RESEARCH PAPER

Reliability and Validity of a Physical Activity Questionnaire for Indian Children and Adolescents

TS MEHREEN[1], HARISH RANJANI [1], C ANITHA [1], N JAGANNATHAN [1], MICHAEL PRATT[2], VISWANATHAN MOHAN [1] AND RANJIT MOHAN ANJANA [1]

From [1]Madras Diabetes Research Foundation and Dr. Mohan's Diabetes Specialities Centre, Chennai, Tamil Nadu, India; and [2]Hubert Department of Global Health, Rollins School of Public Health, Emory University, Atlanta, Georgia, United States. Correspondence to: Dr RM Anjana, Managing Director and Consultant Diabetologist, Dr Mohan's Diabetes Specialities Centre, WHO Collaborating Centre for Non-Communicable Diseases Prevention and Control, IDF Centre for Education and ICMR Advanced Centre for Genomics of Diabetes, No. 6B, Conran Smith Road, Gopalapuram, Chennai, India. dranjana@drmohans.co

Submitted: April 08, 2019; Initial review: July 29, 2019; Accepted: March 11, 2020.

Background: In low- and middle-income countries, sedentary behavior is widely prevalent in the young. Reliable and valid instruments are essential for evaluating sedentary behavior and physical activity in children and adolescents.

Objective: To evaluate the reliability and validity of an easy to use physical activity questionnaire for children and adolescents from India.

Study design: Evaluation of a questionnaire tool.

Participants: 104 children and adolescents belonging to the age group of 10-17 years were selected using a purposive sampling technique.

Methods: The Madras Diabetes Research Foundation - Physical Activity Questionnaire for Children and Adolescents [MPAQ(c)] was used to assess the various dimensions of physical activity. Physical activity was also objectively assessed using accelerometer worn around the waist for five complete days. The baseline administration of MPAQ(c) was done between November and December, 2017. Reliability of MPAQ was assessed by repeat administration after 2 weeks for upto a month later. Validity of MPAQ(c) was measured against accelerometer using Spearman's correlation and Bland and Altman agreements.

Results: Test-retest reliability of the questionnaire revealed good agreement (ICC: 0.77 min/wk). Correlation coefficients (95% CI) for sedentary behavior and moderate to vigorous physical activity for MPAQ(c) against accelerometer were 0.52 (0.36, 0.64) and 0.41 (0.23, 0.55), respectively indicating moderate correlation. Good agreement was present between MPAQ(c) and accelerometer for sedentary behavior [mean bias = -4.9 (±2SD -197.1 to 187.3) min/d].

Conclusion: MPAQ(c) is a valid and reliable instrument for evaluating physical activity in Indian children aged 10-17 years.

Keywords: *Accelerometry, Assessment, Obesity, Sedentary, Self-reported*.

Published online: **June 12, 2020;** ***PII:*** **S097475591600195**

Physical activity (PA) is defined as any bodily movement produced by skeletal muscles that results in energy expenditure [1]. Approximately 38% of children in India between the ages of 13 to 15 years meet the recommended PA levels [2]. Reliable and valid instruments for evaluating PA in children are essential for monitoring and surveillance of PA levels in the population [3]. Objective tools like accelerometers quantify total PA well and are easy to use [4]. However, the use of accelerometers in large surveillance studies may be limited due to time and cost considerations [5,6].

A questionnaire as an assessment tool is acceptable, easy, practical and feasible for analyzing PA in children and adolescents in a developing country like India. PA questionnaires help gather qualitative information about the type, location and circumstances of activity that the individual engages in [7]. Hence, we developed a PA questionnaire called the Madras Diabetes Research Foundation – Physical Activity Questionnaire for Children and Adolescents [MPAQ(c)], which would be acceptable and easy to use for surveillance studies on children and adolescents aged 10 to 17 years in a developing country like India. The objective of research reported in this paper was to evaluate the reliability and validity of this questionnaire against objectively collected accelerometer data.

Accompanying Commentary: Pages 705-06.

METHODS

Children and adolescents belonging to the age group of 10-17 years from Chennai, Tamil Nadu, India were recruited. Participants were selected from 74 areas across the 15 zones of urban and rural areas of Chennai. Heterogeneity of the sampling framework was maintained throughout the re-

cruitment procedure by randomly recruiting participants from schools, and known households in the selected areas by door-to-door recruitment. A purposive sampling technique was used to select equal number of boys and girls across two age groups (10 to 14 and 15 to 17 years). For all participants, written informed consent from parents with the assent from the child were obtained before the start of the study. The Institutional Ethics Committee at Madras Diabetes Research Foundation approved the study protocol.

Anthropometric measurements and blood pressure were recorded using standard techniques. Height was measured using a stadiometer (SECA Model 213, Seca Gmbh Co, Hamburg, Germany) to the nearest 0.1cm. Weight was measured using a digital weighing scale (Tanita BC – 601, Tanita Corp., Japan) and recorded to the nearest 0.1 kg. Body mass index (BMI) was calculated as per standard formula. Waist circumference was measured in centimetres using a non-stretchable fiber measuring tape. Blood pressure and pulse was recorded in a rested sitting position in the right arm using a digital machine (Omron Corp., Tokyo, Japan) and rounded off to the nearest 2 mm Hg.

Madras Diabetes Research Foundation – Physical Activity Questionnaire for Children and Adolescents [*MPAQ(c)*]: This questionnaire has been developed from a PA questionnaire called the Madras Diabetes Research Foundation - Physical Activity Questionnaire [Adult version, MPAQ(a)], which was developed to assess PA levels in Asian Indian adults [9]. The questionnaire captures various dimensions of PA based on habitual and culturally relevant activities for upto a year.

The physical activity of children and adolescents can be generally divided into two main categories – school related activities and non-school related PA. The MPAQ(c) questionnaire was developed and validated in the English language. The questionnaire consists of 74 multiple choice questions presented in a ten-page survey form (***Web Appendix* I**). Participants were asked to recall information about activities undertaken in the following domains: at school/college, transport, activities of daily living, leisure and vacation/holiday time activity. For each activity, the average amount of time spent on the activity and frequency (daily/week/month/year) were docu-mented. Thus intensity, duration and frequency data were collected and weekday *versus* weekend analysis were made possible. The results from MPAQ(c) were tabulated based on the type of activity *viz*, sedentary and moderate-to-vigorous physical activity (MVPA).

Accelerometry: Participants had the accelerometer worn on a belt around their waist for five complete days (4 weekdays and 1 weekend) during waking hours; however, the device was allowed to be removed while bathing, swimming and sleeping. Moderate to vigorous physical activity was objectively assessed using the Actigraph (Actilife 5) GT3X+ Triaxial Accelerometer (Actigraph, Pensacola, Florida, USA) [10,11]. The device was worn on the hip of the dominant side (right in most cases). The accelerometers were initialized to monitor and record data in 60-second 'epochs' as 'activity counts' and sample frequency at 100 Hz. While initializing, each device was given a unique number denoting the individual participant with their age, gender, height, weight, date of birth and race. The GT3X+ device collects data from all three axis of movement regardless of the configuration, with Axis 1 collecting the vertical axis acceleration activity data, Axis 2 the horizontal axis data and Axis 3 the perpendicular axis data.

The baseline administration of MPAQ(c) was done between November and December, 2017. This was followed by a repeat administration after 2 weeks (average of 2-4 weeks) for upto a month later for assessing reliability.

For assessing relative validity, the MPAQ(c) was administered in a random order by trained researchers. The sample was chosen to get individuals across a wide age range, both genders and all categories of activity. The duration (minutes per day) spent in different intensity activities was calculated based on the coding scheme provided by Compendium of Physical Activities that describes the energy costs in terms of METs for various activities in children and adolescents aged 6 to 17.9 years [12,13]. The MPAQ(c) was administered anytime during the period the participant was wearing the accelerometer. Data from the MPAQ(c) was computed for a typical day, and then converted to minutes/day to make comparisons with the accelerometer data more realistic.

For content validity, the MPAQ(c) was evaluated by expert committee members at Madras Diabetes Research Foundation (MDRF). At first, the questions from MPAQ(a) were modified to suit the age group of children and adolescents. For instance, the work domain in adult questionnaire was replaced with school domain, and seasonal activity in adults was substituted with vacation for children and adolescents. Questions concerning sport activities in school and during weekends, lunch and snack break timings were found to be highly relevant. The experts evaluated the items in the questionnaire based on the content validity index (CVI), such that 1 was unsatisfactory and 4 was very satisfactory. The mean score of MPAQ(c) was 3.67 with a CVI of 0.92. The MPAQ (c) was considered to be suitable to be used by researchers to assess physical activity and sedentary behavior in the age group of 10 to 17 years.

Being an interviewer-administered questionnaire, inter-

rater reliability was measured to assess the agreement between the interviewers. One interviewer administered the questionnaire to the participant while the other interviewer passively observed and rated participant's response independently. This procedure was completed for a total of 30 participants by two interviewers who collected the questionnaires. A kappa value of 0.82 indicated good agreement among the interviewers.

Statistical analyses: Statistical analyses were performed using SAS (Statistical Analysis System) statistical package version 9.0 (SAS Institute Inc., Cary, NC). Shapiro-Wilks test was used to determine the normality of data. Mann-Whitney U test was used for those variables which deviated from normal distribution. Reliability of the MPAQ(c) was examined by calculating the intra-class correlation (ICC) of the activities reported by age and gender. ICC values of <0.40 were considered as poor agreement, 0.40-0.59 as fair, 0.60-0.74 as good and 0.75-1.00 as excellent agreement [14]. For assessing criterion validity, the MPAQ(c) was compared next to the triaxial accelerometer as a criterion. Spearman correlation coefficients and 95% CI were used for comparisons. Total duration (min/d) of time spent in sedentary and moderate-vigorous PA as estimated from the MPAQ(c) were compared against those recorded by the accelerometer using recognized cut-points [15]. As the accelerometer measured data was computed for an 8-hour valid day criterion, the data obtained from the MPAQ(c) was also calculated for a day so as to make it comparable. Bland and Altman plots were used to assess the agreement between data obtained using the MPAQ(c) and accelerometer (within the 95% limits). A *P* value <0.05 was considered as significant for all statistical measures.

RESULTS

A total of 110 participants responded to the MPAQ(c) on two occasions for the reliability study. Children and adolescents with incomplete MPAQ(c) data (n=2) or technical errors in the accelerometer instrument (n=4) were excluded from analysis. A final sample of 104 (53 between 10-14 y) participants were included in the study, of whom 43 and 61 participants completed the second round of questionnaire within 3 weeks and in the fourth week of the initial administration, respectively. Baseline characteristics of the participants are shown in ***Table* I**.

The test re-test reliability of the questionnaire on study participants as per gender and age-group is shown in ***Table* II**. The maximum time was spent in the sleep domain followed by school and recreation domains. The agreement between first and second round of MPAQ(c) for boys (n=49) was 0.81 and for girls, was 0.74. The ICC was 0.81 in the age group of 15-17 years which was higher than 0.73 in the age group of 10-14 years. Overall, ICC of total MET minutes per week between the two rounds of MPAQ(c) was 0.77.

Correlation coefficients (95% CI) for sedentary behavior and moderate-vigorous PA for MPAQ(c) against the accelerometer were 0.52 (0.36, 0.64) and 0.41 (0.23, 0.55), respectively.

A good agreement [mean (SD) bias =-4.9 (96.1) min/d] between MPAQ(c) and accelerometer for sedentary behavior of older and younger children was present. For moderate-vigorous PA, good agreement was observed [mean (SD) bias = 0.01 (0.44) min/d].

DISCUSSION

Our study showed good reliability of MPAQ(c) in both genders across the age range of 10 to 17 years. MPAQ(c) showed moderate correlation against objective accelerometer measurement.

The values of internal consistency obtained in this study were higher compared to another study with similar characteristics done in the Netherlands [16]. The reliability of MPAQ(c) seen in this study is similar to that reported in a systematic analysis by Chinapaw, *et al*. [17]. The authors in this systematic analysis summarized and appraised 61 questionnaires from 54 studies for measuring PA in children, adolescents and youth. Their results showed that the most reliable PA questionnaire in children aged 8 to 10 years, the Girls Health Enrichment Multisite Study Activity Questionnaire had an ICC of 0.82 (0.75 for boys and 0.82 for girls).

Using the triaxial accelerometer as criterion, validity has been done in several studies. In a study conducted at Toronto, among girls aged 8-9 years, correlation between moderate-vigorous data collected using Habitual Activity Estimation Scale and accelerometer was shown to be 0.24 [18]. Validity correlations for total PA in children and adolescents with congenital heart disease aged 9 to 18 years was 0.51 indicating moderate correlation [19] which is similar to our finding in the normal population.

Table I Baseline Characteristics of the Study Participants (N=104)

Characteristics	*Overall*	*Boys (n=49)*
Age (y)	14.4 (1.5)	14.5 (1.3)
BMI (kg/m^2)	20.6 (5.3)	20.0 (5.0)
Waist (cm)	69.8 (12.4)	72.0 (13.0)
*Systolic BP	112 (12.0)	114 (14.0)
Diastolic BP	70 (10.0)	70 (10.0)
*Pulse (bpm)	84.5 (12.0)	77.9 (9.9)

*All values in mean (SD); *P=0.01 for difference between boys and girls; BP: Blood pressure.*

Table II Test-retest Reliability of Madras Diabetes Research Foundation Physical Activity Questionnaire [MPAQ(c)]

Variables	*MPAQ(c) scores*			
	Boys (n=49)	*Girls (n=55)*	*10-14 y (n=53)*	*15-17 y* (*n*=51)
School	446.3 (51.3)	445.6 (49.9)	447.0 (51.4)	444.8 (49.7)
Physical training	11.3 (3.7)[#]	10.5 (3.0)[‡]	11.0 (2.8)[^]	10.8 (3.8)[^]
School sitting	338.7 (60.3)	329.8 (58.2)	337.2 (62.0)	330.7 (56.4)
Transport	47.7 (34.2)[#]	43.7 (34.4)[#]	43.1 (30.0)[^]	48.1 (38.2)[#]
Commuting by walk	23.2 (15.5)[^]	20.9 (13.1)[#]	19.3 (13.1)[‡]	24.8 (14.7)[#]
Commuting by bus	50.0 (36.0)	44.4 (38.6)	43.4 (32.0)	51.8 (42.5)
*General^*	100.8 (33.6)	118.1 (43.3)*	104.4 (31.9)	115.7 (46.3)
Personal care -brushing, toilet, dressing etc.	46.8 (17.0)[^]	58.1 (16.9)[‡]*	52.3 (16.7)[^]	53.3 (19.1)[^]
Eating (includes all meals, snacks and drinks) except that reported in the school section	39.9 (21.9)	38.3 (16.3)	37.3 (18.7)	40.8 (19.4)
Recreation	374.9 (111.2)[^]	394.7 (123.9)[^]	384.3 (125.1)[#]	386.4 (111.3)[^]
Recreational MVPA	56.6 (71.5)	46.0 (78.4)	67.6 (89.0)	33.8 (52.7)*
Cycling (*n*=46)	22.7 (23.1)[#]	13.8 (18.1)[‡]	20.6 (22.4)[‡]	15.2 (19.1)[^]
Football, basketball, tennis, volley ball (*n*=40)	24.6 (35.4)[^]	23.9 (44.3)[#]	18.2 (29.3)[^]	32.8 (51.0)[#]
Recreational sedentary behavior[$]	318.2 (99.0)[^]	348.6 (91.4)[‡]	316.7 (92.0)[‡]	352.6 (97.2)[^]
Watching TV	113.0 (50.8)[^]	93.3 (50.3)[‡]	110.3 (51.7)[^]	94.5 (49.9)[^]
Sleeping	541.7 (75.6)[^]	538.6 (74.0)[‡]	544.5 (78.0)[‡]	535.5 (70.9)[^]
Total MET, min/wk	12948.1 (2887.0)[#]	12894.0 (2946.6)[^]	12676.7 (2941.2)[^]	13171.9 (2873.4)[#]

*MPAQ(c) scores in mean (SD).[#]ICC values of ≥0.75-0.92, [^]ICC values of ≥0.62-0.74, [‡]ICC values of ≥0.50-0.59; *P<0.05 compared to boys; **P<0.05 compared to 10-14 years children; [$]Doing homework/tuition (including reading, writing or using the computer), sitting in a car, bus, etc, playing sedentary games (carom or chess) or computer/video games (like Nintendo or Xbox or PSP), watching TV/videos/ DVDs, watching movies/shows/concerts, using the internet, emailing or other electronic media for leisure, chatting, reading, listening to music etc; MVPA-Moderate-to-vigorous physical activity: Brisk walking as an exercise, cricket, jogging/slow running, dancing/aerobics/ yoga(asanas), cycling including exercise cycling/bike, conditioning exercise, running/sprinting, football, basketball, tennis, volleyball etc.*

According to the MPAQ(c) data analyzed against the accelerometer reading, both boys and girls over-reported sedentary behavior and MVPA. This over-reporting was also reported with adult women in Southern India [20]. A systematic review of 83 studies, which evaluated PA in the pediatric population, found that about 72% of MVPAs evaluated using a questionnaire were over-reported by children and adolescents when compared to the accelerometer [21]. Such inaccuracies are one of the main limitations of the study. The reason for such inaccurate responses by children can be attributed to several social and psychological factors. Another limitation is that accelerometers can underestimate the intensity of effort associated with walking, running and cycling and in activities that require the device to be removed such as swimming and sleep [23]. As the data collection was interview-based, there were high possibilities of data variance between the different interviewers, which could be another limitation, even though in our experience with proper training and practice this error can be negated. Though the validated questionnaire could be used for assessment in any part of the country, it was tested only with one particular group of children and adolescents in only one large metropolitan city. The high compliance and completion rate by the participants is the main strength of the study. The ethnic-specific questionnaire used has information about the type and schedule of PA while the movement sensors in accelerometer provide information on the actual quantity of PA, which will permit a better understanding for the validation of subjective instruments [24,25].

The present study has shown that the MPAQ(c) for children and adolescents has good test-retest reliability among the 10-17 years age group. It is an instrument that can be used to assess the levels of PA in children and adolescents in low and middle-income countries like India due to its good psychometric properties.

Ethical clearance: Institutional ethics committee of Madras Diabetes Research foundation; No. IRB00002640, December, 2014.

Contributors: TSM: involved in conduct of the study, writing the first draft of manuscript and carrying out consecutive revisions; HR: co-ordinated the study, helped in data analysis and revisions of the manuscript; CA: analyzed the data and helped in data interpretation; NJ: collected the data and gave inputs to the manuscript; MP,VM: contributed to critical revisions for

WHAT IS ALREADY KNOWN?

- Physical activity is positively associated with lowering the risk of obesity and its related complications in children and adolescents.

WHAT THIS STUDY ADDS?

- MPAQ (c) is country-specific questionnaire from India to capture physical activity levels among children and adolescents, and has good test-retest reliability in the 10-17 year age-group.

intellectual content of the manuscript; RMA: conceptualized the study, contributed inputs to data analysis and revisions of the manuscript.

Funding: None; *Competing interest*: None stated.

REFERENCES

1. Caspersen CJ, Powell KE, Christenson GM. Physical activity, exercise, and physical fitness: Definitions and distinctions for health-related research. Public Health Reports. 1985;100:126-31.
2. Guthold R, Cowan MJ, Autenrieth CS, Kann L, Riley LM. Physical activity and sedentary behavior among schoolchildren: A 34-country comparison. J Pediatr. 2010;157:43-9.e1.
3. Bauman A, Phongsavan P, Schoeppe S, Owen N. Physical activity measurement - a primer for health promotion. Promot Educ. 2006;13:92-103.
4. Sallis JF. Measuring physical activity: Practical approaches for program evaluation in Native American communities. J Public Health Manag Pract. 2010;16:404-10.
5. Skender S, Ose J, Chang-Claude J, Paskow M, Brühmann B, Siegel EM, *et al*. Accelerometry and physical activity questionnaires - A systematic review. BMC Public Health. 2016;16:515.
6. Welk GJ, Schaben JA, Morrow JR, Jr. Reliability of accelerometry-based activity monitors: A generalizability study. Med Sci Sports Exerc. 2004;36:1637-45.
7. Cossio BM, Mendez CJ, Luarte RC, Vargas VR, Canqui FB, Gomez CR. Physical activity patterns of school adolescents: Validity, reliability and percentiles proposal for their evaluation. Revista Chilena de Pediatria. 2017;88:73-82.
8. Anjana RM, Sudha V, Lakshmipriya N, Subhashini S, Pradeepa R, Geetha L, *et al*. Reliability and validity of a new physical activity questionnaire for India. Int J Behav Nutr Phys Act. 2015;12:40.
9. Sasaki JE, John D, Freedson PS. Validation and comparison of ActiGraph activity monitors. J Sci Med Sport. 2011;14: 411-6.
10. Santos-Lozano A, Santin-Medeiros F, Cardon G, Torres-Luque G, Bailon R, Bergmeir C, *et al*. Actigraph GT3X: Validation and determination of physical activity intensity cut points. Int J Sports Med. 2013;34:975-82.
11. Ridley K, Ainsworth BE, Olds TS. Development of a compendium of energy expenditures for youth. Int J Behav Nutr Phys Activity. 2008;5:45.
12. Butte NF, Watson KB, Ridley K, Zakeri IF, McMurray RG, Pfeiffer KA, *et al*. A Youth Compendium of Physical Activities: Activity codes and metabolic intensities. Med Sci Sports Exerc. 2018;50:246-56.
13. Cicchetti DV. Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. Psych Assess. 1994;6:284-90.
14. Freedson PS, Melanson E, Sirard J. Calibration of the computer science and applications, Inc. accelerometer. Med Sci Sports Exerc. 1998;30:777-81.
15. Chinapaw MJ, Slootmaker SM, Schuit AJ, van Zuidam M, van Mechelen W. Reliability and validity of the activity questionnaire for adults and adolescents (AQuAA). BMC Med Res Methodol. 2009;9:58.
16. Chinapaw MJ, Mokkink LB, van Poppel MN, van Mechelen W, Terwee CB. Physical activity questionnaires for youth: A systematic review of measurement properties. Sports Med. 2010;40:539-63.
17. Lockwood J, Jeffery A, Schwartz A, Manlhiot C, Schneiderman JE, McCrindle BW, *et al*. Comparison of a physical activity recall questionnaire with accelerometry in children and adolescents with obesity: A pilot study. Obesity. 2017;12:e41-45.
18. Voss C, Dean PH, Gardner RF, Duncombe SL, Harris KC. Validity and reliability of the physical activity questionnaire for children (PAQ-C) and adolescents (PAQ-A) in individuals with congenital heart disease. PLoS One. 2017;12:e0175806.
19. Mathews E, Salvo D, Sarma PS, Thankappan KR, Pratt M. Adapting and validating the global physical activity questionnaire (GPAQ) for Trivandrum, India, 2013. Prev Chronic Disease. 2016;13:E53.
20. Adamo KB, Prince SA, Tricco AC, Connor-Gorber S, Tremblay M. A comparison of indirect versus direct measures for assessing physical activity in the pediatric population: a systematic review. Int J Obesity: 2009;4:2-27.
21. Schnurr TM, Bech B, Nielsen TRH, Andersen IG, Hjorth MF, Aadahl M, *et al*. Self-reported versus accelerometer-assessed daily physical activity in childhood obesity treatment. Percept Mot Skills. 2017;124:795-811.
22. Ward DS, Evenson KR, Vaughn A, Rodgers AB, Troiano RP. Accelerometer use in physical activity: Best practices and research recommendations. Med Sci Sports Exerc. 2005;37:S582-8.
23. Vanhelst J, Hardy L, Gottrand F, Beghin L. Technical aspects and relevance of physical activity assessment in children and adolescents in free-living conditions. Arch Pediatr. 2012;19:1219-25.

WEB APPENDIX I Madras Diabetes Research Foundation - Physical Activity Questionnaire for Children and Adolescents - MPAQ(c)

MDRF PHYSICAL ACTIVITY QUESTIONNAIRE – CHILD VERSION

Name : _____ **Participant ID** ☐☐☐☐☐☐

Age: ☐☐☐ **yrs** **Sex: M** ☐ **F** ☐ **Interview** ☐☐ ☐☐ ☐☐☐☐ **Date Month Year**

Height: ☐☐☐.☐ **cms** **Weight:** ☐☐☐.☐ Kgs **Body fat:** ☐☐.☐ %

BP: ☐☐☐ / ☐☐☐

In this section, you will be asked about the time spent doing different types of physical activity. Please answer these questions even if you do not consider yourself to be a physically active person

SECTION I A– PHYSICAL ACTIVITY AT SCHOOL/COLLEGE: *This section applies only to school/college going children and adolescents aged 10-17 years*

1a	School/College Name: _____
1b	Standard/Class/Grade: _____

Indicate your duration of school/college **per Week**

2a	Working days ☐ / Week	2b	**Vacation / Holidays** 1) Summer holidays ☐ Days / ☐ Months 2) Dussehra holidays ☐ Days/ ☐ Months 3) Diwali holidays ☐ Days/ ☐ Months 4) Christmas holidays ☐ Days/ ☐ Months 5) Others ☐ Days/ ☐ Months 6) Others ☐ Days/ ☐ Months

3a	What time does your school/ college **start/end**? Starting Time ☐☐ ☐☐ am/pm Ending Time ☐☐ ☐☐ am/pm Hours : Minutes Hours : Minutes
4a	How many breaks do you have in school/college?(Circle the right option) A)1 B) 2 C) 3 D) 4
4b	On an average, kindly indicate the timing for each break Break 1: Starting Time ☐☐ ☐☐ am/pm Ending Time ☐☐ ☐☐ am/pm Break 2: Starting Time ☐☐ ☐☐ am/pm Ending Time ☐☐ ☐☐ am/pm Break 3: Starting Time ☐☐ ☐☐ am/pm Ending Time ☐☐ ☐☐ am/pm Break 4: Starting Time am/pm Ending Time am/pm Hours : Minutes Hours : Minutes
4c	Are you physically active during these breaks? Yes ☐ No ☐ (i) If Yes, for how long? Break 1: ☐☐ minutes Break 2: ☐☐ minutes Break 3: ☐☐ minutes Break 4: ☐☐ minutes
4d	0 days | 1 day | 2 days | 3 days | 4 days | 5 days | 6 days How many days per week do you have Physical Training (PT) class at school/college?
4d(i)	If you have PT, on average, how long is each PT period? ☐☐ minutes per class

4d(ii)	In an average PT class how many minutes are you actually physically active or moving? ☐☐ minutes per class
4d(iii)	Do PT classes get cancelled during exams/functions? ☐ Yes ☐ No
4d(iv)	If yes, in the past year how often have PT classes been cancelled? ☐ All the time (>30 classes/period a year) ☐ Most of the time (15-30 classes/period a year) ☐ Sometimes (5-15 classes/period a year) ☐ Rarely (1-5 classes/period a year)

5a How many days per week are you involved in any of the following activities in your school/college?

		0 days	**1 day**	**2 days**	**3 days**	**4 days**	**5 days**	**6 days**	**On ONE of those days how long does the activity last? Hours:Minutes**
i)	Scouts and guides	0	1	2	3	4	5	6	☐☐:☐☐
ii)	National Cadet Corps (NCC)	0	1	2	3	4	5	6	☐☐:☐☐
iii)	Road Safety Patrol (RSP)	0	1	2	3	4	5	6	☐☐:☐☐
iv)	Others Specify _____	0	1	2	3	4	5	6	☐☐:☐☐

6a At School / College, how many hours per day do you spend on the following:

School time / Day		**Duration (Hrs: mins)**
6a(i)	Standing (assembly, punishment, prayer time)	☐☐ ☐☐
6a(ii)	Climbing stairs	☐☐ ☐☐

7a How many days per week do you do the following activities as part of your school/college curriculum?									
		0 days	**1 day**	**2 days**	**3 days**	**4 days**	**5 days**	**6 days**	**On ONE of those days how long does the activity last? Hours:Minutes**
i)	Yoga	0	1	2	3	4	5	6	☐☐☐☐
ii)	Dance	0	1	2	3	4	5	6	☐☐☐☐
iii)	Swimming	0	1	2	3	4	5	6	☐☐☐☐
iv)	Horse Riding	0	1	2	3	4	5	6	☐☐☐☐
v)	Martial Arts	0	1	2	3	4	5	6	☐☐☐☐
vi)	Others Specify 1. _____	0	1	2	3	4	5	6	☐☐☐☐
	2. _____	0	1	2	3	4	5	6	☐☐☐☐
	3. _____	0	1	2	3	4	5	6	☐☐☐☐
	4. _____	0	1	2	3	4	5	6	☐☐☐☐

SECTION II – TRANSPORT DOMAIN

In this section you will be asked about the modes of transportation to get to and from school/college

								On ONE of those days how long do you spend on this transport?
8a i) Per week TO school/ college:	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**Hours:Minutes**
a) Self driving (car/bike/scooter)	0	1	2	3	4	5	6	☐☐☐☐
b) Commuting by bus / auto /pillion rider	0	1	2	3	4	5	6	☐☐☐☐
c) Travel by cycling (excludes cycling as an exercise)	0	1	2	3	4	5	6	☐☐☐☐
d) Walking (excludes walking as an exercise)	0	1	2	3	4	5	6	☐☐☐☐
ii) Per week FROM school/ college:	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**Hours:Minutes**
e) Self driving (car/bike/scooter)	0	1	2	3	4	5	6	☐☐☐☐
f) Commuting by bus / auto /pillion rider	0	1	2	3	4	5	6	☐☐☐☐
g) Travel by cycling (excludes cycling as an exercise)	0	1	2	3	4	5	6	☐☐☐☐
h) Walking (excludes walking as an exercise)	0	1	2	3	4	5	6	☐☐☐☐

8a iii). How long does it or would it take you to walk to school?

1-5 min	6-10 min	11-20 min	21-30 min	31+ min

SECTION III – PHYSICAL ACTIVITY –GENERAL WEEK (Other than school related)
In this section you will be asked about physical activity in general (Other than school related) like domestic chores, personal care etc.,

Q.no	Week activity - General							Q.no	Weekend	
	Activity	**Duration / (Hrs: mins)**	**Daily**	**Weekly**	**Monthly**	**Yearly**	**Never**		**Duration / (Hrs: mins)**	**Monthly (Indicate the frequency)**
9 ai 9 aii	Sleeping (Regular hours of sleep usually at night) and Nap(short break of sleep - time)	Night ☐☐ ☐☐ ☐☐ ☐☐						9 bi 9 bii	Night ☐☐ ☐☐ ☐☐ ☐☐	
10a	Personal care - brushing, toilet , showering, dressing etc.,	☐☐ ☐☐						10b	☐☐ ☐☐	
11a	Eating (Include all meals, snacks & coffee/tea drinks) except that reported in the school section	☐☐ ☐☐						11b	☐☐ ☐☐	
12a	Cooking – (including pre-preparation of meals, snacks and beverages)	☐☐ ☐☐						12b	☐☐ ☐☐	
13a	Collecting water/ wood (by manual means like well, hand pumping)	☐☐ ☐☐						13b	☐☐ ☐☐	

14a	Climbing steps / walking uphill	☐☐ ☐☐						14b	☐☐ ☐☐	
15a	Non-mechanized domestic chores (like -sweeping, washing clothes and dishes by hand)	☐☐ ☐☐						15b	☐☐ ☐☐	
16a	Toddler care (age <5 years includes feeding, bathing and playing etc.,)	☐☐ ☐☐						16b	☐☐ ☐☐	

SECTION IV – PHYSICAL ACTIVITY- LEISURE (WEEK)
This section excludes the school/college and transport activities that you have already mentioned. You will be asked about sports, fitness and recreational activities (leisure) like watching TV, chatting, reading etc

Q.no	Week activity - Leisure							Q.no	Weekend	
	Activity - Light	**Duration / (Hrs: mins)**	**Daily**	**Weekly**	**Monthly**	**Yearly**	**Never**		**Duration / (Hrs: mins)**	**Monthly (Indicate the frequency)**
17a	Slow walking (Example- Shopping, going to a worship place)	☐☐ ☐☐						17b	☐☐ ☐☐	
18a	Playing a musical Instrument/ Singing/ Drawing/ Art/ Craft (as a hobby)	☐☐ ☐☐						18b	☐☐ ☐☐	
19a	Others specify _____	☐☐ ☐☐						19b	☐☐ ☐☐	
20a	Others specify _____	☐☐ ☐☐						20b	☐☐ ☐☐	
	Activity -Moderate	**Duration / (Hrs: mins)**	**Daily**	**Weekly**	**Monthly**	**Yearly**	**Never**		**Duration / (Hrs: mins)**	**Monthly (Indicate the frequency)**
21a	Brisk walking as an exercise	☐☐ ☐☐						21b	☐☐ ☐☐	
22a	Cricket	☐☐ ☐☐						22b	☐☐ ☐☐	

23a	Jogging / slow running	☐☐ ☐☐						23b	☐☐ ☐☐	
24a	Dancing / aerobics/ yoga (asanas)	☐☐ ☐☐						24b	☐☐ ☐☐	
25a	Swimming	☐☐ ☐☐						25b	☐☐ ☐☐	
26a	Cycling including exercise cycling / bike	☐☐ ☐☐						26b	☐☐ ☐☐	
27a	Others specify _____	☐☐ ☐☐						27b	☐☐ ☐☐	
28a	Others specify _____	☐☐ ☐☐						28b	☐☐ ☐☐	
	Activity - Vigorous	**Duration / (Hrs: mins)**	**Daily**	**Weekly**	**Monthly**	**Yearly**	**Never**		**Duration / (Hrs: mins)**	**Monthly (Indicate the frequency)**
29a	Conditioning exercises (like muscle strengthening exercises, using a rowing machine, free weights etc.	☐☐ ☐☐						29b	☐☐ ☐☐	
30a	Running / sprinting	☐☐ ☐☐						30b	☐☐ ☐☐	
31a	Football, basket ball, tennis,	☐☐ ☐☐						31b	☐☐ ☐☐	

	volleyball etc.,									
32a	Others specify _____	☐☐ ☐☐						32b	☐☐ ☐☐	
33a	Others specify _____	☐☐ ☐☐						33b	☐☐ ☐☐	
	Activity -Sedentary	**Duration / (Hrs: mins)**	**Daily**	**Weekly**	**Monthly**	**Yearly**	**Never**		**Duration / (Hrs: mins)**	**Monthly (Indicate the frequency)**
34a	Watching TV/videos/DVD's	☐☐ ☐☐						34b	☐☐ ☐☐	
35a	Bhajans /prayer	☐☐ ☐☐						35b	☐☐ ☐☐	
36a	Watching movies/shows/ concerts	☐☐ ☐☐						36b	☐☐ ☐☐	
37a	Yoga as relaxation	☐☐ ☐☐						37b	☐☐ ☐☐	
38a	Chatting, reading a book or magazine not for school (including comic books) , sitting, listening to music etc.,	☐☐ ☐☐						38b	☐☐ ☐☐	
39a	Playing sedentary games (Carom or chess) or computer/video games (like Nintendo or Xbox or PSP)	☐☐ ☐☐						39b	☐☐ ☐☐	

40a	Using the internet, emailing or other electronic media for leisure	☐☐ ☐☐						40b	☐☐ ☐☐	
41a	Doing homework/tuition (including reading, writing or using the computer)	☐☐ ☐☐						41b	☐☐ ☐☐	
42a	Sitting in a car, bus, etc.	☐☐ ☐☐						42b	☐☐ ☐☐	
43a	Riding a bike/motorcycle	☐☐ ☐☐						43b	☐☐ ☐☐	
44a	Others specify _____	☐☐ ☐☐						44b	☐☐ ☐☐	
45a	Others specify _____	☐☐ ☐☐						45b	☐☐ ☐☐	

SECTION V – PHYSICAL ACTIVITY –VACATION/HOLIDAYS ACTIVITY: List all the activities that you do in long vacation/holidays and are not mentioned in the earlier. This section deals with activities during long vacation/holidays					
Q.no	**Vacation/Holidays - General**				
		Daily	**Weekly**	**Monthly**	**Duration / (Hrs: mins)**
46i	Sleeping (Regular hours of sleep usually at night)				☐☐ ☐☐
46ii	Nap (short break of sleep - time)				☐☐ ☐☐
Q.no	**Vacation/Holidays - Leisure**				
	Activity - Light	**Daily**	**Weekly**	**Monthly**	**Duration / (Hrs: mins)**
47	Slow walking (Example- Shopping, going to a worship place)				☐☐ ☐☐
48	Playing a musical Instrument/ Singing/ Drawing/ Art/ Craft (as a hobby)				☐☐ ☐☐
49	Others specify _____				☐☐ ☐☐

50	Others specify _____				☐☐ ☐☐

	Activity –Moderate	**Daily**	**Weekly**	**Monthly**	**Duration / (Hrs: mins)**
51	Brisk walking as an exercise				☐☐ ☐☐
52	Cricket				☐☐ ☐☐
53	Jogging / slow running				☐☐ ☐☐
54	Dancing / aerobics/ yoga (asanas)				☐☐ ☐☐
55	Swimming				☐☐ ☐☐
56	Cycling including exercise cycling / bike				☐☐ ☐☐
57	Others specify _____				☐☐ ☐☐
58	Others specify _____				☐☐ ☐☐

	Activity – Vigorous	**Daily**	**Weekly**	**Monthly**	**Duration / (Hrs: mins)**
59	Conditioning exercises (like muscle strengthening exercises, using a rowing machine, free weights etc.				☐☐ ☐☐
60	Running / sprinting				☐☐ ☐☐ ☐☐ ☐☐
61	Football, basket ball, tennis, volleyball etc.,				☐☐ ☐☐ ☐☐ ☐☐
62	Others specify _____				
63	Others specify _____				
	Activity –Sedentary	**Daily**	**Weekly**	**Monthly**	**Duration / (Hrs: mins)**
64	Watching TV/videos/DVD's				☐☐ ☐☐
65	Bhajans /prayer				☐☐ ☐☐
66	Watching movies/shows/ concerts				☐☐ ☐☐
67	Yoga as relaxation				☐☐ ☐☐

68	Chatting, reading a book or magazine not for school (including comic books) , sitting, listening to music etc.,				☐☐ ☐☐
69	Playing sedentary games (Carom or chess) or computer/video games (like Nintendo or Xbox or PSP)				☐☐ ☐☐
70	Using the internet, emailing or other electronic media for leisure				☐☐ ☐☐
71	Doing homework (including reading, writing or using the computer)				☐☐ ☐☐
72	Sitting in a car, bus, etc.				☐☐ ☐☐
73	Others specify _____				☐☐ ☐☐
74	Others specify _____				☐☐ ☐☐

Thank you

Respondent Signature: **Interviewer's Signature & Date:**

_____ _____