

Abstract

“The human body is meant to move”. This implies that for a healthy lifestyle, physical activity is essential. Not achieving the adequate level of physical activity is identified as the fourth leading risk factor for mortality due to NCDs, which are on the rise especially in the developing countries.

The objective of this study was to assess the pattern and correlates of physical activity among adults in the urban and rural areas of the district of Colombo. In the first component of the study, an instrument named the “Physical And Social Environment Scale – PASES” was developed to assess the physical and social environmental factors associated with physical activity in the Sri Lankan context and was validated. Component 2 of the study was a cross sectional study to assess the pattern and correlates of physical activity. The PASES was used to assess the perceived physical and social environmental factors. To assess in depth, the social environmental factors related to physical activity, a qualitative assessment was carried out among a community based, purposive sample in component 3. Component 4 of the study was carried out in a sub sample in the Colombo Municipal Council area to assess the objectively measured physical environmental factors associated with physical activity using a GIS database, a new and a recommended approach to assess the environment.

The PASES was developed using a scientific approach. Defining the construct, item generation, analysis of content of items and item reduction were done. The retained 36 items were developed into interviewer administered questions. Exploration of factor structure was performed with 34 items which were factorable. Response categories were identified for each question including the two questions that were not factorable. The interviewer administered questionnaire thus developed, was pre-tested in the community to finalise the PASES. The construct validity, convergent validity, and discriminant validity was established in a sample of 180 adults from the Pitakotte MOH area. Confirmatory factor analysis revealed an 8 factor model, the factors being: infrastructure for walking, aesthetics and facilities for cycling, vehicular traffic safety, access and connectivity, recreational facilities for physical activity, safety, social cohesion and social acceptance of physical activity. Questions on residential density

and the land use diversity were included in the PASES although no factor analysis was carried out. The scoring protocol for PASES was finalized at this stage to calculate the mean scores.

The pattern and correlates of physical activity were assessed among a sample of 1320 adults selected using stratified, cluster sampling with probability proportionate to the size of the adult population in the district of Colombo. The study instrument comprised of an interviewer administered questionnaire that included the International Physical Activity questionnaire (IPAQ) validated for Sri Lanka, the PASES and questions on demographic and socio-economic characteristics, housing characteristics, household composition, health status, knowledge on physical activity, work status, psychological attributes, and travel related behaviour.

The median energy expenditure for the study group was 1272 MET-minutes a week (inter-quartile range 745.1-1741.8). Based on IPAQ guidelines, the study population was grouped as belonging to the insufficient activity group (19.2%) and the sufficient activity group (80.8%). The proportion belonging to the insufficient activity group was highest (28.0%) among the participants in the urban:CMC sector compared to urban:non-CMC and rural sector. The main contributor to the energy expenditure was related to work inside the home and in the garden, followed by transport related activity across all three residential sectors. Leisure related physical activity was carried out only by 21.7% of the study sample.

The two groups were studied with a view to identifying correlates of physical activity. Correlates identified through the multivariate analysis were linked to the financial status, the work status, travel behaviour and psychological characteristics. Of the financial and asset correlates, the income being less than Rupees 30,000 per month (OR = 1.62, 95%, CI: 1.1-2.3), perceived financial status being "finding it a strain to get by weekly" (OR = 1.85, 95%, CI: 1.3-2.6) and having equipment at home for recreation (OR = 1.84, 95%, CI: 1.3-2.6) were the main correlates of sufficient physical activity. In addition, the sector of residence being urban but outside CMC and rural (OR =1.67, 95%, CI: 1.2-2.3) was a significant correlate of sufficient physical activity. Other significant correlates were, working in paid employment (OR=1.78, 95%, CI: 1.3-2.4), perceiving the day as being spent mostly walking, doing

moderate or vigorous activity (OR=4.0, 95%, CI: 2.9-5.5) as opposed to being seated most of the day. Travelling for day to day activities using active transport (OR=1.81, 95%, CI: 1.2-2.7) was significantly correlated. Perceived barriers to be active were negatively associated with sufficient physical activity (OR=0.71, 95%, CI: 0.6-0.9). Having self efficacy for recommended levels of activity was associated with physical activity levels positively (OR=1.24, 95%, CI: 1.0-1.5) in the multivariate analysis.

In the bivariate analysis, perception of vehicular traffic safety, perception of aesthetics and facilities for cycling and low residential density were significant positive correlates of sufficient activity of adults. However, in the multivariate analysis the perceived physical environmental factors did not show a significant association. The social environment correlates were identified as important in the qualitative assessment although a significant association was not observed between physical activity level and social environmental factors in bivariate analysis.

When the physical environment was assessed using objectively measured available data on land use, street networks and buildings through a GIS database, the residential density and street connectivity measures showed mild correlation with the physical activity level measured as energy expenditure for walking per week and minutes of transportation walking per week.

This study used multiple approaches of quantitative, qualitative and the use of GIS to assess the environment. Use of different methodologies enabled triangulation of the findings to obtain a holistic view of the environment as influencing physical activity. Physical inactivity could be considered an emerging health problem as nearly one fifth of the study sample was in the insufficiently active category. The findings of this study could be used by policy makers, planners and programme implementers in both the health and the non health sectors to pay attention to make the environment friendlier towards "active living", thus enhancing the health and wellbeing of the society.

Keywords: Physical activity, pattern, correlates, physical and social environment