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Household chores as the main source of physical activity: Perspectives of pregnant Pakistani women

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Abstract

Objective: To understand the level of physical activity in pregnant women and to identify perceived facilitators and barriers faced by them.

Methods: This cross-sectional study was conducted from January to June 2016 at Aga Khan Maternity and Child Care Centre, Hyderabad, Pakistan, and comprised pregnant women attending the antenatal clinics. They were administered the pregnancy physical activity questionnaire while additional questions were asked to assess perceived barriers and facilitators in pregnancy. SPSS 19 was used for data analysis.

Results: Of the 455 subjects, 179(36%) were physically active. Their median metabolic equivalent of task hours per week was 14.65 (interquartile range=0-105.8). The overall mean age of subjects was 26±4.47 years, while the mean gestational age was 24±10 weeks. Household activity had a strong positive correlation with total activity ($p<0.05$). Reported barriers included lack of energy and lack of information regarding benefits of physical activity, and facilitators included support from family and affordable facilities in the area of residence.

Conclusion: Majority of the pregnant women failed to meet the daily recommendations for physical activity..

Keywords: Physical activity, Pregnancy, Health behaviour. (JPMA 68: 565; 2018)

Introduction

Guidelines from the American College of Obstetricians and Gynaecologists (ACOG) and Centre for Disease Control and Prevention (CDC) recommend that pregnant women without any medical or obstetrical complications may safely engage in ≥ 30 minutes of moderate physical activity (PA) on most, if not all, days of the week.¹ Moderate PA during pregnancy is beneficial for both mother and foetus.²

Despite these benefits, low prevalence of PA during pregnancy can be observed in both the developing and the developed world.² In the US, only 16% of pregnant women comply with the current recommendations for PA compared to 26% of non-pregnant women.³ Similar trends were seen in Ireland where it was estimated that only 21.5% women met the current ACOG guidelines for exercise in pregnancy.⁴ Project Viva reported that PA declined during pregnancy by 2.7 hours/week which persisted to some extent (1.4 hours/week) at 6 months postpartum.⁵

Besides looking at the intensity of PA, it is also important to assess the domains of PA which are main contributors towards this healthy behaviour. The domains include household/care-giving activities, occupational activity, transportation and leisure time activity, including sports

and exercise.⁶ It has been reported that participation in all PA domains decreased in pregnant Latino women with the largest decrease in occupational and leisure time activity while the smallest decrease was seen in household/care-giving activities.⁷ Leisure time PA is seen to be lower in pregnant than in non-pregnant women of the same age group.⁸ In Pakistan, there is lack of estimates available for PA in pregnant women and the contribution of the various domains towards this behaviour. The World Health Survey conducted by the World Health Organisation (WHO) assessed PA in adults aged 18-69 years using International PA Questionnaire short form (IPAQ-S) in 38 countries from 2002 to 2005.⁹ Findings suggested that 45% of men were involved in moderate PA compared to 30% of women.⁹ The INTERHEART study reported that in low-income countries like Pakistan, 69% of the population was mainly sedentary while only 7% were moderate to vigorously active.¹⁰ Similar results were seen from the Control of Blood Pressure and Risk Attenuation (COBRA) Trial, Karachi, where only 34% of the study population met PA guidelines.¹¹ Hence, it would be fair to conclude that the physical inactivity seen in our general population may likely persist during pregnancy as well.

It is believed that the low prevalence of PA in pregnant women seen globally may be due to several underlying factors which influence this behaviour.¹² The Pregnancy, Infection and Nutrition (PIN) study reported low energy, shortness of breath, back pain, lack of motivation and

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time, and fear of harm to the baby as some of the intrapersonal barriers.¹³ Facilitators of PA during pregnancy have been identified as social support from family and friends, motivation to participate in PA as well as information provided by healthcare professionals.¹² Locally, a study conducted on obese individuals reported similar barriers to participating in PA.¹⁴ However, there is lack of data that looks at pregnant women's perception regarding this behaviour in our population.

The current study was planned to assess the total and main contributing domains of PA along with barriers and facilitators faced by Pakistani pregnant women.

Subjects and Methods

This cross-sectional study was conducted from January to June 2016 at Aga Khan Maternity and Child Care Centre (AKMCCC), Hyderabad, Pakistan, and comprised pregnant women attending the antenatal clinics.

Established in 1989, AKMCCC is an 87-bed secondary level maternity facility offering quality and cost-effective healthcare. The average number of pregnant women seen in the antenatal clinics each month is around 300 and approximately 4000 deliveries are performed at the centre each year.

Sample size for the study was calculated using WHO sample size calculator version 2.0.¹⁵ and with a prevalence of 16% PA in pregnant women,³ power of 80%, bond of error 5% and 5% alpha. After getting approval from the ethics review committee of Aga Khan University, Karachi, pregnant women with a singleton pregnancy without any contra-indications to PA in pregnancy were included and written informed consent was obtained from them.

Pregnancy Physical Activity Questionnaire (PPAQ) was used for data collection. It is a validated, reliable and reasonably accurate tool that can be used to determine the frequency, duration and intensity of PA during pregnancy.¹⁶ PPAQ requires participants to select the category that best approximates the amount of time spent in 32 activities which are grouped under household/care-giving, occupational, sports/exercise, and inactivity during the current trimester. At the end, an open-ended section allows the respondents to add activities not already listed. The PPAQ scoring guide was used to calculate the duration and intensity of each activity in Metabolic Equivalent of Task (MET)-hours per week.¹⁶ All activities were divided into the following categories for intensity: total activity, sedentary activity, light intensity activity, moderate intensity activity and vigorous intensity activity along with the above-mentioned domains. The MET value for moderate

intensity physical activity is defined as >3.0 and <6.0 MET-hours/week.¹⁷ Hence, those who achieved >7.5 MET-hrs/week were considered to be physically active. The questionnaire asked the respondents to report the time spent on PA domains.¹⁶ Moderate to high reproducibility of 0.78 was observed for the questionnaire, while correlation between PPAQ and Actigraph was 0.27 for total activity.¹⁶ A simpler and shorter questionnaire (4 questions pertaining to work and leisure time PA) which has been used in the INTERHEART study to assess PA, was also used.¹⁰

A thorough literature search was conducted to identify studies that assessed facilitators and barriers to PA in pregnancy. Due to lack of local literature on this topic, barriers and facilitators to PA in general were also identified. Based on the available literature, questions were formed by the study investigators to help meet the objectives. Responses to each question were recorded as the following options: yes, no, maybe and not applicable.

Median MET minutes for each category of light, moderate and vigorous intensity PA was recorded. Multivariate logistic regression was used to adjust for confounders such as age, gestational age, education and occupational status of women that may influence PA. The Median MET minutes in each PA domain as a contributor to total activity per day was reported. Spearman correlation coefficient for PA domains compared to total activity was also recorded. SPSS 19 was used for data analysis.

Results

There were subjects with a mean age of 26±4.47 years, and a mean gestational age of 24±10 weeks. Overall, 403(88.5%) were housewives and 15(3.4%) were professionals. The median household income was Rs.40,000 (interquartile range [IQR]: Rs28,000-50,000) (US\$ 376) (Table-1). Besides, 179(36%) of the pregnant subjects were physically active.

All PA intensities were significantly different between

Table-1: Demographics of the participants.

Variables (N = 455)	Mean (± SD)
Mean Age (years)	26.66±4.47
Mean Gestational age (weeks)	24±10.1
Mean Number of live births	1.8±0.96
Mean Weight at first antenatal visit (kg)	63.4±10.9
Mean Height (cm)	151±11.7
Mean Education (no. of years)	10.5±2.96
Household income*	Rs 40,000 (28,000-50,000)

*Median and interquartile range has been reported.

SD: Standard deviation.

Table-2: Reported Physical Activity according to intensity (MET-hours/week).

Physical Activity Intensity	Median (IQR) in physically active women (n=179)	Median (IQR) physically inactive women (n=276)	p-value
Total Activity	59.6 (23.1-200)	38.1 (8.75-139.54)	<0.001
Sedentary Activity	10.7 (0.0-56.8)	17.33 (1.75-48.83)	0.006
Light intensity activity	28.36 (0.0-178.5)	19.26 (0.0-124.78)	<0.001
Moderate intensity activity	14.65 (0.0-105.8)	0.8 (0.0-7.8)	<0.001
Vigorous intensity activity	0	0	-

*Mann Whitney test applied

IQR: Interquartile range

MET: Metabolic equivalent of task.

Table-3: Reported Physical Activity (PA) according to domain (MET-hours/week).

	Total PA Tertile 1	Total PA Tertile 2	Total PA Tertile 3	Total PA Tertile 4
Household PA, median (IQR)	13.13 (0.0-29.76)	25.29 (4.38-39.73)	35.8 (13.13-58.81)	58.8 (0.0-183.75)
Exercise PA, median (IQR)	0.4 (0.0-7.28)	0.8 (0.0-9.75)	0.8 (0.0-10.83)	0.8 (0.0-29.1)
Occupational PA, median (IQR)	0.0 (0.0-0.0)	0.0 (0.0-14.0)	0.0 (0.0-19.25)	0.0 (0.0-55.48)

IQR: Interquartile range

MET: Metabolic equivalent of task.

women who were physically active and those who were not (Table-2). In terms of PA domains, household activity contributed the most to total activity median MET-hrs/week. Occupational activity and exercise/sports related PA median MET-hours/week were negligible ($p>0.05$). There was a strong, positive correlation between household activity and total activity per day which was statistically significant ($p<0.001$). However, the correlation between exercise activity and total activity per day was weak ($p<0.001$) (Table-3).

Household income of <Rs40,000 (US\$ 376) was significantly associated with moderate to vigorous physical activity ($p=0.004$) at the uni-variate level. However, none of the variables, including age, gestational age, educational status or occupation were significantly associated with total PA during multivariate analysis ($p>0.05$).

Overall, 391(86%) reported mainly sedentary activities (e.g. watching TV, sitting etc.) during their leisure time while only 14(3%) women dedicated 0-30 minutes per day to sports or exercise. For those women who worked, 241(53%) were predominantly walking at one level while the remaining were mainly involved in sedentary activities.

The commonly perceived intra-personal barriers to physical activity included somatic complaints such as muscle aches, feeling of tiredness and shortness of breath. Inter-personal barriers included lack of support

from friends and safety concerns while lack of access to facilities was a commonly reported environmental barrier. Perceptions such as PA being a selfish act or a behaviour that may harm the baby was reported by <10% of participants.

The commonly reported facilitators to physical activity were support from family, walking partners and affordable facilities to engage in this behaviour. One of the important aspects that emerged from these questions was that pregnant women felt that they did not have enough information regarding the importance of physical activity during pregnancy. Further, they believed that having more information would act as a facilitator to engage in this healthy behaviour.

Discussion

To the best of our knowledge, this is the first Pakistani study that describes PA status in pregnant women, the domains contributing to PA along with its perceived barriers and facilitators. According to the results, only 36% of women engaged in moderate PA during pregnancy. However, this percentage is higher than that reported from developed countries such as the US (16%)³ and Ireland (21%).⁴ The PIN study in North Carolina reported that 15.8% of pregnant women met PA guidelines.¹⁸

Household activity contributed to the majority of the moderate PA METs. The main chore reported by pregnant women in these activities was taking care of an elderly. Pakistan is the sixth most populous country in the world

and is among one of the top 15 countries where people over 60 are more than 10 million.¹⁹ Currently, 6.5% of the total population of Pakistan is over 60 years old and this percentage is expected to rise to 16% by 2050.²⁰ These reports clearly reveal the burden of ageing population in Pakistan. Further, since families living in peri-urban cities like Hyderabad, they mostly live in joint family systems where the women of the family are expected to do household chores, including elderly care. Hence, these contributed significantly to PA. This has also been reported in other studies where household/ care-giving activity was the largest contributor to both total and combined moderate and vigorous intensity energy expenditure during pregnancy.^{18,21} Most moderate intensity activities reported by women include household chores, child-care, gardening etc which are performed on most days of the week throughout the year and hence are major contributors towards PA in women.²² It is likely that women with relatively low socio-economic status (such as in our study population) would not have domestic help available and hence have to perform all household chores themselves despite being pregnant. Since leisure time and occupational PA is known to decrease during pregnancy,⁷ participation in household chores and care-giving activities related to children and other family members should be encouraged to avoid sedentary behaviour during this period.

When using the questions from INTERHEART study,¹⁰ mild exercise such as yoga and easy walking during pregnancy was reported by 6% participants. However, 86% participants reported to be mainly sedentary. This figure is quite different from foreign data where leisure time PA was reported to be 13% in Brazilian pregnant women.⁸ For those women who worked, 53% were predominantly walking at one level while 47% were mainly involved in sedentary activities. This finding is similar to other studies where it was seen that most women continued working during pregnancy and had sedentary jobs with no or fairly low activity that was reported.¹⁸

Understanding the perception of facilitators and barriers to PA in pregnancy is important for future development of health education programmes¹² Evenson et al. have used the socio-ecological framework to explore factors that may affect physical activity in pregnant women.¹³ These include intra-personal, inter-personal, environmental and policy factors.¹³ The commonly reported perceived intra-personal barriers to PA included somatic complaints such as back pain, fatigue and low energy. These factors were similar to other international studies.^{12,13} However, unlike these studies, lack of time and motivation was only reported by 10% participants.

Inter-personal barriers included lack of support from friends and safety concerns. Lack of social support from family was reported by only 10% participants. This is contrary to earlier studies where it has been suggested that women's PA should be limited during pregnancy.²³ Lack of access to resources and facilities was a commonly reported environmental barrier in our study as well as others reported from Latino minority women.¹²

One of the important factors reported by a number of participants was lack of information regarding the benefits of PA. It was also reported that having more information regarding benefits of PA may help promote this behaviour. Similar concerns have been reported in other studies as well.^{12,23}

This study has a few limitations. Firstly, although PPAQ is validated in other countries, it has not been validated in Pakistan. Further, hospital studies do have an inherent bias that people seeking care may have different socio-economic backgrounds, knowledge and practices that may influence the results in a positive manner. However, AKMCCC Hyderabad is a centre that caters to low middle income as well upper income population.²⁴ Hence, the results may be generalisable to a wider range of Pakistani pregnant females.

Conclusion

Majority of pregnant women did not meet PA guidelines. For those who were physically active, daily house chores played a significant role in contributing to the MET-hours/week rather than leisure time physical activity or structured exercise. Facilitators and barriers have been identified that may help design future intervention programmes targeted to increase PA during pregnancy.

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Conflict of Interest: None.

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