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Differences of Domain-specific Physical Activity Levels among the Adults of Majha Region of Indian Punjab: A Cross-sectional Study

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ABSTRACT

Background: Regular participation in physical activity is essential to attain health benefits. Previous studies have stressed to consider domains of physical activity while assessing the physical activity levels across the different sections of the populations.

Objective: To assess the differences in physical activity levels between males and females of the Majha region of Indian Punjab.

Methods: A cross-sectional survey was conducted including the four districts of the Majha region of Indian Punjab. A total of 1130 participants including 628 females and 502 males were interviewed using the WHO-recommended Global Physical activity questionnaire (GPAQ). Physical activity was assessed in three domains viz. work, transport and recreational. Mann-Whitney U test was applied to compare the non-parametric data of physical activity levels.

Results: No significant differences were found in the work domain and transport domain in any of the age group. However, the age group of 53-64 years and the overall sample showed significant differences between both genders ($p < .05$).

Conclusion: Males of the age group 53-64 years had higher levels of total physical activity and recreational activity than females.

Key Words: GPAQ, Recreation, Work, Transport, WHO, Domain

INTRODUCTION

Research has shown that regular physical activity (PA) engagement harvests multiple physical and mental health gains.¹ Earlier studies have outlined various factors that affect participation in physical activity such as age, gender, socioeconomic status, residence, job nature, health status, self-efficacy, and many more.^{2,3} Of these, gender is one such factor that has been consistently remained a determinant of participation in physical activity.⁴ A large body of literature reports that males engage more in physical activity than females.⁵ Psycho-social factors such as self-efficacy, social support, and motivation are the dominant determinants of females' less participation in physical activity.⁵

Studies in developed nations have assessed the differences in physical activity levels and patterns concerning age and gender among youngsters. A survey conducted by The Health

and Behaviour of School Children (HBSC) in twenty European nations indicated that engagement in physical activity decreases with age, and females had less physical activity levels than males.⁶ As per the previous research, males have lifelong higher physical activity levels than females.⁷ Following the literature review, we hypothesized significant gender differences in physical activity levels in all age groups. We conducted this study to assess the gender differences of domain-specific physical activity levels among the different age groups.

MATERIALS AND METHODS

Study design and participants

The study design was cross-sectional. The participants were 1130 adult participants constituting 628 females and 502

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males from the four districts (Amritsar, Gurdaspur, Tarn Taran, and Pathankot) of the Majha region of Indian Punjab. The age ranged from 18-64 years, which was further classified into different intervals, viz. 18-29, 30-40, 41-52 and 53-64 years.

Data collection

The WHO recommended Global Physical Activity Questionnaire (GPAQ) was used to collect data. The GPAQ consists of 15 items that ask the respondents to report moderate and vigorous-intensity physical activities performed in three domains, viz. work domain, transport domain, and recreational domain.^{10,18} The questionnaire derives the metabolic equivalents of task (MET-minutes/week) during a typical week. MET (Metabolic equivalent of task) is the fraction of an individual's working metabolic rate relative to their metabolic rate while at rest.¹⁶ The GPAQ also includes one item of sedentary behaviour, but it was not considered in the analyses.¹⁰ The data cleaning, coding and processing was done as per the manual of GPAQ.¹⁹ The students of Master of Physical Education acted as interviewers under the supervision of the principal investigator. A pilot test on 20 subjects tested the data reliability by correlating the data derived by the interviewers against the data derived by the principal investigator.

Ethical approval and consent

The study was approved by the Board of Control (BOC) of Faculty of Physical Education (T), Guru Nanak Dev University, Amritsar (Letter no. 1150-52/Gen/Ph.D dated 23/09/15). The informed consent was taken from all the participants before the data collection.

Statistical Analyses

IBM SPSS version 21 was utilized to analyze the data. The normality of data was tested with the Kolmogorov-Smirnov and Shapiro-Wilk tests. Since the data were not normally distributed, comparisons of the physical activity levels between genders were made by running the Mann-Whitney U test for non-parametric data. The comparisons were made for each age interval and overall sample in three different domains of physical activity. The alpha level was set at .05 level in all analyses.

RESULTS

Of the total participants, 502 (44.42%) were males. Results of gender differences of MET minutes/week in the work domain are presented in table 1. Mann-Whitney test revealed that no significant differences existed between both genders in the work domain PA in any of the age group.

Table 2 outlines the results of gender differences of MET minutes/week in the transport domain. The p-value of each

age group ($p > .05$) exhibited that differences in PA were not significant between males and females.

Table 3 outlines the results of gender differences of MET minutes/week in the recreation domain. No significant differences were found in the age group of 18-29, 30-40 and 41-52 years. However, in the age group of 53-64, the mean ranks of males and females were 107.68 and 93.33 respectively. The p-value of .023* ($p < .05$) showed that there were significant differences in PA between males and females in this age group. In the 18-64 age group (overall), the mean ranks of males and females were 584.44 and 550.36 respectively. The p-value of .018* ($p < .05$) exhibited that males and females significantly differed on recreation-related PA in the overall sample. Comparing the mean ranks, it can be interpreted that males were found more engaged in recreation-related physical activity than females in the age group of 53-64 years and 18-64 years group (overall sample).

DISCUSSION

This study aimed to assess the differences in domain-specific physical activity levels of adults of the Majha region of Indian Punjab. Previous research has stressed to consider the domains of physical activity in physical activity surveillance studies.¹¹ In this study, the three domains of physical activity were separately assessed for gender differences.

In our study, both males and females of all ages had equal physical activity levels in the work and transport domain; however, in the recreation domain, males showed more engagement in physical activity than females. In the overall sample, males were found to be statistically more engaged in physical activity than their counterpart females. Furthermore, differences were observed in the 53-64 years age group as males were more active in recreation and total physical activity. Although females of the age group 41-52 years showed better physical activity engagement than males in the work domain, the variation could not achieve statistical significance. Similarly, males of age group 30-40 years had higher mean ranks of physical activity than females; however, these differences could not attain statistical significance.

A similar study differentiated the PA levels in males and females and reported that females achieved 3365 MET-minutes/week, significantly lesser than 3863 MET-minutes/week attained by males.⁹ A study on university students reported that males had more participation in leisure and sport physical activity than females, whereas no significant gender differences were found in work, transportation, and domestic domains.¹² Another study on rural sample conveyed that physical activity participation was least during leisure time and in the work domain while higher in the transport domain.¹⁴ A different study on urban and rural Indian residents informed that inactivity was higher during leisure and recre-

ation time by 74% and lower in work time by 31%.¹³ Another study by Talaei et al. (2013)¹⁵ reported that men were more active than women in PA domains. Another study by Bergier et al. (2014)¹⁶ discovered that females were more engaged in household physical activity, whereas males were more active in occupational and leisure-time physical activity. An earlier study on the English population established that retired people of age more than 65-years have more engagement in total physical activity.¹⁷ Our results about the eldest age (53-64 years) confirm their findings as we also found gender differences in recreational and total PA, establishing that males are more active than females.

We had hypothesized that there would be significant differences in physical activity in all age groups. However, results confirmed that our hypotheses stand rejected in all age groups' work domain and transport domain. Our hypotheses were rejected for 18-29, 30-40- and 41-52-years age groups in the recreational domain and total PA, whereas it stands accepted for the age group of 53-64 years.

This study has a few limitations. At first, the sample was not randomly selected, which may have reduced the research's objectivity. Secondly, no objective method, such as accelerometer, pedometers, or heart monitors, were used to measure physical activity. The data collected through the questionnaire might be prone to over-reporting or underreporting. Thirdly, recall bias could also limit the responses of the participants. Despite having limitations, this study adds to our knowledge about the changing patterns of physical activity levels among the different sections of the population.

CONCLUSION

Both males and females of all age groups reported equal physical activity levels in the work domain and transport domain. However, males of age group 53-64 years showed higher engagement in physical activity than females in the recreation domain only. Changing trends in activity patterns due to the transition from agrarian to industrialist society causes a reduction in overall physical activity levels among the Punjabi population. Technology could be one possible disruptive force that could affect the activity patterns in developing countries like India. More robust policy interventions are required to address future disruptions in physical activity patterns. In future studies, larger and more systematic data collection strategies should be devised to reach a more diverse population, for example, by considering rural and urban populations.

Conflict of Interest: None declared

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Author Contribution

Conceptualization: HS, AS, SS; **Methodology:** HS, AS, VK; **Data collection:** HS, VK, TS, AS; **Formal analysis and investigation:** HS, VK; **Writing - original draft preparation:** HS, AS; **Writing - review and editing:** HS, SS, AS, **Supervision:** SS&AS

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REFERENCES

1. World Health Organization. Physical Activity. Fact Sheets. 2018 Feb. https://www.who.int/health-topics/physical-activity#tab=tab_1.
2. Seefeldt V, Malina RM, Clark MA. Factors affecting levels of physical activity in adults. *Sports Med* 2002;32(3):143-168.
3. Bauman AE, Reis RS, Sallis JF, Wells JC, Loos RJ, Martin BW. Lancet Physical Activity Series Working Group. Correlates of physical activity: why are some people physically active and others not? *Lancet* 2012;380(9838):258-271.
4. Azevedo MR, Araújo CL, Reichert FF, Siqueira FV, da Silva MC, Hallal PC. Gender differences in leisure-time physical activity. *Int J Public Health* 2007;52(1):8.
5. Monteiro CA, Conde WL, Matsudo SM, Matsudo VR, Bonseñor IM, Lotufo PA. Descriptive epidemiology of leisure-time physical activity in Brazil, 1996-1997. *Revista Panamericana de Salud Publica* 2003;14:246-254.
6. Swaminathan S, Selvam S, Thomas T, Kurpad AV, Vaz M. Longitudinal trends in physical activity patterns in selected urban south Indian school children. *Indian J Med Res* 2011;134(2):174.
7. The University of Exeter. "Lifelong Gender Difference in Physical Activity Revealed." *ScienceDaily*. Science Daily, 8 January 2009. <https://www.sciencedaily.com/releases/2009/01/090105190740.htm>
8. Bergier J, Bergier B, Tsos A. Variations in the physical activity of male and female students from Ukraine in a health-promoting lifestyle. *Ann Agric Environ Med* 2017. 24(2):217-221.
9. Bergier J, Bergier B, Anatolii TS. Variations in the physical activity of male and female students from different countries. *Iranian J Public Health* 2016;45(5):705-707.
10. Armstrong R, Bull F. Development of the World Health Organization Global Physical Activity Questionnaire (GPAQ). *J Public Health* 2006;14(2):66-70.
11. Nang EE, Khoo EY, Salim A, Tai ES, Lee J, Van Dam RM. Patterns of physical activity in different domains and implications for intervention in a multi-ethnic Asian population: a cross-sectional study. *BMC Public Health* 2010;10(1):644-650.
12. Singh H. A cross-sectional assessment of domain-specific physical activity among university students. *Int J Applied Res* 2017;3(6):20-22.

13. Sugathan TN, Soman CR, Sankaranarayanan K. Behavioural risk factors for non-communicable diseases among adults in Kerala, India. *Indian J Med Res* 2008;127(6): 555-63.
14. Krishnan A, Shah B, Lal V, Shukla DK, Paul E, Kapoor SK. Prevalence of risk factors for non-communicable disease in a rural area of Faridabad district of Haryana. *Indian J Public Health* 2008;52(3):117-124.
15. Talaei M, Rabiei K, Talaei Z, Amiri N, Zolfaghari B, Kabiri P, Sarrafzadegan N. Physical activity, sex, and socioeconomic status: A population-based study. *ARYA Atherosc* 2013;9(1):51-60.
16. Bergier B, Tsos A, Bergier J. Factors determining the physical activity of Ukrainian students. *Ann Agric Environ Med* 2014;21(3):613-616.
17. Brainard J, Cooke R, Lane K, Salter C. Physical activity and retirement: original analysis of responses to the English Adult Active Lives Survey. *Int J Public Health* 2020;65(6): 871-880.
18. Nariya D, Sanghani S, Shah P, Patel D. Evaluation of Levels of Physical Activity among Students of SS Agrawal Institute of Physiotherapy and Medical Care Education. *Int J Curr Res Rev* 2019. 11(16):5.
19. World Health Organization. Global physical activity questionnaire (GPAQ) analysis guide 2002. <https://www.who.int/ncds/surveillance/steps/GPAQ/en/>.

Table 1: Comparisons of work domain PA between males and females

Age Group (Years)	Work domain PA				p-value
	Males		Females		
	N	Mean rank	N	Mean rank	
18-29	185	179.06	173	179.97	0.916
30-40	90	136.88	178	133.29	0.640
41-52	127	144.61	177	158.16	0.074
53-64	100	103.42	100	99.58	0.539
18-64 (Overall sample)	502	562.71	628	567.73	0.739

Table 2: Comparisons of transport domain PA between males and females

Age Group (Years)	Transport domain PA				p-value
	Males		Females		
	N	Mean rank	N	Mean rank	
18-29	185	186.61	173	171.90	0.085
30-40	90	137.84	178	132.81	0.483
41-52	127	149.30	177	154.80	0.420
53-64	100	103.88	100	97.13	0.255
18-64 (Overall sample)	502	578.67	628	554.98	0.096

Table 3: Comparisons of recreation domain PA between males and females

Age Group (Years)	Recreation domain PA				p-value
	Males		Females		
	N	Mean rank	N	Mean rank	
18-29	185	184.65	173	173.99	0.19
30-40	90	143.72	178	129.84	0.053
41-52	127	149.21	177	154.86	0.444
53-64	100	107.68	100	93.33	0.023*
18-64 (Overall sample)	502	584.44	628	550.36	0.018*

* indicates significant at .05 level