



KNOWLEDGE AND PRACTICE OF PHYSICAL ACTIVITY AMONG PREGNANT FOLLOWING IN PRIMARY HEALTH CARE CENTERS IN THE EASTERN PROVINCE - (AL-KHOBAR, DAMMAM & AL-QATIF) - SAUDI ARABIA 2018

Medicine

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ABSTRACT

Background: Exercise during pregnancy is associated with numerous health benefits, including the prevention and control of gestational diabetes, control of excessive weight gain, reduction of lower back pain complaints, and positive effects on maternal health and quality of life.

Objectives: To assess the knowledge and practice of pregnant ladies regarding physical activity during their pregnancies in the eastern province in Saudi Arabia.

Methodology: Our sample consisted of 388 pregnant participants. The sample was chosen from the attendees of Antenatal care clinics in the primary health care centers in (khobar, Dammam, Qatif) including the low risk pregnancies. participant's knowledge was assessed using self-administered questionnaire that consisted of 3 sections: a) sociodemographic questions, b) Knowledge, c) Practice. Data was analyzed using SPSS Consent was obtained.

Main results: The mean knowledge score of participants was 13.7 ± 3.6 (69.5%), and it was strongly associated with education, $p=0.009$, prevalence of physical activity in our sample was (42.5%). Occupation and education were significantly associated with practice, $p=0.001$, $p=0.000$ respectively. The association between knowledge score and practice was also significant, $p=0.000$.

Conclusion: Although knowledge of participants was above the expected, more efforts are needed to assess the barriers of physical activity during pregnancy and develop individualized programs for pregnant attendees in PHC centers.

KEYWORDS

Physical activity, pregnancy, maternal health.

INTRODUCTION

Pregnancy is a great time to evolve healthy lifestyle habits including regular exercise. Physical exercise programs for pregnant women are praised and are steadily rising in popularity. The benefits included preservation of prenatal aerobic and musculoskeletal fitness levels, prevention of excessive maternal weight gain, facilitation of labor, help for gestational glucose control and improved psychological adjustment to changes of pregnancy (1).

Numerous Health benefits of physical activity during pregnancy were documented such as reduced risk of excessive gestational weight gain and conditions such as gestational diabetes, preeclampsia, preterm birth, varicose veins, and deep vein thrombosis. Evidence showed that physical activity during pregnancy is associated with a reduced length of labor and delivery complications. Psychological benefits of physical activity during pregnancy include reduced fatigue, stress, anxiety, and depression, as well as improved well-being.

Physiologic responses to exercise, such as changes in heart rate, cardiac output, ventilation, and energy expenditure, are all greater during the antenatal phase than before conception and may become more pronounced as pregnancy progresses. (2).

The World Health Organization's guideline on physical activity recommends that adults age 18 to 64 years should practice at least 150 minutes of moderate intensity aerobic activity throughout the week, or at least 75 minutes of vigorous-intensity aerobic activity, or an equivalent combination of the two (3).

Most pregnant ladies don't engage in any form of exercise and tend to decrease their level of physical activity, including household and occupational activities. Pregnant women have cited discomfort during practice, fear of harm to the fetus, and a history of abortion or infertility treatments as reasons for reducing physical activity. Among socio-demographic factors, lower educational level and income, a greater number of children at home are most frequently associated with the reduced physical activity (4).

In December 2015, the American College of Obstetrics and Gynecology (ACOG) published updated physical activity (PA) guidelines for pregnant women, recommending women with uncomplicated pregnancies engage in $\geq 20-30$ minutes/day of exercise on most days/week (5).

The physical activity level in Saudi Arabia is low as a study conducted on 2007 showed that 98.1% of Saudi females are sedentary (6).

JUSTIFICATION

In Saudi Arabia the practice of exercise is of low prevalence, advocacy of physical exercise among women especially pregnant is highly required.

After reviewing literature, no studies were published in Saudi Arabia regarding physical activity in pregnant women. despite the importance of exercise on the health of both the mother and the baby.

We decided to conduct our research in order to estimate the prevalence of physical activity among pregnant and relate to the factors that could be responsible for low prevalence and make suggestions in order to promote such as healthy and cost effective intervention.

Research Question:

How can the knowledge of pregnant following in PHCC affect their practice of physical activity during pregnancy?

GENERAL OBJECTIVE:

To assess the knowledge and practice of pregnant women regarding physical activity during their pregnancies in the eastern province (Al-Khobar, Dammam & Al-Qatif) Saudi Arabia.

SPECIFIC OBJECTIVES:

- To assess the knowledge and practice regarding physical activity in pregnancy.
- To assess the prevalence of physical activity in pregnant women attending PHCC.

3. To estimate the relevant factors related to physical activity during pregnancy.

Literature review

A study done in 1996 in the USA based on 9953 women, showed that 42% of women reported exercising during pregnancy, half of whom exercised longer than six months. Walking was the most common activity (43% of all activities), followed by swimming (12%) and aerobics (12%). Women who are Older had multiple gestations, previous children, or complicated obstetric history were less likely to exercise during pregnancy [7].

Another study in the USA done in 2008, found that the prevalence of physical activity was lower among pregnant women than non-pregnant women (15.8% vs. 26.1%). Favorable activities included walking, followed by swimming, weight lifting, gardening, and aerobics [8].

In a study that was carried out in Campinas Brazil in 2011, about knowledge, attitude and practice of women regarding exercise in pregnancy, showed that Almost two-thirds (65.6%) of the women were appropriately educated about the practice of physical activity during pregnancy and the majority (93.8%) agreed on it. However, only about 20% of the women in this sample exercised adequately. Significant associations were found between an adequate knowledge of physical exercise during pregnancy and education level and between the proper practice of physical activity during pregnancy and having had fewer pregnancies. Lack of time and fatigue were the reasons given by the women for not exercising during pregnancy [9].

In a prospective cohort study of pregnant Hispanic women in Massachusetts from 2006 to 2011, it was found that household activity was the primary type of pregnancy activity ranging from 56% to 60% of total activity while sports/exercise was the least (<10%). Compared to nulliparous women, women with two or more children were 85% less likely to become inactive at any time during pregnancy. Those who were highly active before pregnancy were 87% less likely to become inactive with the onset of pregnancy than those who were sedentary before pregnancy [10].

A qualitative study among Latina and non-Latina white women in 2007 in Baystate Medical Center the 25th largest obstetrical service in the United State, it was found that lack of energy and motivation, physical limitations and restrictions on activity, lack of resources, and lack of time were powerful barriers to exercise among both Latina and non-Latina white women. Social support and other resources such as fitness facility were identified as significant exercise facilitators to improve activity [11].

A study in Canada done in 2003, that compared exercise patterns before and after pregnancy, showed that during pregnancy all forms of activity decreased except walking, which increased by the third trimester. Factors associated with quitting a regular exercise by the third trimester were: having children, a pre-pregnancy BMI of ≥ 25 , and higher weight gain [12].

A study in India published on 2015; its aim was to evaluate the knowledge, attitude, and practice among pregnant Indian ladies, the majority of the study population were Hindus (81%), had undergone primary education (63%) and were homemakers (74%). 51% of participants felt it was important to do exercise during pregnancy, while only 18% exercised during pregnancy [13].

A cross-sectional study in Nigeria done in 2015, to assess knowledge and attitude, the majority of Nigerian pregnant women showed inadequate knowledge but had a positive attitude towards Antenatal exercise. Knowledge about benefits and contraindications of exercise in pregnancy markedly affected the attitude towards physical activity in pregnancy [14].

In Colombo Srilanka, a cross-sectional study in 2016 to assess knowledge regarding antenatal exercises showed it was 'poor' among a majority of pregnant women. Most had adequate knowledge (49.1%) and acceptable (35.5%) attitudes towards antenatal exercises while overall practices were 'poor' with a majority not exercising (86.4%) [15].

In Iran on 2011, In a study in Shabihkhani hospital in Iran, 60% of the

women had moderate knowledge about pregnancy exercises. Only 19% of them were advised to exercise. During pregnancy, only 39% of the women had physical activity, and most of the practice was walking. 48.7% of the women had continued to exercise until the end of pregnancy [16].

In 2015 a study in the United Arab of Emirates assessed women's knowledge and attitude toward pregnancy and antenatal care when asked about exercise in pregnancy, (36.6%) thought that regular exercise was not harmful to the pregnant. Unfortunately, the study didn't assess the prevalence of physical activity during pregnancy [17].

Methodology:

A cross sectional study was conducted in the eastern province, kingdom of Saudi Arabia from (1st of February – 30th of April 2018). Eastern province is the third most populous province in Saudi Arabia, after Makkah and Riyadh, with an estimated population of 4.106 million (18). The study aim was to assess the knowledge and practice of pregnant women who were attending PHC in the eastern province regarding physical activity during pregnancy, and the factors influencing it. PHCC in Saudi Arabia are becoming of increasing interest from the Saudi population, and when considering ANC, most of the quality services are available for low risk pregnant women.

Participants were selected according to eligibility criteria of pregnant women to follow in PHC. Women aged between (16-40) years who were following up in ANC clinics and had normal medical, surgical and obstetrical history were included. On the other hand, high risk pregnancy participants were excluded as well as women who followed in private clinics and hospitals.

Our sample was chosen from pregnant attendees of PHCC in three main cities in the eastern province Dammam, Khobar and Qatif, they were chosen by the researchers as they lie under the same health sector (General Directorate of health affairs- eastern province). Multistage sampling technique was used, first stage was to select from Primary health care centers. They were clustered in each city as health centers representing east, west, north and south of each city. A total of (28) PHC centers were the result, (13) in Dammam, (5) in Khobar and (10) in Qatif. In stage two, we used simple random sampling to choose pregnant participants who attended ANC clinic in PHCC. Participants who fulfilled inclusion criteria were chosen.

The total number of 8352 pregnant attendees, distributed as 2213 in Dammam, 2632 in Khobar and 3507 in Qatif was gathered from antenatal care clinic annual statistics report.

The total sample size was entered into Raosoft Inc. online sample calculator, with margin of error 5% and 95% confidence level. The minimum recommended size of the sample was 377 participant. Our sample size was 388 participants distributed as (185) from Dammam, (100) from Khobar and (103) from Qatif.

We used a modified, self-administered questionnaire to collect our data. The Questionnaire was derived from an Indian study that was published in 2015, (Knowledge, attitude, and practice of exercise during pregnancy among antenatal mothers). (19) It consisted of 3 parts as the following : part 1 sociodemographic data (9 questions), part 2 Knowledge (22 questions with answers coded as (yes 1, No 0 & I don't know 2) . The last part was about practice which consisted of 2 questions to be answered by all participants and 3 questions to be answered by women who actually practiced physical activity during their pregnancy.

Modifications were made according to local culture and practices. The newly constructed questionnaire was evaluated by experts (2 family medicine consultants, 4 obstetrics and gynecology consultants) who gave their opinion about the questions' integrity and importance, then the questionnaire was translated into the Arabic language by two certified translators independently; the resulted 2 Arabic versions were merged by the researchers to develop a semantic Arabic version.

The next step was to pilot the Arabic version in order to test the validity and reliability of the questionnaire. A pilot study with 30 participants from all 3 cities was conducted and further minor modifications in the following questions were made (Q 4 added diploma to education, Q11 added it is not safe to practice physical activity during pregnancy) For reliability and internal consistency testing data of pilot testing were

entered into spss to test Cronbach alpha value. The researchers distributed the questionnaires among the participants with the help of ANC nurse. Informed consent was attached, personal data of the patients were confidential and anonymity was preserved. The nurses were educated about the inclusion and exclusion criteria and instructions on how to answer the questions were included.

A total of 388 questionnaires were obtained with response rate of 100%.

Variables:

Dependent:
Knowledge and practice of physical activity among pregnant ladies

Independent:

Age, level of education, marital status, parity, occupation, and living with assistance.

Data analysis

Descriptive data were used for demographic data. For testing the association between variables, Chi square test was used for categorical+categorical variables.

ANOVA and one sample t-test were used for Categorical +Continuous. Level of significance was set at the value of 0.05.

To test correlation between knowledge and practice, Pearson correlation was used.

Analysis tool

(IBM SPSS Statistics version 22, 64 bit edition)

Limitations:

- 1- This study target population was pregnant who followed only in primary care clinics, other women who were following in other sectors were not included.
- 2- Quality and adequacy of participants' physical activity couldn't be evaluated with our tool. We can't judge whether the sample who practiced activity were following the recommended criteria.
- 3- Our study design was cross sectional survey. Causal relationship couldn't be appreciated.

Ethical considerations:

Our proposal gained IRB approval from the department of family medicine program, ministry of health, eastern province, (December 2017). Permission from (General Directorate of health affairs- eastern province) was obtained. The directors of the targeted PHCC were informed about our research requirements and with the help of the antenatal care nurses in each sector, we were able to obtain the number of registered pregnant women currently following their pregnancy in ANC clinics. Each participant signed an informed consent, information was gathered and kept confidential.

Budget: no budget.

Results:

The Mean age of participants was 28.8 ± 6.02 years most of them were aged less than 24 years (25%), 25- 27 years were (17.8%), 28-30 years (24.0), 31-35 years (17.5), more than 36 years were (15.5%), Majority of them were having 2 children or more (41.5%), were housewives (67.5%). Most received secondary education (41.0 %), their monthly income was between 5000- 10000 Saudi Riyals (46.9%). Most of the participants were in the first trimester (38.4%). (Table 1)

Of the 388 pregnant women who participated in this study, (75.5%) thought that physical activity was safe during pregnancy, (35.1%) of them considered the second trimester as the most favorable time to start physical activity during pregnancy. Household activities was the preferred activity (67.8%). Participants thought that physical activity can improve Fatigue (76.8%). Regarding prevention of pregnancy related diseases most of participants thought it can prevent Gestational diabetes, (64.7%). (Table 2)

Regarding outcomes of physical activity during pregnancy, the majority of participants thought physical activity during pregnancy has a positive role in normal vaginal delivery (92.8%), (63.9%) thought it reduces the need for cesarean section, and (76.5%) believed it promotes post-partum recovery. Regarding negative outcomes,

(24.5%) thought it could cause abortion, (22.7%) thought it can induce preterm delivery and (4.6%) thought it can cause congenital anomalies.

When considering sociodemographic characteristics and its association with knowledge score which came as (mean of Knowledge Score was 13.7 ± 3.6 SD),

We found significance between knowledge score and education ($p=0.009$), while with age, parity, occupation and income, there was no significance ($p<0.05$) using ANOVA test.

Pregnant participants who responded as practicing physical activity during their pregnancy were 165 (42.5%) of the total sample, (N=388). Chi square test showed significant association was found between education and occupation and practice of physical activity, ($p=0.000$) & ($P=0.001$), respectively.

Most of the pregnant women who practiced physical activity during pregnancy received bachelor's degree (51.5%), Housewives were the majority (56.3%).

Other variables such as age, parity & income showed no significance with practice.

The correlation between the knowledge score and the practice of physical activity was tested with Pearson correlation, the result was significant ($p=0.000$) Significant correlation was also found between the knowledge score and the kind of physical activity during pregnancy, ($p=0.000$).

Regarding the most preferred physical activities to be practiced by the pregnant participants, walking was the in the first place (92.7%) of all practices. Swimming and gym based activities were (3.6%), (3.6%) respectively. (Figure1)

Discussion:

Our study was on pregnant women who were following in antenatal care clinics in primary health care centers regarding their knowledge and practice of physical activity.

Our sample consisted of 388 pregnant aged between (16-40) years, mean age was 28.8 ± 6.02 years. Most of them were less than 24 years (25.3%), received secondary education (41.0%), housewives (67.5%) & had 2 or more children (41.5%).

Comparing our sample demographic characteristics to a study conducted in India by Sujindra et al., their sample consisted of 200 pregnant women recruited from tertiary care hospital. Aged between (18-35) years, Mean age was 25 ± 4.51 years.

Most received primary education (63.0%), only (8.5%) received tertiary education. Occupation wise, (74%) were homemakers. [13]

In our study, the total mean knowledge score was 13.7 ± 3.6 . Of all participants, (69.5%) had adequate knowledge. Whereas in Sujindra et al, study the mean total knowledge score was 20.53 ± 2.08 which was less than (50%). [13] In our sample, total knowledge score was strongly associated with education, $p=0.009$.

The above finding reflected the positive effect of education on our study sample.

Regarding Safety of physical activity during pregnancy, 75.5% thought that it was safe. Comparing our result to a similar study done in USA, (88%) of their pregnant women thought that moderate physical activity was safe in pregnancy. [20] The previous result shows that our pregnant women has no lack of awareness and it reflects the role of health education and promotion held in antenatal clinics across the kingdom of Saudi Arabia.

Our sample knowledge about the most suitable activities during pregnancy, (67.8%) preferred household activities. Whereas in the study by Sujindra et al., participants reported poor knowledge about the suitable activities during pregnancy. [13]

In the part considering the effects of pregnancy, pregnant women thought that regular physical activity might improve fatigue (76.8%), might have a role in the prevention of Gestational Diabetes (64.7%),

might improve pregnancy related backache (63.9%), reduces weight gain (68.3%), improves stress urinary incontinence (37.1%) and facilitates normal vaginal delivery (92.8%).

Compared to the study by Sujindra et al., those who thought it might improve backache were (55%), reduces weight gain were (51%), strengthens pelvic floor muscles were (49.0%), and those who thought it facilitates normal vaginal delivery were only (49.5%). [14] These results again shows that our participants had excellent knowledge regarding benefits of physical activity during pregnancy.

Considering the practice of physical activity during pregnancy, the actual practice reported by participants in our study was (42.5%), while in Sujindra et al. study it was (36.0%). [13] Although our practice was higher, still it is not reaching our goals of health promotion, especially during pregnancy. In our study, practice was significantly affected by occupation and education, $P=0.001$ & $P=0.000$, respectively. Occupation favored the sample of housewives (56.3%), while education favored Bachelor's degree (51.5%).

While our participants' knowledge was strikingly above expected, actual practice reached less than 50% of the target population. More efforts are needed to assess the barriers that could be solved and corrected from our health care side. Promoting such a cost effective intervention in our antenatal care clinics could save the cost and the harm of maternal fetal complications related to sedentary lifestyle, which is an accomplishment regarding the new health care vision of 2030 [21].

Conclusion:

Although knowledge of the participants was excellent and exceeded expectations, the actual practice needs more promotion and pregnancy specific exercises should be explained to pregnant women following in primary health care.

Recommendations:

1. More studies are needed to assess barriers to physical activity among pregnant women in our region
2. Specific programs could be developed and individualized according to each pregnant woman needs in primary health care clinics.
3. Integrated efforts are needed between school health namely the girls high schools and PHC to emphasize on the importance of physical activity to all females.

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(Table 1) Descriptive data of the study sample: Sample Characteristics (N = 388)

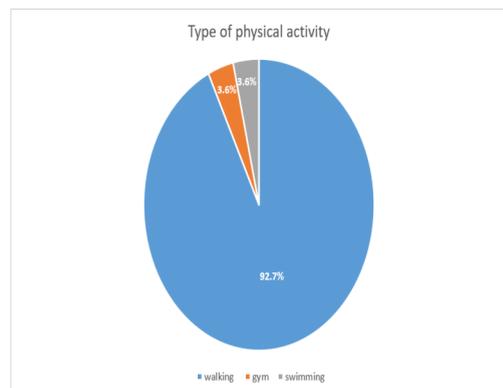
Variable	n	%
Age		
≤ 24.00 years	98	25.3
25.00 - 27.00 years	69	17.8
28.00 - 30.00 years	93	24.0
31.00 - 35.00	68	17.5
≥36	60	15.5
Parity		
First pregnancy	118	30.4
One child	109	28.1
2 children or more	161	41.5
Occupation		
House wife	262	67.5
Teacher	26	6.7
Nurse	23	5.9

Doctor	3	0.8
Business women	3	0.8
Other	71	18.3
Education		
Primary	10	2.6
Intermediate	28	7.2
Secondary	159	41.0
Diploma	41	10.6
Bachelors	148	38.1
Master	2	0.5
Income		
< 5000 riyal	140	36.1
5000-10000	182	46.9
10000-15000	49	12.6
> 15000	17	4.4
Trimester		
First	149	38.4
Second	135	34.8
Third	104	26.8

(Table 2) Frequency of the study population according their knowledge about physical activity during pregnancy:

Variable	n	%
Safety of physical activity during pregnancy	293	75.5
Not Safe	95	24.5
Best time to start physical activity according to pregnant participants		
during First trimester	29	7.5
During Second trimester	136	35.1
During Third trimester	128	33.0
Activities thought to be suitable in pregnancy		
Quick walking	186	47.9
Swimming	195	50.3
Household Activities	263	67.8
Signs /symptoms thought to be improved with physical activity in pregnancy		
Backache	248	63.9
Fatigue	298	76.8
Lower limb swelling	235	60.6
weight gain	265	68.3
Diseases related to pregnancy thought to be prevented by physical activity in pregnancy		
Gestational Diabetes	251	64.7
Pre-eclampsia	205	52.8
Deep vein thrombosis	219	56.4
Stress urinary incontinence	144	37.1

(Figure1) The Most preferred physical activities to be practiced by the pregnant participants was as the following:



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