

Assessment of Knowledge and Attitude towards Physical Activity during Pregnancy and its Associated Factor among Women Attending Antenatal Care at Public Health Institution of Akaki Kality Sub City, Ethiopia

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Abstract

Background: Physical activity, defined as any bodily movement produced by the contraction of skeletal muscles in all stages of life maintains and improves cardio respiratory fitness, reduces the risk of obesity and associated comorbidities, and results in greater longevity. Exercise, defined as activity consisting of planned, structured, and repetitive bodily movement. Physical inactivity is the fourth-leading risk factor for early mortality worldwide. Physical inactivity during pregnancy is associated with serious short-term and long-term risks for mothers and babies.

Objective: The study aimed to assess knowledge and attitude towards antenatal physical activity and its associated factor among pregnant women attending antenatal care at public health institutions in Akaki-Kality sub city, Addis Ababa, Ethiopia 2019.

Methods and materials: An institutional-based cross-sectional study design was employed and 404 participants were invited to this study. The participants were selected through systematic random sampling technique. This study was conducted from February 15 to March 15. The data was collected through a structured questionnaire and face to face interview and the analysis was performed through SPSS 21 computer programs.

Results: 43.9% and 47.3% of pregnant women had poor knowledge and had unfavorable attitude about antenatal physical activity respectively. The finding of this study ever done and heard about physical activity and their attitude of physical activity were statically significant associated to their knowledge with AOR=(4.020, 95%CI (1.686,9.587)) AOR=(2.828, 95% CI (1.268,6.308)) and AOR=(5.297, 95% CI (2.380, 11.788)) respectively. And also ever done physical activity before pregnancy and heard about physical activity, gravidity, and their knowledge of physical activity had significant association to their attitude with AOR= (0.206, 95% CI (0.112,0.376)), AOR=(2.943, 95% CI

(1.618, 5.351)), AOR=(0.544, 95% CI (0.319,0.928)) and AOR=(6.264, 95% CI (3.489,11.245)) respectively.

Conclusion and recommendation: This study told that less than half of the respondents had poor knowledge and near to half of the respondents had unfavorable attitude about antenatal physical activity. We recommend for the FMOH should design policies, programs and guidelines and give for all health institutions to teach about the benefit and the contraindication of physical activity during pregnancy.

Keywords: Antenatal physical activity; Attitude; Knowledge

Abbreviations

AOR: Adjusted Odds Ratio; GDM: Gestational Diabetic Mellitus; PA: Physical Activity; SPSS: Statistical Package for Social Science.

Introduction

Physical Activity (PA), defined as any bodily movement produced by the contraction of skeletal muscles in all stages of life maintains and improves cardio respiratory fitness, reduces the risk of obesity and associated co morbidities, and results in greater longevity. Being in sedentary activity lifestyles increase the risk of antenatal and postnatal depression. Reductions in physical activity and a worsening mood are common during pregnancy. Physical activity during pregnancy is important for the health of the mother and the child and may reduce the risk of adverse maternal, fetal and neonatal outcomes [1].

Pregnancy is a time in women lives that are associated with considerable physiological and psychological changes which may promote sedentary behaviors and/or low levels of physical activity. Physical inactivity is the fourth leading risk factor of early mortality worldwide. There is a dearth of information regarding women's attitudes toward physical activity in pregnancy. Small number of studies have highlighted

significant barriers participation, including lack of time, lack of facilities and physical barriers.

According to the American College of Obstetricians and Gynecologists (ACOG), Walking, Swimming, Stationary cycling, Low-impact aerobics, yoga modified, Pilates modified and racquet sports recommended for women with uncomplicated pregnancies. Based on different literatures, the knowledge and attitude of pregnant women towards physical activity shown that maximum of the pregnant women had poor knowledge (65.35%) and neutral attitude (44.55%) with regard to physical activity during pregnancy. In Africa, pregnant women towards physical activity had poor knowledge (47.6%). Women in low-income counties are generally considered to have a high physical workload which is sustained during pregnancy and may contribute to the high incidence of low birth weight [2].

Materials and Methods

Study design, study population and sampling

The study was conducted from february 15 to March 15, 2019 at public health institutions of Akaki-Kality sub city, Addis Ababa Ethiopia. Akaki-Kality is one of the 10 sub-cities of Addis Ababa and has 11 woredas. Institutional based cross-sectional study design was employed.

The study subject was selected pregnant women attending ANC at selected public health institutions in Akaki-kality sub city during the study period and fulfill inclusion criteria. To determine the number of women to be included in the study a single population proportion formula was used. The final sample size was 404. The study random sampling unit was selected by using systematic technique [3].

Table 1: Socio-demographic characteristics of pregnant women attending ANC at public health institutions about physical activity during pregnancy in Akaki-Kality sub city, Addis Ababa, 2019 (n=399).

Variables		Frequency	Percent (%)
Marital status	Single	11	2.8
	Married	376	94.2
	Others	12	3
Religion	Orthodox	241	60.4
	Protestant	65	16.3
	Catholic	18	4.5
	Muslim	74	18.5
	Others	1	0.3
Educational level	Illiterate	76	19
	Reading and writing	60	15
	Elementary	80	20.1

Data collection and data analysis

semi-structured questionnaire was used. The questionnaire was first prepared in English language and translated to the Amharic language and then back to English language. The data was collected through face to face interview. The data was intensively cleaned up before its analysis and was entered using Epi Data 3.1 version and analysis was carried out using Statistical Package for the Social Sciences (SPSS) version 22. Frequency distribution tables and statistical graphs were used to describe some variables between dependent and independent variables and significant variables (p-value less than 0.2) were entered into multivariate analysis and Adjusted Odds Ratio (AOR) was seen to check confounding factors. A 95% confidence level and a p-value of less than 0.05 were considered to get statistically significant [4-8].

Results

Socio-demographic characteristics

A total of 399 women were enrolled in this study with a response rate of 98.8% with a minimum age of the respondents were 17 and maximum age of 40 years with the mean age of 27.89 ± 4.72 years. The majority of them were orthodox in religion 241 (60.4%) and 376 (94.2%) were married. The educational status of the respondents, 99 (24.8%) were high school. Educational status and occupational status of the respondents' husband, 120 (31.9%) were college or university and 114 (30.5%) were merchant respectively [9]. In their occupational status of the majority of respondents 204 (51.1%) were house wife. Two hundred three (50.9%) were heard about physical activity during pregnancy. The main source of their information was health care provider. Majority of respondents 222 (55.6%) hadn't done physical activity before becoming pregnant (**Table 1**).

	High school	99	24.8
	College or university	84	21.1
Educational status of husband (N=376)	Illiterate	24	6.4
	Reading and writing	40	10.6
	Elementary	74	19.7
	High school	118	31.4
	College or university	120	31.9
Occupation	Government employee	72	18
	House wife	204	51.1
	Private business	94	23.6
	Employed in NGO	26	6.5
	Others	3	0.8
Occupation of husband (N=376)	Government employee	107	28.5
	Merchant	114	30.3
	Daily worker	99	26.3
	Driver	22	5.9
	Private work	21	5.6
	Others	13	3.5
Ethnicity	Oromo	168	42.1
	Amhara	129	32.3
	Tigre	59	14.8
	Gurage	14	3.6
	Silte	11	2.8
	Others	18	4.5
Average monthly income	<2000	65	16.3
	≥ 2000	334	83.7

Obstetrical characteristics

Majority of the respondents 246 (61.7%) were multigravida and 130 women were primiparas. Forty six (11.6%) of respondents had history of abortion. One hundred fourthly six respondents had one child and 151 (37.4%) of the participants of gestational age were four up to six months [9,10].

Knowledge and attitude towards physical activity during pregnancy

The overall poor knowledge and unfavorable attitude towards

antenatal physical activity among pregnant women attending antenatal care at public health institutions in Akaki-Kality sub city was found to be 43.9% and 52.6% respectively.

About 315 (78.9%), 271 (68%) and 244 (61.2%) of respondents not know about poorly controlled GDM, preeclampsia, reduce risk GDM, respectively. Fifty four (13.5%) respondents were thought physical activity is not necessary and 120 (30.1%) felt physical activity during pregnancy is risky for the fetus [11].

Factors affecting knowledge and attitude towards physical activity during pregnancy

Heard about physical activity during pregnancy were affect the knowledge of the respondent. Those, who did not heard had 2.83 times poor knowledge than those who heard with AOR=(2.828, 95% CI (1.268, 6.308)). Respondents those who have not

ever done had 4.02 times poor knowledge than those who ever done with AOR=(4.020, 95% CI (1.686, 9.587)) and also pregnant women those who have unfavorable attitude about physical activity had 5.3 times poor knowledge than those who have favorable attitude with A OR=(5.297, 95% CI (2.380,11.788)) (Table 2).

Table 2: Bivariate and multivariate analysis of determinant for knowledge of physical activity during pregnancy among pregnant women at public health institutions Akaki-Kality sub city, Addis Ababa, Ethiopia, 2019.

Variables	Poor knowledge	Good knowledge	COR (CI 95%)	AOR (CI 95%)
Income level				
<2000ETB	21 (32.3 %)	44 (67.7%)	0.558 (0.318, 0.979)	0.583 (0.182, 1.867)
≥ 2000ETB	154 (46.1%)	180 (53.9%)	1	1
Occupation				
Government employee	23 (31.9%)	49 (68.1%)	1	1
House wife	89 (43.6%)	115 (56.4%)	1.649 (0.935, 2.908)	0.356 (0.079, 1.603)
Private business	47 (50%)	47 (50%)	2.130 (1.124, 4.038)	0.267 (0.056, 1.277)
Employee at NGO	14 (53.8%)	12 (46.2%)	2.486 (0.994, 6.215)	1.573 (0.246, 10.044)
Others	2 (66.7%)	1 (33.3%)	4.261 (0.367, 49.428)	
Occupational status of the husband				
Government employee	34 (31.8%)	73 (68.2%)	1	1
Merchant	45 (39.5%)	69 (60.5%)	1.40 (0.805, 2.436)	1.073 (0.333, 3.459)
Daily worker	60 (60.6%)	39 (39.4%)	3.303 (1.863, 5.857)	4.071 (0.949, 17.457)
Driver	6 (27.3%)	16 (72.7%)	0.805 (0.290, 2.239)	1.116 (0.145, 8.595)
Private business	8 (38.1%)	13 (61.9%)	1.321 (0.501, 3.486)	0.788 (0.141, 4.394)
Other	8 (61.5%)	5 (38.5%)	3.435 (1.046, 11.283)	2.277 (0.041, 125.220)

Educational status				
Illiterate	33 (43.4%)	43 (56.6%)	1.919 (0.996, 3.696)	1.229 (0.197, 7.655)
Reading and writing	33 (55.0%)	27 (45.0%)	3.056 (1.525, 6.121)	3.236 (0.661, 15.836)
Elementary	41 (51.3%)	39 (48.8%)	2.628 (1.379, 5.010)	1.736 (0.366, 8.230)
High school	44 (44.4%)	55 (55.6%)	2.000 (1.079, 3.708)	3.767 (0.803, 17.664)
College or university	24 (28.6%)	60 (71.4%)	1	1
Educational status of the husband				
Illiterate	19 (79.2%)	5 (20.8%)	7.057 (2.459, 20.250)	2.125 (0.295, 15.283)
Reading and writing	25 (62.5%)	15 (37.5%)	3.095 (1.474, 6.500)	2.586 (0.556, 12.022)
Elementary	37 (50.0%)	37 (50.0%)	1.857 (1.029, 3.351)	0.873 (0.221, 3.445)
High school	38 (32.2%)	80 (67.8%)	1.882 (0.515, 1.511)	0.583 (0.179, 1.894)
College or university	42 (35.0%)	78 (65.0%)	1	1
Heard about physical activity				
Yes	53 (26.1%)	150 (73.9%)	1	1
No	122 (62.2%)	74 (37.8%)	4.666 (3.047, 7.144)	2.828 (1.268, 6.308)*
Ever done physical activity before pregnancy				
Yes	55 (32.4%)	115 (67.6%)	1	1
No	120 (52.4%)	109 (47.6%)	2.302 (1.523, 3.479)	4.020 (1.686, 9.587)*
Abortion				
Yes	18 (39.1%)	28 (60.9%)	0.636 (0.331, 1.225)	0.847 (0.291, 2.464)
No	99 (50.3%)	98 (49.7%)	1	1
Gravidity				
Primigravida	57 (37.3%)	96 (62.7%)	0.644 (0.426, 0.973)	
Multigravida	118 (48.0%)	128 (52.0%)	1	

Parity				
Primipara	58 (44.6%)	72 (55.4%)	0.701 (0.416, 01.182)	1.045 (0.507, 2.154)
Multipara	54 (53.5%)	47 (46.5%)	1	1
Attitude				
Favorable	47 (24.9%)	142 (75.1%)	1	1
Unfavorable	128 (61.0%)	82 (39.0)	4.716 (3.065, 7.256)	5.297 (2.380, 11.788)*

Note *=Statically significant variable at *p=0.05

Multivariate analysis showed that ever heard about physical activity during pregnancy, ever done before pregnancy, knowledge about physical activity during pregnancy, and gravidity of pregnant women had significant association about the attitude towards physical activity [12]. Respondents who had poor knowledge had 6.26 times unfavorable attitude than those who had good knowledge about physical activity with AOR=(6.264, 95%CI (3.489, 11.245)), respondents who were

primigravida and who did not ever done physical activity before pregnancy had 45.6% and 79.4% less likely unfavorable attitude than those who are multigravida and ever done with AOR=(0.54495%CI (0.319,0.928)) and (0.206 95%CI (0.112,0.376)) respectively. Heard about physical activity during pregnancy were affect the attitude towards physical activity. Those, who did not heard had 2.94 times unfavorable attitude than those who heard with AOR=(2.943, 95% CI (1.618, 5.351)) (Table3).

Table 3: Bivariate and multivariate analysis of determinant for attitude towards physical activity during pregnancy among pregnant women at public health institutions Akaki-kality sub city, Addis Ababa, Ethiopia, 2019.

Variables	Unfavorable	Favorable attitude	COR (95%)	AOR (95%)
Occupation				
Government employee	31 (43.1%)	41 (56.9%)	1	1
House wife	121 (59.3%)	83 (40.7%)	1.928 (1.119, 3.321)	1.668 (0.699, 3.983)
Private business	39 (41.5%)	55 (58.5%)	0.938 (0.504, 0.746)	0.812 (0.323, 2.040)
Employed in NGO	18 (69.2%)	8 (30.8%)	2.976 (1.146, 7.730)	1.776 (0.518, 6.097)
Others	1 (33.3%)	2 (66.7%)	0.661 (0.057, 7.628)	1.153 (0.056, 23.905)
Occupational status of the husband				
Government employee	54 (50.5%)	53 (49.5%)	1	1
Merchant	48 (42.1%)	66 (57.9%)	0.714 (0.420, 1.214)	0.435 (0.196, 0.964)
Daily worker	66 (66.7%)	33 (33.3%)	1.963 (1.117, 3.451)	0.803 (0.319, 2.020)
Driver	8 (36.4%)	14 (63.6%)	0.561 (0.217, 1.447)	0.669 (0.204, 2.188)
Private business	12 (57.1%)	9 (42.9%)	1.309 (0.509, 3.363)	0.689 (0.213, 2.222)
Other	6 (46.2%)	7 (53.8%)	0.841 (0.265, 2.669)	0.448 (0.108, 1.865)
Educational status				
Illiterate	51 (67.1%)	25 (32.9%)	3.000 (1.571, 5.730)	2.390 (0.846, 6.755)

Reading and writing	29 (48.3%)	31 (51.7%)	1.376 (0.705, 2.683)	1.075 (0.392, 2.946)
Elementary	40 (50%)	40 (50%)	1.471 (0.793, 2.728)	1.109 (0.406, 3.025)
High school	56 (56.6%)	43 (43.4%)	1.915 (1.062, 3.454)	1.255 (0.511, 3.083)
College or university	34 (40.5%)	50 (59.5%)	1	1
Educational status of the husband				
Illiterate	21 (87.5%)	3 (12.5%)	7.483 (2.119, 26.422)	2.297 (0.461, 11.451)
Reading and writing	20 (50%)	20 (50%)	1.069 (0.523, 2.187)	0.728 (0.246, 2.150)
Elementary	33 (44.6%)	41 (55.4%)	0.860 (0.481, 1.539)	0.702 (0.285, 1.728)
High school	62 (52.5%)	56 (47.5%)	1.183 (0.712, 1.968)	1.629 (0.773, 3.432)
College or university	58 (48.3%)	62 (51.7%)	1	1
Heard about physical activity				
Yes	85 (41.9%)	118 (58.1%)	1	1
No	125 (62.8%)	71 (36.2%)	2.444 (1.633, 3.658)	2.943 (1.618, 5.351)*
Ever done physical activity before pregnancy				
Yes	108 (63.5%)	62 (36.5%)	1	1
No	102 (44.5%)	127 (55.5%)	0.461 (0.307, 0.692)	0.206 (0.112, 0.376)*
Gravidity				
Primigravida	72 (47.1%)	81 (52.9%)	0.696 (0.464, 1.043)	0.544 (0.319, 0.928)*
Multigravida	138 (56.1%)	108 (43.9)	1	1
Knowledge				
Good	82 (36.6%)	142 (63.4%)	1	1
Poor	128 (73.1%)	47 (26.9%)	4.716 (3.065, 7.256)	6.264 (3.489, 11.245)*
Note: *Statically significant variable at *p=0.05				

Discussion

This study was conducted with the aim of assessing the knowledge, attitude and associated factors of physical activity among pregnant women in Akaki-Kality sub city, Addis Ababa, Ethiopia. The present study revealed that 175 (43.9%) respondents had poor knowledge about physical activity during pregnancy [13,14]. This study comparable to a study conducted in Nigeria 47.6% of respondents had poor knowledge. And also higher than study conducted in Saud Arabia 30.5% and Brazil 34.4% of respondents had poor knowledge. However, this study lower than the result reported in Kirkos sub city Addis Ababa that showed that 56.6% of respondents had poor knowledge.

This incongruity may be due to different factors like of the educational status of the respondents, experience of physical activity and respondents ever heard about physical activity [15]. The attitude of the respondents towards physical activity during pregnancy this study showed that 52.6% had unfavorable attitude. This study is almost comparable to the study results that are reported in India showed that 49% of the respondents had unfavorable attitude.

Similarly another study conducted in Kirkos sub city showed 47.9 % had unfavorable attitude. Nevertheless, this study result was higher than study conducted in Colombo 15.4% and study conducted in Nigeria showed that 15.8% of the respondents had unfavorable attitude.

This variation is may be due to the difference in Socio-demographic characteristic of the study subjects [16].

Ever done physical activity before pregnancy and heard about physical activity during pregnancy were significantly affect their attitude and knowledge about physical activity during pregnancy. Respondents those who had not done before pregnancy had more likely poor knowledge about physical activity during pregnancy than those who ever done. And also respondents who had not heard about physical activity had more likely poor knowledge than those who heard. This study finding supported by the study conducted in kirkos sub city in Addis Ababa.

There was a significant association between attitude and knowledge. Respondents those who have unfavorable attitude 5.297 times poor knowledge and those who had poor knowledge have 6.264 times unfavorable attitude with $AOR=(5.29795\% \text{ CI } (2.380, 11.788))$ and $AOR=(6.264, 95\% \text{ CI } (3.489, 11.245))$ respectively. This finding is similar to the study conducted in Nigeria and Kirkos sub-city, Addis Ababa [17,18].

The attitude of the respondents were affected by ever done physical activity before pregnancy, number of pregnancy, ever heard about physical activity and knowledge of physical activity. Respondents those who did not do physical activity before pregnancy were 79.4% of less likely to have unfavorable attitude than those who ever done with $AOR=(0.206, 95\% \text{ CI } (0.112, 0.376))$. This is the inverse of other studies. This is may be due to the income level of the respondents in this study which shows that no ever done physical activity before pregnancy have higher income than not ever done. Respondents those who had not ever heard about physical activity and have poor knowledge about physical activity during pregnancy their attitude is more likely unfavorable with $AOR=(2.943, 95\% \text{ CI } (1.618, 5.351))$ And also gravidity had significant association on the attitude of the respondents towards physical activity with $AOR=(0.544, 95\% \text{ CI } (0.319, 0.928))$. Primigravida mothers 79.4% less likely have unfavorable than multigravidas. So number of pregnancy and attitude has negatively association. This result is contrast with a study conducted in Zambia.

Conclusion

The present study revealed that 43.9% and 52.6% of the pregnant women attending ANC at public health institutions in Akaki sub city had poor knowledge and unfavorable attitude respectively. This indicates the knowledge and attitude of the pregnant women were less about physical activity.

Heard about physical activity, ever done before pregnancy and their attitude towards physical activity are associated factors for their knowledge. Heard about physical activity, ever done before pregnancy, gravidity and their knowledge about physical activity are associated factors for the attitude towards physical activity during pregnancy.

Recommendation

The FMOH should design policies, programs and guidelines and give for all health institutions to teach about the benefit and the contraindication of physical activity during pregnancy. Health professionals teach the pregnant women about antenatal physical activity based on the guidelines at health institutions.

Limitations

The study design was cross sectional study design which cannot identify clearly the temporal relationship between cause and effect. The study did not include private health institutions and not supported by qualitative study.

Ethical Considerations

Ethical clearance was given from Debre Berhan University, College of health sciences research committee. Researchers were explained the objectives of the study and the information was collected from study participants remain confidential. All the study participants were informed verbally on the purpose before interviewed and, as there is no direct benefit of the study. In addition to this, for the participants it was not have any potential risks, participants have the right to refuse at any time, and there is no discrimination among participants.

Consent for Publication

Not applicable.

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing Interests

The authors declare as there are no conflicts of interest.

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There was no funding or sponsoring organization in this paper.

Authors' Contributions

SA, YM, GE, ID and AG conceived and designed the study, identify the study, extract the data, analyzed the data and wrote the manuscript. All authors of this original manuscript authorized the final version of the manuscript, and read and approved the final manuscript.

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