



# Assessment of Knowledge and Belief of Pregnant Women Attending Maternal and Child Care Unit in Primary Health Center of Sulaimani City Regarding Exercise During Pregnancy

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## ABSTRACT

*Background: given the positive physical and mental health outcomes associated with participating in regular exercise, promoting exercise during pregnancy needs to remain a crucial objective among health promoters.*

*Objectives: to determine the knowledge level and document self-reported beliefs about physical exercise during pregnancy.*

*Method: a descriptive study was carried out on 197 pregnant women who attended the maternal and child care units in two primary health care centers of Sulaimani city. The study was carried out for the period of (April, 2013 – February, 2014). Data was analyzed with SPSS (16.0) program. Chi-Square (Fishers' Exact) test was used in the statistical assessment and the figure of  $p < 0.05$  was considered as the statistically significant.*

*Results: majority 81.2 % of participants had inadequate knowledge regarding effect of exercise during pregnancy and only 13.7% of participants believed that exercises had positive effect on pregnancy. Level of knowledge and belief increase with increasing level of education, employment, better financial status, extended family type, and women who had no abortion while age, gestational age, pregnancy and delivery number were not associated with knowledge and belief level.*

*Conclusions: researchers conclude that the knowledge of pregnant women in Sulaimani regarding exercise during pregnancy is inadequate. Women's education, occupation, family type, financial status and previous abortion had a positive effect on pregnant women's knowledge and beliefs.*

**Keywords :** Knowledge, Belief, Exercise, Pregnancy

تقييم المعرفة و المعتقدات حول التمارين الرياضية اثناء فترة الحمل لدى النساء الحبلی الذین یزورون وحدة رعاية الأمومة و الطفولة في مراكز الرعاية

## الصحية الأولية في مدينة السليمانية

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### الملخص

نظراً لأهمية التمارين الرياضية لصحة الإنسان جسدياً و نفسياً ، يجب أن تكون محل اهتمام للنساء و خاصة اثناء الحمل ، ولذا يجب ان تكون موضع اهتمام المختصين بالحوامل لأهميتها . ولذلك هذا البحث حاول اتضاح مستوى المعلومات و توجهات لدى النساء الحوامل بأهمية التمارين الرياضية اثناء الحمل . ولجمع المعلومات استخدم استماراة الاستبيان و مقابلة الحوامل بهذا الشأن. و كشف البحث: اكثريّة (81,2%) المشاركات مستوى معلوماتهن ضئيلة " و بشأن توجهاتهن (13,7%) فقط منهن تؤمن بأن تمارين تؤثر ايجابياً على الحامل . و كشف ايضاً هناك علاقة الوظيدة بين معلومات و توجهات الحوامل بأهمية التمارين مع (مستوى التعليمي ، المهنّة ، نوع العائلة ، المستوى المعيشي ، و حالات الإجهاض )

الكلمات الدالة: المعرفة ، المعتقدات ، التمارين الرياضية ، الحمل .

## 1. INTRODUCTION

Exercise is a safe and effective way to gain many physical and mental health benefits, pregnancy is a good time to develop healthy lifestyle habits including regular exercise and good nutrition [1]. Improving the quantity and quality of information related to physical exercise has the potential to correct inaccurate perceptions and confer several benefits on maternal and fetal health. Effective intervention strategies should focus not only on the pregnant woman but also extend to her family, friends and exercise provider [2].

The American Congress of Obstetricians and Gynecologists (ACOG 2002)[3] and the American College of Sports Medicine (ACSM)[4] recommend 30 minutes or more of moderate to vigorous exercise a day on most of the week during pregnancy. More recently, the United States Department of Health and Human Services (USDHH)[5] released exercise guidelines for pregnant women. According to the guidelines, at least 150 minutes of moderate-intensity aerobic activity per week is advised for those who have not been engaged in regular exercise before pregnancy. Further, under a health-care provider's recommendations and adjustments, healthy women who have been engaged in regular exercise may continue to do so throughout the pregnancy and postpartum [6].

Research indicates that the exercise during pregnancy is determined by several belief factors, the safety issue is an important belief factor for exercising during pregnancy. In a study of British pregnant women [7], one third of the participants chose the risk of health to an unborn baby as a primary reason for not being active during pregnancy. Guszkowska examined pregnant women's belief about the safety of exercise during pregnancy and stated that the majority of pregnant women had safety concerns about their own and baby's health, regardless of the intensity and frequency of exercise, and norm seems to be a prominent determinant of women's exercise participation during pregnancy [8].

Given the positive physical and mental health outcomes associated with participating in regular exercise, promoting exercise during pregnancy needs to remain a crucial objective among health promoters [9]. Now a day, information about the physical exercise and activity level of the community is inadequate, adopted an increasingly sedentary lifestyle, in particular the low level of awareness about exercise during pregnancy is observed. This study provides information to create more successful interventions to help women get correct information and understand concepts regarding the safety and benefits of physical activity during pregnancy.

## Objective of the study

The objectives of this study were to determine the knowledge level, to document self-reported beliefs about physical exercise among pregnant women, and to explore association between some socio-demographic and obstetric characteristics with knowledge and belief levels.

## Methodology

A cross-sectional study was carried out during the period of (April, 2013 to February, 2014). A purposive "non-probability" sample of (197) pregnant women who have been attending Maternal Ante Natal Care (MANC) units in Ibrahim-Pasha and Ali-Kamal Primary Health Centers (PHC) in the Sulaimani city has been chosen. For the purpose of data collection, an assessment tool was constructed by researchers. Questionnaire consisted of socio-demographic which includes participants' age, levels of education, type of family, occupations , other item is financial status whish consisted of sufficient that means the family income is enough with ability to save some money, barely sufficient means it is enough , while insufficient means is not enough and obstetric characteristics, (13) questions regarding knowledge and 10 questions on beliefs regarding exercise during pregnancy.

**Knowledge:** notions about physical exercise during pregnancy were classified as adequate (had heard about it and knew what kinds of exercise are indicated and which should not be performed; in accordance with the ACOG definition (ACGO) appropriate exercises for pregnant women are low-impact, moderate-intensity activities such as walking, water aerobics, stretching, yoga and swimming, while high-impact forms of exercise such as strength training and running should not be performed); or inadequate (had heard about physical exercise during pregnancy but did not know what kind of exercise is indicated or contraindicated, or had never heard of physical exercise during pregnancy) [1].

**Beliefs:** classified as Believe which means women had a broad definition of what types of activities constituted exercise during pregnancy; women believed exercise was generally beneficial during pregnancy and women believed certain types of activities or movements could cause problems with pregnancy) according to ACOG 2002 guidelines and Don't Believe which means women has no a broad definition of what types of activities constituted exercise during pregnancy; women believed exercise generally cause problems



with pregnancy and could not determine certain types of activities or movements could cause problems with pregnancy according to (ACOG 2002) guidelines [10].

This study was approved by ethical committee of the School of Nursing at University of Sulaimani. A pilot study was conducted for the determination of the reliability and a panel of experts for the content validity of the assessment tool. The data were collected through the interview techniques. A score of (1) was given to all "agree" answers, while a score of zero given to all "disagree" answer for a positive statement and vice-versa. Regarding knowledge for the women who answered questions correctly considered as (adequate knowledge), for whom did not answered considered as (inadequate knowledge) and the same applied for belief. Statistical analyses were performed using SPSS (16.0) with the significance level set at (0.05). Factors associated with levels of knowledge and belief examined by chi-square and Fishers' Exact tests.

## 2.RESULT & DISCUSSION

The population consisted of young women, nearly one third (23-27 years) and (29.4%) of them (28-32 years). Nearly half (42.7%) had at least some high school education such as institute or college certificate. More than half of them were housewives, and (58.4%) were barely financially sufficient as presented in Table.(1) . These characteristics are similar to those found in regional study in Iran by [11], who evaluated knowledge and performance of pregnant women referring to a hospital on exercises during pregnancy and postpartum periods. As for obstetric characteristics (44.7%) were in (29-38 weeks) of gestations, more than half were prime pregnancy with nulliparas, and more than two third of them had no abortion.

**Table.(1):** Distribution of the women in accordance with their socio-demographic and obstetric characteristics.

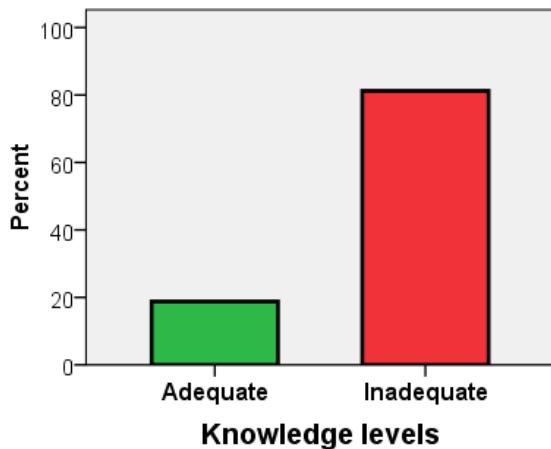
Variables	n	%	Variables	n	%
<b>Age (years)</b>			<b>Education Levels</b>		
<b>18 – 22</b>	33	16.8	Illiterate	4	2.0
<b>23 – 27</b>	63	32.0	Primary	26	13.2
<b>28 - 32</b>	58	29.4	Secondary	84	42.7
<b>33 – 37</b>	31	15.7	Institute & College	83	42.1
<b>38 – 42</b>	12	6.1			
<b>Type of Family</b>			<b>Number of Pregnancy</b>		
Extended Family	92	46.7	<b>1</b>	99	50.3
Nuclear Family	105	53.3	<b>≥ 2</b>	98	49.7

**Table.(1): continuo**

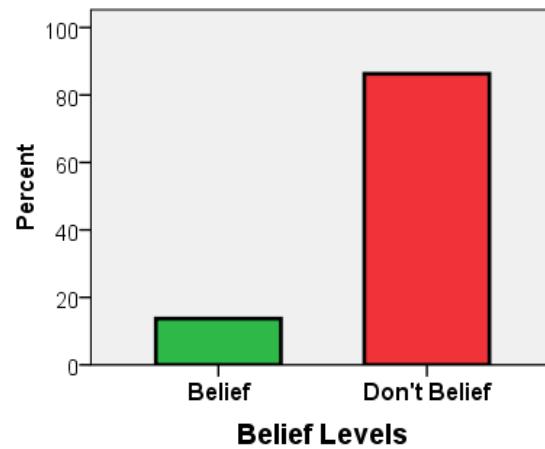
Occupation			Number of Para		
House Wife	110	55.8	<b>0</b>	99	50.3 %
Paid Employment	76	38.6	<b>1 – 2</b>	84	42.6 %
Self employed	11	5.6	<b>≥ 3</b>	14	7.1 %
<b>Income</b>			<b>Number of abortion</b>		
Sufficient	45	22.8	<b>0</b>	153	77.7
Barely Sufficient	115	58.4	<b>≥ 1</b>	44	22.3
Insufficient	37	18.8			
<b>Total</b>	197	100	<b>Total</b>	197	100

Majority (81.2 %) of participant in present study has inadequate knowledge regarding effect of exercise during pregnancy, which means less than one fifth (18.8 %) of them has adequate knowledge as illustrated in **Figure.(1)** . Therefore there is no big difference for participants belief regarding effect of exercises on pregnant women, (86.3%) of participant do

not believe, and only (13.7%) of participant believes that exercises have positive effect on pregnancy, **Figure.(2)** .



**Figure.(1): Distribution Levels of Knowledge**



**Figure.(2): Distribution Levels of Belief**

The women in this study were shown to be inadequately knowledgeable concerning the physical exercise in pregnancy. Evaluation of the knowledge of these women with respect to physical exercise during pregnancy showed findings (81.2 %) of participant had inadequate knowledge regarding effect of exercise during pregnancy, which means less than one fifth (18.8 %) of them had adequate knowledge as presented in **Figure.(1)** .These findings are in agreement with the results that reported in other regional countries study by others [11]who found that the (22%) of women in their study had good knowledge regarding exercise during pregnancy. More recent study in Turkey [12] researchers found majority of the pregnant women heard about the exercises performed during pregnancy but they do not have sufficient and true knowledge about the exercises performed in pregnancy.

Based on the findings, only (13.7%) of participant believes that exercises have positive effect on pregnancy, and the rest do not believe or believe that exercise has negative effect on pregnant women, fetus and pregnancy outcome, **Figure.(2)** .While Evenson & Braddly [13] found different result in their study on belief about exercise and physical activity among pregnant women and they reported that the (68%) of women agreed that most women who never exercised could begin an exercise program during pregnancy. Most (89%) agreed that regular exercise was better than irregular exercise during pregnancy. While almost all women agreed with the benefits of light activity (98. A study that evaluated factors associated with women's perceptions of the safety of physical activity in pregnancy found that women

perceive physical exercise as beneficial because they believe it helps control blood glucose levels, minimizes weight gain, improves energy efficiency and mood, makes childbirth easier and contributes towards fetal health [14]. Nevertheless, although these women recognized these advantages, they believed that it was more important to rest and relax during pregnancy than to exercise.

These findings of previous study that mentioned before are not in agreement with the results of the present study, a lack of knowledge and belief concerning the benefits of exercise during pregnancy was main finding of present study results .The difference may have resulted from different factors such as; culture difference, most studies regarding belief in exercise in pregnancy carried out western society, according to our knowledge there is no regional study to evaluate women belief regarding exercise during pregnancy, Krans & Chang [15] found that the culture as a major contributing factor in knowledge and belief in exercise and concluded that the health care provider should be aware of cultural myth that prevent women from believing and performing some activities during pregnancy. Maternity and child health care and follow up system also may influence in the levels of knowledge and belief of pregnant women, information of benefit of exercises are absence in the program that apply in the maternity and child health care in the primary health care centers, shortage of health knowledge generally may be other factors affected women knowledge and belief.

Except age group the association was significant between all others socio-demographic variables and each of knowledge and belief levels, (p) value is ( $> 0.05$ ). Level of knowledge and belief increase with increasing level of education, employment, good financial status, and extended family type while they decrease in housewife, poor financial and nuclear family type, as demonstrated in **Table.(2)** .

**Table.(2):** Distribution of association between level of knowledge and belief levels with (age group; level of education; occupations; type of family and financial status)

Age Group	Knowledge Levels		Belief Levels		Total N (%)
	Adequate N (%)	Inadequate N (%)	Belief N (%)	Don't Belief N (%)	
18 - 22	6 (18.2%)	27 (81.8%)	3 (9.1%)	30 (90.9%)	33 (100 %)
23 - 27	14 (22.2%)	49 (77.8%)	9 (14.3%)	54 (85.7%)	63 (100 %)
28 - 32	10 (17.2%)	48 (82.8%)	8 (13.8%)	50 (86.2%)	58 (100 %)
33 - 37	6 (19.4%)	25 (80.6%)	5 (16.1%)	26 (83.9%)	31 (100 %)
38 - 42	1 (8.3%)	11 (91.7%)	2 (16.7%)	10 (83.3%)	12 (100 %)
$\chi^2 = 1.45$	P = 0.84	No Sign.	Fis E = 0.855	P = 0.93	No Sign.
<b>Levels of Education</b>					
Illiterate	0 (0 %)	4 (100 %)	0 (0 %)	4 (100 %)	4 (100 %)
Primary	2 (7.7 %)	24 (92.3 %)	1 (3.8%)	25 (96.2%)	26 (100 %)
Secondary	8 (9.5 %)	76 (90.5 %)	8 (9.5%)	76 (90.5%)	84 (100 %)
Institute & College	27 (32.5 %)	56 (67.5 %)	18 (21.7%)	65 (78.3%)	83 (100 %)
Fis E = 18.03	P = 0.0001	Highly Sign.	Fis E = 8.48	P = 0.037	Sign.
<b>Occupations</b>					
Paid Employment	22 (28.9%)	54 (71.1%)	16 (21.1%)	60 (78.9%)	76 (100 %)
Housewife	11 (10 %)	99 (90%)	6 (5.5%)	104 (94.5%)	110 ( 100 %)
Self Employed	43 (6.4%)	76 (3.6%)	5 (45.5%)	6 (54.5%)	11 (100 %)
$\chi^2 = 12.94$	P = 0.002	Sign.	$\chi^2 = 19.18$	P = 0.0001	Highly Sign.
<b>Type of Family</b>					
Extended Family	25 (27.2%)	67 (72.8%)	18 (19.6%)	74 (80.4%)	92 (100 %)

Age Group	Knowledge Levels		Belief Levels		Total N (%)
	Adequate N (%)	Inadequate N (%)	Belief N (%)	Don't Belief N (%)	
18 - 22	6 (18.2%)	27 (81.8%)	3 (9.1%)	30 (90.9%)	33 (100 %)
23 - 27	14 (22.2%)	49 (77.8%)	9 (14.3%)	54 (85.7%)	63 (100 %)
28 - 32	10 (17.2%)	48 (82.8%)	8 (13.8%)	50 (86.2%)	58 (100 %)
33 - 37	6 (19.4%)	25 (80.6%)	5 (16.1%)	26 (83.9%)	31 (100 %)
38 - 42	1 (8.3%)	11 (91.7%)	2 (16.7%)	10 (83.3%)	12 (100 %)
$\chi^2 = 1.45$	P = 0.84	No Sign.	Fis E = 0.855	P = 0.93	No Sign.
Nuclear Family	12 (11.4%)	93 (88.6%)	9 (8.6%)	96 (91.4%)	105 (100 %)
$\chi^2 = 7.97$	P = 0.005	Sign.	$\chi^2 = 5.01$	P = 0.025	Significant
<b>Financial Status</b>					
Sufficient	31 (83.8 %)	14 (8.8 %)	17 (37.8%)	28 (62.2%)	45 (100 %)
Barely Sufficient	4 (10.8 %)	111 (69.4%)	9 (7.8%)	106 (92.2%)	115 (100 %)
Insufficient	2 (5.4%)	35 (21.9%)	1 (2.7%)	36 (97.3%)	37 (100 %)
P = 0.0001	Highly Sign.	Highly Sign.	$\chi^2 = 29.2$	$\chi^2 = 96.1$	P = 0.0001
<b>Total</b>	37 (18.8 %)	160 (81.2%)	27 (13.7 %)	170 (86.3%)	197 (100 %)

Present study evaluated factors associated with women's knowledge and belief, and showed that knowledge and belief in positive effect of physical exercise in pregnancy was significantly higher among the women with better education, being in paid employment, lives in extended family and had sufficient income, nevertheless, no statistically significant association was found between the pregnant women age and neither knowledge or belief. Regarding association of socio-demographic data previous study [16] found that the knowledge level of the pregnant women who are between the age of (31-39), university graduates pregnant was higher than the others, the researcher did not found association between level of knowledge and obstetrics factors such as delivery and pregnancy number.

Furthermore they reported that socio-economic status as a significant predictor of different physical activity levels during pregnancy.

Socio-demographic factors such as education, income, and ethnicity, play a significant role in physical activity level knowledge and performance during pregnancy. A positive relationship between the level of education and exercise during pregnancy was consistent across different populations [17]. Women with higher education and level tend to engage in regular exercise more frequently as compared to those with lower education level. Ethnicity also plays a significant role in exercise during pregnancy. Research shows that whites exercise more than the non-white population [16]. Differences in beliefs were most notable by educational level, race/ethnicity, and whether they participated in regular exercise during pregnancy[13].

The knowledge and belief of physical exercise during pregnancy was, however, significantly higher among women who had no previous abortion as showed in Table.(3) , this may result from wrong belief in our society that exercises and physical activities cause abortion while there was no association between number of pregnancy, gestation age and parity with each of knowledge and belief of physical exercises during pregnancy. Hegaard et al [18] found no significant association between parity and exercise.

**Table.(3):** Distribution of association between level of knowledge and belief levels with (gestational age; pregnancy number, para and abortion)

Variables	Belief Levels		Knowledge Levels		Total
	Adequate	Inadequate	Belief	Don't Belief	
	N (%)	N (%)	N (%)	N (%)	
<b>Para</b>					
<b>0</b>	19 (19.2 %)	80 (80.8 %)	13 (13.1 %)	86 (86.9 %)	99 (100 %)
<b>1-2</b>	16 (19 %)	68 (81 %)	11 (13.1 %)	73 (86.9 %)	84 (100 %)
<b>≥ 3</b>	2 (14.3 %)	12 (85.7 %)	3 (21.4 %)	11 (78.6 %)	14 (100 %)
<b>X<sup>2</sup> = 0.2</b>	<b>P = 0.91</b>		<b>X<sup>2</sup> = 0.76</b>	<b>P = 0.68</b>	
<b>Gravida</b>					
<b>1</b>	18 (20.2%)	71 (79.8%)	13 (14.6%)	76 (85.4%)	89 (100 %)
<b>≥ 2</b>	19 (17.6%)	89 (82.4%)	14 (13.0%)	94 (87.0%)	108 (100%)
<b>X<sup>2</sup> = 0.22</b>	<b>P = 0.64</b>		<b>X<sup>2</sup> = 0.11</b>	<b>P = 0.74</b>	
<b>Abortion</b>					
<b>0</b>	29 (19.0%)	124 (81 %)	25 (16.3%)	128 (83.7%)	153 (100 %)
<b>≥ 1</b>	8 (18.2%)	36 (81.8%)	2 (4.5%)	42 (95.5%)	44 (100 %)
<b>X<sup>2</sup> = 0.013</b>	<b>P = 0.91</b>		<b>X<sup>2</sup> = 0.4</b>	<b>P = 0.045</b>	
<b>Total</b>	31 (68.9%)	14 (31.1%)	27 (13.7 %)	170 (86.3%)	197 (100 %)

Main limitation of the present study refers to the definition of what constitutes adequate knowledge. Defining adequate knowledge is a very complex matter, since it involves perceptions of right and wrong, level of access to different means of communication and each individual's life experience. For the purpose of this study, adequate knowledge was defined as the woman having heard about the performance of physical exercise during pregnancy and her being able to list which forms of exercise were appropriate and which should not be performed at this time. This interpretation was based on the recommendations of the American College of Obstetricians and Gynecologists (ACOG) on the practice of physical activity during pregnancy. Despite this limitation, we believe that these findings may



collaborate towards improving the guidance given during prenatal care, serving as a subsidy for healthcare professionals, particularly those working in physical education, to enable them to improve their programs for pregnant women.

### **3.CONCLUSIONS**

Our results suggest that women's knowledge concerning the practice of physical exercise during pregnancy is inadequate and their belief is doing not believe in positive effect of exercises during pregnancy. The levels of knowledge and belief increase with increasing income, education, paid employment, and extended family, the history of previous abortion influence negatively the level of knowledge and belief. Maternal age, gestational age number of pregnancy had no effect on levels of knowledge and belief of pregnant women regarding exercises during pregnancy

### **4.RECOMMENDATIONS**

1. Implement exercises and information regarding exercises and physical activities during pregnancy in the maternal child health program that provide health care and follow up care for pregnant women in the primary care health centers.
2. Since women's activities are affected by medical recommendations, doctors, nurse and midwives should provide the necessary information about physical activity and exercises and its benefits during prenatal care.
3. Health care providers should be aware of cultural myths that may prevent many women from performing certain activities during pregnancy.
4. We recommend that this population should be given information about the benefits of the practice of simple, regular physical exercise such as supervised walking preceded by stretching exercises. Negative side effects would be insignificant and the return in terms of gestational well-being and health would be considerable.

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