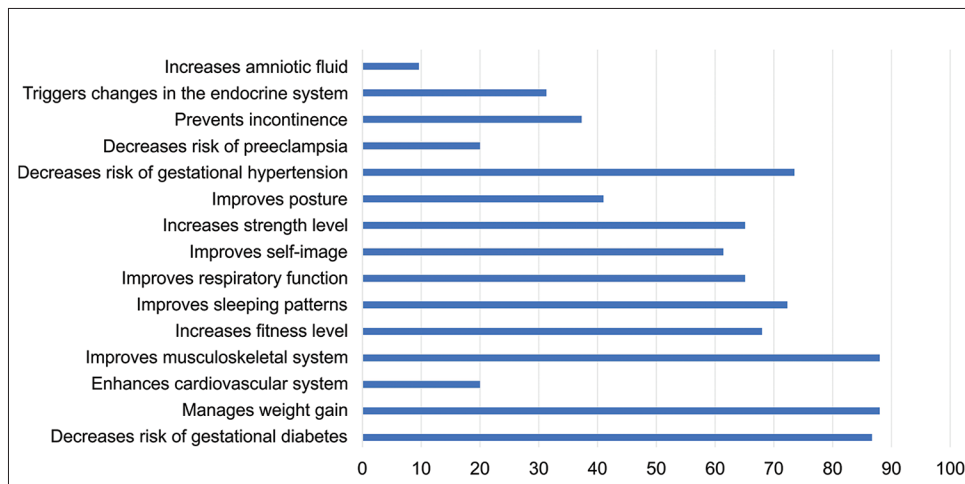


Figure 1: Benefits of exercise during pregnancy as perceived by primary care physicians

of medical education were more likely to recommend moderate-intensity exercise (82.3%) compared with practitioners who discontinued further study after medical school ($p = 0.000$). No association was found between age and awareness of guidelines or exercise prescription ($p = 0.14$).

Discussion

The studies have shown that exercise has enormous maternal and fetal benefits. The benefits include the reduction of excessive weight gain,^[9] enhancement of psychological wellbeing, lowering of risk for depression and anxiety,^[5] and improvement of sleep.^[10] Furthermore, it has been found to prevent urinary incontinence during the pregnancy and postpartum period^[11] and to decrease the chance of cesarean delivery and preterm birth.^[12] It reduces the incidence of gestational hypertension and gestational diabetes mellitus (DM),^[13] prevents osteoporosis, and improves cardiovascular and metabolic function.^[1] Physical activity has been shown to be beneficial for pregnant women with comorbidities as well. For example, it is clearly evident that physical activity helps to achieve glycemic target in women with gestational DM and reduce the incidence of gestational DM in obese pregnant women.^[14]

Physical activity has been included in several pregnancy care guidelines.^[2] The World Health Organization recommends that adults aged 18 to 64 years should practice at least 150 minutes of moderate-intensity aerobic activity throughout the week, at least 75 minutes of vigorous-intensity aerobic activity, or an equivalent combination of the two.^[15] In 2015, the American College of Obstetricians and Gynaecologists (ACOG) stated that women with uncomplicated pregnancies should engage in at least 150 minutes of exercise per week and should be physically active before, during, and after the pregnancy.^[16] The 2019 Canadian Guideline for Physical Activity Throughout Pregnancy recommends that all women without contraindications should be physically active throughout pregnancy.^[17]

Exercise is enforced by the Saudi Arabia Ministry of Health. In the mother and child health passport,^[18] designed to guide maternal care, the exercise has been included as one of the components for health counseling, encouraging primary care physicians to advise moderate-intensity exercise to all healthy pregnant women.

Worldwide, sedentary lifestyle has been ranked as the fourth major cause of death.^[15] Primary care physicians are essential in the health care system providing comprehensive, continuous care for the whole family, including women, in all stages of life. They play an integral role in educating patients and promoting the health of mothers and children through effective preventive strategies, including physical activity encouragement during pregnancy. In spite of the importance of exercise in pregnancy, to the best of our knowledge, no studies have been conducted in Saudi Arabia to assess the knowledge and practice of primary care physicians in antenatal exercise prescription.

Similar studies have highlighted the lack of healthcare practitioner knowledge and awareness of the guidelines.^[7,19,20] Our study

showed similar findings, although the majority of responses were positive regarding exercising during pregnancy, most of the participants regardless of the degree level were unaware of the current recommendations and guidelines, and nearly half of them believe that sedentary women should not practice exercise in pregnancy, and this was considered as a significant finding. Healthcare providers showed good knowledge of most exercise benefits during pregnancy; for example, over a half of the responders believed that exercise is beneficial in decreasing gestational DM, gestational hypertension, and weight gain and improving the self-image. However, the results showed that the majority were unaware of other benefits. Exercise has been shown to reduce the risk of preeclampsia.^[6] In addition, pelvic floor exercise has an important role in the reduction of urinary and anal incontinence^[3]; only a minority of responders were aware of this, therefore, their knowledge of these benefits should be improved. The study found a discrepancy between physician knowledge and practice, most of them did not obtain an exercise history, and almost all the participants did not prescribe exercises or provide pamphlets to their patients, and a large portion of them recommend low-intensity exercise. This could be attributed to their lack of awareness of the current guidelines, and some of them may be afraid of judgment by members of their society if any maternal or fetal harm occurred, in comparison to the overseas countries, which showed similar findings.^[15,18,19]

Healthcare providers should be aware that a normal pregnancy is a physiological state and pregnant women should be encouraged to initiate or continue moderate-intensity exercise throughout the pregnancy. Primary care physicians showed positive attitude and good knowledge towards exercise during pregnancy, thus we need to bridge the gap between the knowledge and practice by providing well-structured evidence based continuous educational programs and activities to all physicians providing maternal care and to organize assigned clinic days for prenatal care consultations so that the physician can focus on all the aspects of prenatal care.

Study strengths and limitations

This study provides the fundamental basis for future effective strategies of the promotion of antenatal physical activity in primary care clinics. From this study we put forward the recommendation that well-structured, evidence based continuous educational programs and activities should be provided to all physicians providing maternal care, as well as the organization of assigned clinic days for prenatal care consultations so that the physician can focus on all the aspects of prenatal care.

Similar studies have been done in other countries.^[15,18,19] This is the first study conducted in Saudi Arabia. Several guidelines are available and primary care physicians play an integral role in prenatal care. This study assessed the application of these guidelines to pregnant women at the primary care level. However, it has some limitations. It was conducted in certain cities Qatif, Dammam, and Al-Khobar in the eastern region of Saudi Arabia. Therefore, it may not reflect the

entire Saudi Arabian primary care physician practice. Such research should expand to include other cities and regions of the country to closely reflect the family physician knowledge and attitude towards physical activities. In the future, we hope to conduct a qualitative study design to truly reflect the clinical practice.

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Conflicts of interest

There are no conflicts of interest.

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