original article

Validation of the scale for evaluation of environment perception for physical activity practice in adults living in region of low socioeconomic level

Validação de uma escala de percepção do ambiente para a prática de atividade física em adultos de uma região de baixo nível socioeconômico

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Abstract – The objective of this study was to verify the validity of the perception of environment scale for engagement in physical activity in adult population. Two samples were drawn: the first, to compare the scale results with built environment and engagement in physical activity (767 individuals with 18 years or more); and the latter, for the analyses of repeatability (30 individuals with 60 years or more). Both studies were carried out in Ermelino Matarazzo District, eastern zone of the city of São Paulo. The perception of environment scale was developed based on the NEWS scale and on a social support for physical activity scale, and the final version comprised 38 questions. Data analysis: The scale results were compared to built environment and physical activity level, and for repeatability measure. The correlation coefficients for questions varied from r=0.51 to r=0.89, and for scores they varied from r=0.72 to r=0.94. There was significant agreement between means of perception of environment score of facilities for physical activity and the respective classification of built environment (p<0.001). The individuals who had any engagement in leisure-time physical activities had higher means for the scores of facilities (p<0.001), safe perception (p=0.033), and social support (p=0.001). The scale provided reliable and valid results for assessing the perception of environment for physical activity, mainly for the perception of the facilities of the environment.

Key words: Environment; Perception; Physical activity; Validation.

Resumo – *O objetivo do estudo foi verificar a validade de uma escala de percepção do ambiente para a prática de atividade física em adultos. Este estudo de validação teve duas amostras: 1) Comparação da escala com dados avaliados de forma objetiva e com a prática de atividade física (767 indivíduos com 18 anos ou mais); 2) Estudo de reprodutibilidade (30 indivíduos com 60 anos ou mais). Ambas as amostras residiam no Distrito de Ermelino Matarazzo, zona leste de São Paulo, SP. A escala de percepção do ambiente para a prática de atividade física foi composta por questões embasadas na escala NEWS e numa escala de apoio social para a prática de atividade física e a versão final foi composta de 38 questões. Análises de dados: A escala foi comparada com o ambiente avaliado de forma objetiva, com o nível de atividade física e por meio de medida repetida. Os coeficientes de correlação para as questões variaram de r=0,51 a até r=0,89 e para os escores de r=0,72 a até r=0,94. Houve diferença estatisticamente significativa na média do escore de percepção de facilidades/conveniências para a prática de atividade física segundo a classificação do ambiente avaliado de forma objetiva (p<0,01). As pessoas que praticavam alguma atividade física no tempo de lazer tiveram maiores médias nos escores de facilidades/conveniências (p<0,01), percepção de segurança geral (p=0,033) e de apoio social (p=0,001). A escala apresentou resultados satisfatórios de reprodutibilidade para a amostra de idosos e de validade para os adultos, principalmente, na percepção de facilidades/conveniências.*

Palavras-chave: *Ambiente; Atividade Física; Percepção; Validação.*

INTRODUCTION

Physical activity is recognized for its important role in promoting health[1]. However, the high prevalence of physical inactivity, particularly in the leisure-time and as a form of transportation, is still a public health problem worldwide, especially in middle-income countries like Brazil, which are undergoing fast changes in patterns of morbimortality[2].

Several individual, social and environmental aspects have been identified and associated with regular physical activity[3]. The relationship between these aspects and physical activity has been addressed in complex theoretical models, which assume that this practice occurs as a result of the interaction between them[3]. In this context, some existing attributes in the community, as the perception of the environment, can interfere with physical activity and may assist the development of population-based interventions to promote this habit[3,4].

One of the reasons that limit the investigations in this field is the shortage of suitable and valid instruments. These instruments that measure the environment are few and almost all of them originating in European countries, North America or Australia. Among internationally most used instruments, is the Neighborhood Environment Walkability Scale (NEWS), originally developed by Saelens et al.[4]. This scale aims to evaluate the environment constructs that can encourage walking for pleasure and as a form of transportation, such as residential density, commercial structures access proximity and perception, characteristics of the streets close to residences in relation to the natural and built environment, as well as public security and safety related to traffic[4,5]. In Brazil, Malavasi et al.[5] carried out the translation and tested the reliability of this scale in adults living in Florianópolis, State of Santa Catarina. However, some characteristics of the instrument may limit its use in the Brazilian population. First, some distinct attributes of American cities and communities, such as less dependence on public transportation and travel on foot, lower incidence of traffic accidents and crime, as well as norms of behavior specific to that context (e.g.: speed limits and use of public facilities). Moreover, the format of answers in wide agreement scales may be less understood by people with low education, especially in average income countries[6]. For this reason, we decided to propose a new scale that could be more understandable to be applied to the Brazilian reality and in regions of low socioeconomic level, starting from some constructs of the NEWS scale[4,5] and other instrument to check the social support for physical activity[7]. The aim of this study was to verify the validity of a scale of environment perception to physical activity among adults living in a region of low socioeconomic level.

METHODOLOGICAL PROCEDURES

Study Desing and Sample
The present study was developed as part of the research entitled "Physi-

cal activity and its relation to individual and environmental indicators in adult and elderly population of the District of Ermelino Matarazzo, in the eastern zone of the city of São Paulo", cross-sectional population-based study, whose information were collected through home interviews made in 2007, 2008 and 2009.

The District of Ermelino Matarazzo is on the eastern zone of the city of São Paulo and is bordered by the city of Guarulhos. According to data from the last census conducted in 2010 by the Brazilian Institute of Geography and Statistics (IBGE, acronym in Portuguese), Ermelino Matarazzo has an area of 8.95 km², 113,615 inhabitants and population density around 15,419 inhabitants per km² (Figure 1).

Figure 1. Image of Ermelino Matarazzo District, eastern zone of the city of São Paulo, State of São Paulo.

This study had two samples: 1) Comparative study of scale of environment perception with evaluated data in an objective way – validity analysis: 767 adults (aged 18 or older), noninstitutionalized, of both sexes, living in an urban area in the District of Ermelino Matarazzo. This was the sample of household-based survey conducted in Ermelino Matarazzo in 2007 and 2008. Further details on sampling can be obtained from Florindo et al.[8] and Salvador et al.[9], 2) Repeatability study: 30 elderly (aged 60 or older). This was a subsample of elderly extracted from household-based survey that was selected by simple random of the total sample of 385 elderly, and the data were collected in 2009.

As an inclusion criterion in both samples, individuals should reside for at least six months at randomly selected address, be 18 years or more in the first sample of the study and 60 years or more in the second one. Bedridden or individuals with illness/mental disorders that could limit their ability to answer the questionnaires alone were excluded from both samples.

This study was approved by the Ethics Committee of Public Health School of the University of São Paulo (the first study sample) and by the Ethics Committee of the School of Physical Education and Sport of the same institution (the second study sample).

Scale for the perception of the environment related to physical activity

We searched some instruments that could be used to the environment evaluation and we chose the scale of environment active mobility perception or NEWS (Neighborhood Environment Walkability Scale)[4,5] and the scale of social support for physical activity[7]. The NEWS was initially validated by Saelens et al.[4] and is now recommended to evaluate the perception of the environment by IPEN (International Physical Activity and Environment Network.) In Brazil, the translation and validation of the repeatability of this scale were subjects of master's thesis defended at Federal University of Santa Catarina in 2006 and published later by Malavasi et al.[5]. The scale of social support for physical activity was developed and validated by Reis et al.[7].

A group of five researchers with expertise in epidemiology of physical activity met in 2006 to discuss a scale proposal that would be feasible to be applied in population-based studies in Brazil starting from a previously validated instrument. Initially we have reached a consensus that this instrument could be composed by derived and adapted questions from the scale of environment active mobility perception (NEWS) and the scale of social support for the practice of physical activity[7]. The validated for Portuguese full version of NEWS has 83 questions[5] and the scale of social support for physical activity has 12 questions[7]. The new instrument proposal ended with 38 questions divided into: 1) built environment structures for practice (18 questions); 2) sidewalks (two questions); 3) green areas (two questions); 4) topography of streets (one question); 5) environmental pollution (three questions); 6) traffic safety (three questions); 7) general safety (three questions); 8) social support (three questions); 9) weather (one question); 10) pet/dog (two questions) (Appendix).

The first part of the scale was structured so that individuals answered how long it would take to walk from their homes to different commercial, service or entertainment points in the neighborhood where they lived (questions 1 to 18). From questions 19 to 25, respondents were asked to consider as close to their homes places where they could get in a 10 minutes walk. The other questions were composed by dichotomous (yes or no) or polytomous (poor, fair or good) categorized options of response.

Development of scale scores

The 38 original questions were later grouped in sections, from which these analyses were carried out in this study.

- Score of accessibility to conveniences: was composed by the presence

and proximity of access to 18 structures (questions 1 to 18 of the Annex). It was considered distant the structure that was 10 minutes walk or more from the house of the respondent, and it was considered close the structure that was less than 10 minutes walk. This score varied from 1 to 18;

- Score of traffic safety: considered if vehicular traffic interfered or not with walk or bicycle use, the existence of tracks to cross near their homes and if drivers used to stop and let people cross the tracks (questions 26 to 28 of the Annex). When all items were present (no traffic making it difficult to walk, the existence of tracks and drivers respecting pedestrians), the score would be 3 and, when none of these items were present, it would be 0;

- General safety score: results from the sum of the questions related to lighting, security during day and night (questions 30 to 32 of the Annex). This score varied from 0 to 3;

- Score of social support: refers to the support obtained to perform physical activities (questions 33 to 35 of the Annex), which results varied from 0 to 3;

- Score of general pollution: included items related to smoke, garbage and sewage near respondents´ homes (questions 24, 25 and 29 of the Annex). In this score, the highest values meant less polluted environments. It also varied between 0 and 3;

- Score of pet (dogs´ owners): considered if people had dogs and walked with them. If people had no dog, the score was 0. If they had, but did not walk with them, the score was 1 and, if dogs´ owners walked with their pets, the score was 2. It refers to questions 37 and 38 of the Annex;

Comparative study with objective environment data

The collected environment data were compared to the objective environment variables evaluated by auditing the census sectors in the subjects´ homes[8] (first study sample). It was created an objective environment score for physical activity during leisure- time, which was composed of variables of the built environment and security for transit. In the end, this score classifies housing census sectors for the practice of physical activity in good or bad. More details on these scores can be obtained in the work of Florindo et al.[10].

Reliability study

Reliability (test-retest) was measured by repeated measurements with an interval of seven days in the elderly (second study sample).

Physical activity comparative study

The comparison of environment perception to physical activity was made by using questionnaires (first study sample).

Physical activity as leisure was evaluated using the International Physical Activity Questionnaire (IPAQ), long version, questioning on the last seven days[11]. Adults (first sample) were classified in two categories: 'active/inactive', grouping, as 'active', the respondents who reported 10 or more minutes of physical activity in a week; and, as 'inactive', individuals with no physical activity.

Statistical analysis

For the analysis of repeated measurements, we calculated the Spearman correlation coefficient for the questions with three or more response categories and the intraclass correlation coefficient for scores. For physical activity comparative analysis, we calculated the differences in mean scores according to the classification of the perceived level of physical activity (did or did not) through Mann-Whitney non-parametric test. For an objective comparative environment analysis with the collected data, we calculated the differences in mean scores perceived as good or bad according to the classification of the objective environment through Mann-Whitney non-parametric test. Analyses were performed using the software SPSS (Statistical Package for Social Sciences), version 15.0.

RESULTS

From the total of 767 adults (first sample), most were female (58%), mean age of 50.7 years old (sd = 18.8 years) and from eight to 11 years of scholarity (46.3%). As for the elderly (second sample), most of them were also females (66.7%), but with up to seven years of scholarity (83.3%) and mean age of 73.2 years old (sd = 5.7 years).

The correlation coefficients for repeatability of the questions varied from r=0.51 for bank access to r=0.89 for access to supermarkets and for scores from r=0.72 for general pollution to r=0.94 for facilities/conveniences (Table 1).

There was a significant statistical difference in mean score of facilities/conveniences perception for the practice of physical activity according to the classification of the objectively evaluated environment. The highest scores of perception of structures for the practice of physical activities were in the group of people living in better environments for this kind of activity (Table 2).

People who practiced physical activity in leisure-time had higher mean scores of facilities/conveniencies, general safety and social support for physical activity perception (Table 3).

Table 1. Results of mean scores, standard-deviations (sd) and correlation coefficients for repeated measures of categorical questions and scale scores, Ermelino Matarazzo, São Paulo, State of São Paulo, 2009 (N=30 elderly).

	1st measure	2nd measure		
	mean (sd)	mean (sd)	$r_{spearman}$	r_{icc}
Access to parks	0.37(0.49)	0.30(0.47)	0.86	-
Access to squares	1.77(0.50)	1.53(0.63)	0.61	-
Access to places for a walk	0.73(0.87)	0.63(0.85)	0.88	-
Access to gyms	1.20(0.80)	1.17(0.83)	0.85	-
Access to clubs	0.13(0.43)	0.17(0.53)	0.63	-
Access to courts	0.87(0.86)	0.83(0.75)	0.63	-
Access to soccer fields	1.20(0.85)	1.11(0.78)	0.72	-
Access to bus stops	1.90(0.30)	1.87(0.35)	0.52	-
Access to train stations	1.03(0.49)	1.13(0.40)	0.79	-
Access to health care units	1.47(0.51)	1.50(0.51)	0.80	-
Access to pharmacies	1.77(0.43)	1.80(0.41)	0.71	-
Access to churches or religious temples	1.67(0.48)	1.73(0.45)	0.69	-
Access to bakeries	1.80(0.48)	1.83(0.46)	0.64	-
Access to banks	1.37(0.56)	1.23(0.43)	0.51	-
Access to bars	1.90(0.30)	1.90(0.30)	0.63	-
Access to fairs (farmers market)	1.60(0.50)	1.60(0.50)	0.58	-
Access to mini-markets	1.63(0.72)	1.67(0.67)	0.85	-
Access to supermarkets	1.40(0.62)	1.30(0.65)	0.89	-
Score of sidewalks	1.60(0.81)	1.73(0.69)	0.79	0.77
Score of green areas	2.00(1.20)	1.77(1.28)	0.68	0.64
Score of traffic safety	0.83(0.87)	0.90(0.80)	0.75	0.89
Score of general safety	1.67(0.88)	1.67(0.92)	0.87	0.94
Score of social support	0.97(0.93)	0.97(0.93)	0.77	0.89
Score of pollution	1.27(1.05)	1.03(0.96)	0.60	0.72
Score of pets (dogs)	0.77(0.63)	0.80(0.66)	0.87	0.88
Score of facilities/conveniences[1]	14.60 (1.75)	14.60(1.60)	0.94	0.94

1. Sum of perception of parks, squares, clubs, places for a walk, gyms, courts, soccer fields, bus stops, train stations, basic health units, pharmacies, churches, bakeries, banks, bars, fairs, mini-markets and supermarkets; r_{icc}= intraclass correlation coefficient.

Table 2. Results of mean scores, standard-deviations and differences in mean scores of perception according to the objectively evaluated environment. Ermelino Matarazzo, São Paulo, State of São Paulo, 2007 (N=767 adults).

	Good environment	Bad environment	
Scores of perceived environment	mean (sd)	mean (sd)	p
Score of sidewalks	1.57 (0.96)	1.45 (0.88)	0.076
Score of green areas	1.15 (1.28)	1.21 (1.27)	0.516
Score of traffic safety	1.04 (0.88)	0.98 (0.91)	0.307
Score of general safety	1.55 (0.94)	1.55 (0.97)	0.979
Score of social support	0.77 (0.81)	0.70 (0.89)	0.078
Score of pollution	1.70 (0.94)	1.72(0.97)	0.778
Score of pets (dogs)	0.56 (0.71)	0.56 (0.65)	0.731
Score of facilities/conveniences[1]	15.12 (2.00)	14.34 (2.43)	<0.001

1. Sum of perception of parks, squares, clubs, places for a walk, gyms, courts, soccer fields, bus stops, train stations, health care units, pharmacies, churches, bakeries, banks, bars, fairs, mini-markets and supermarkets.

Table 3. Results of mean scores, standard-deviations and differences in mean scores of perception according to level of physical activity. Ermelino Matarazzo, São Paulo, State of São Paulo, 2007 (N=767 adults).

	Practice PA in leisure-time time	Do not practice PA in leisure-time	
Scores of perceived environment	mean (sd)	mean (sd)	p
Score of sidewalks	1.47 (0.89)	1.49 (0.92)	0.708
Score of green areas	1.26 (1.30)	1.16 (1.26)	0.323
Score of traffic safety	1.05 (0.89)	0.98 (0.90)	0.235
Score of general safety	1.66 (0.96)	1.50 (0.95)	0.033
Score of social support	0.86 (0.88)	0.65 (0.85)	0.001
Score of pollution	1.72 (0.98)	1.70 (0.95)	0.829
Score of pets (dogs)	0.56 (0.70)	0.56 (0.64)	0.534
Score of facilities/conveniencies[1]	15.14 (1.98)	14.33 (2.43)	<0.001

1. Sum of perception of parks, squares, clubs, places for a walk, gyms, courts, soccer fields, bus stops, train stations, health care units, pharmacies, churches, bakeries, banks, bars, fairs, mini-markets and supermarkets.

DISCUSSION

The scale of environment perception to the practice of physical activity evaluated in this study showed satisfactory results of repeatability for the sample of elderly and validity for adults, especially for the accessibility perception to conveniences/facilities structures, general safety perception and social support for physical activity.

In the analysis of repeated measures, international researches have obtained similar results to those found in this work. A study that tested the repeatability of the environmental evaluation module of the International Physical Activity Questionnaire (IPAQ) in Swedish adults aged 18 to 74 years old[12], found intraclass correlation coefficients that varied from 0.36 to 0.98. In the specific comparison of some environment items, we observed that the results found in this study were similar to the evaluation of sidewalks (r_{icc}=0.71 for having sidewalk; r_{icc}=0.75 for the quality of sidewalks in the Swedish study) and higher in the evaluation of general safety (r_{icc}=0.36 for walking during the day; r_{icc}=0.55 for walking at night in the Swedish study), in the traffic safety (r_{icc}=0.60 for safety during a walk; r_{icc}=0.65 for bicycle safety) and on social support (r_{icc}=0.47 in the Swedish study).

A NEWS validation study with 107 American adults between 18 and 65 years old showed coefficients that varied from 0.58 to 0.80[4]. In a specific comparison with environment items, we observed that the correlation coefficients were similar to traffic safety items (r_{icc}=0.77 in the U.S. study) and were higher for walking facility structure items (r_{icc}=0.78 in the American study for the indicator of land use diversity), conditions and structures of sidewalks (r_{icc}=0.58 in the work promoted by the United States) and general safety (r_{icc}=0.80 in the same study).

Another study that tested a modified version of the NEWS in a sample of 87 Australian adults, with an average difference of 12 days between the first and second questionnaires, showed coefficients varying from 0.62 to 0.88[13]. In comparison with environment specific items, the correlation coefficients obtained in this study were higher for structures and facilities

(r_{icc}=0.88 for the item of land use diversity in the Australian study), traffic safety (r_{icc}=0.62 in the Australian study) and for general safety (r_{icc}=0.63 in the Australian study). For the item of walking facilities, the result of this work was similar to the Australian one (r_{icc}=0.76 in the Australian study). While some items were analyzed separately, enabling a better comparison, the Spearman correlation coefficients obtained for the items of sidewalks evaluation (r_{icc}=0.69; r_{icc}=0.83 in the Australian study), green areas (r_{icc}=0.51; r_{icc}=0.81 in the Australian study) and garbage in the streets (r_{icc}=0.61 in the Australian study) were similar to those obtained in the present study.

About the study in Brazil with the NEWS original version with 75 adults residents in Florianópolis, State of Santa Catarina, it showed higher results (r_{icc} varying from 0.98 to 1.0) for repeated measures with a mean interval of application of 10 days[5]. The results of repeated measures of correlation coefficients for individual questions of items related with the access to facilities were similar to the results found in studies with Australian[13] and Brazilian adults[5].

People who practiced physical activity during leisure-time had higher average of accessibility perception to facilities/conveniences, general safety and social support for physical activity. Studies have shown that physical activity is associated with facilities and conveniences for leisure and recreation, with general safety and social support for the practice[14,15]. Adams et al.[14] studied the relationship of physical activity with environment attributes perceived in Americans aged 20 to 65 years. The authors showed that neighborhoods with higher density of areas for recreation and leisure presented a higher mean of minutes a day of moderate and vigorous physical activity evaluated by accelerometer. Furthermore, the study showed that regions with greater potential for walking and higher density of areas for recreation are the places where people do more physical activity in leisure-time and also the places where they have fewer crimes. A similar result was found by Greef et al.[15], who studied Belgian adults and elderly from 35 to 80 years old diagnosed with type 2 diabetes. The authors showed that the amount of facilities and conveniences and greater social support were related to higher mean of minutes a day of physical activity in leisure-time.

In this study, the only variable that presented a significant difference according to the quality of the objectively evaluated environment was the score of perception of the amount of specific targets observed near home. The highest mean was obtained by the group who lived in an environment considered as good for physical activity. The result was the same for the practice of physical activity in the group of the most active individuals during leisure-time. They also observed, on average, a greater number of items for physical activity. Hoehner et al.[16] carried out a study to investigate the relation between the environmental variables, measured in an objective way and by a questionnaire, and physical activity during leisure-time and as a form of displacement in 1068 American adults. An

important outcome was that for variables such as the counting of specific destination items to go on foot we obtained a very similar and significant association of physical activity as a form of displacement in both subjective and objective evaluations.

However, although the results of some evaluated items of perceived environment may be similar to those evaluated in an objective way, researches show that, in general, there is low agreement between objectively measured and perception data[17,18]. Two studies in high-income countries (the United States and Australia) used objective data collected by the GIS system, and compared it with the perceived environment data in the same samples of individuals. In the analyses that classified both dichotomously or categorical indicators, Kappa coefficients were obtained varying from -0.02 to 0.37 for the U.S. study[18] and 0.03 to 0.66 for the Australian[17] one, which are considered as low agreement studies. So, we cannot discard the possibility of the two measures (perceived and objective measures) are measuring different aspects, which could explain the discrepancies. Furthermore, perceived measure is subjective, based on how people think it is, while the objective measure is based on the evaluators (in case of auditing) or the measures of distance and location. Both are important and reflect distinct attributes that can influence the practice of physical activity.

Some limitations of this study include sociodemographic low diversity of the sample, since the scale was tested in only one specific urban context, the repeatability study did not use a sample of adult population and the evaluation of physical activity was made subjectively by a questionnaire.

However, it is believed that this scale can reduce the difficulties of evaluating the perception of the environment when the objective is to associate it with the practice of physical activity, mainly because questions have been modified for categorical results. Furthermore, this scale has been used in epidemiological questionnaires for adults[8] and elderly[9] living in a region of low socioeconomic level in São Paulo and also in a representative study for adults living in the city of Pelotas[19]. In these three studies, the main objective was to verify the relation between the practice of physical activity and perceived environment. Therefore, it is recommended to use this instrument when the objective is to evaluate the environment perception for the practice of physical activity in adults and elderly in Brazil.

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ANNEX

SCALE OF ENVIRONMENT PERCEPTION FOR PHYSICAL ACTIVITY PRACTICE		It has not	DKS
Now we are going to ask some questions about the neighborhood where you live:			
In case of GOING ON FOOT from your home, how long would you take to get to these following places in your neighborhood?			
01. Park (which one):	_____ hours _____ minutes		
02. Square (which one):	_____ hours _____ minutes		
03. Places for a walk (which one):	_____ hours _____ minutes		
04. Gym (which one):	_____ hours _____ minutes		
05. Club (which one):	_____ hours _____ minutes		
06. Court (which one):	_____ hours _____ minutes		
07. Soccer field (which one):	_____ hours _____ minutes		
08. Bus stop	_____ hours _____ minutes		
09. Access to train station	_____ hours _____ minutes		
10. Health care unit (which one):	_____ hours _____ minutes		
11. Pharmacie	_____ hours _____ minutes		
12. Church/religious temple	_____ hours _____ minutes		
13. Bakery	_____ hours _____ minutes		
14. Bank	_____ hours _____ minutes		
15. Bar	_____ hours _____ minutes		
16. Fair (farmers market)	_____ hours _____ minutes		
17. Mini-market	_____ hours _____ minutes		
18. Supermarket	_____ hours _____ minutes		

Now let´s talk about the streets near your home. CONSIDER AS NEAR THE PLACES THAT YOU CAN GET AFTER A 10 MINUTES WALK
19. Are there sidewalks in most streets near your home?   yes-1 no-2 DNK/DNA-9
20. For a walk, how do you evaluate the sidewalks near your home?   good-1 regular-2 bad-3 DNK/DNA-9
21. Are there green areas with trees in the streets near your home?   yes-1 no-2 DNK/DNA-9
22. How do you evaluate the green areas near your home?   good-1 regular-2 bad-3 DNK/DNA-9
23. Are the streets near your home flat (no ups and downs)?   yes-1 no-2 DNK/DNA-9
24. Are there places with accumulated garbage on the streets near your home?   yes-1 no-2 DNK/DNA-9
25. Are there places with open sewer in the streets near your home?   yes-1 no-2 DNK/DNA-9

Now let´s talk about the traffic of cars, buses, trucks and motorcycles near your home:
26. The traffic of cars, buses, trucks and motorcycles difficults the walk or the use of bicycle near your home?   yes-1   no-2   DNK/DNA-9
27. Are there crosswalks on the streets near your home?   yes-1   no-2   DNK/DNA-9
28. Do drivers use to stop and let pedestrians cross in the crosswalks?   yes-1   no-2   DNK/DNA-9
29. Is there smoke pollution near your home?   yes-1   no-2   DNK/DNA-9
Now let´s talk about safety in your neighborhood:
30. Do the streets near your home have good lighting at night?   yes-1   no-2   DNK/DNA-9
31. During daytime, do you feel that it is safe to walk, ride a bicycle or practice sports near your home?   yes-1   no-2   DNK/DNA-9
32. During nighttime, do you feel that it is safe to walk, ride a bicycle or practice sports near your home?   yes-1   no-2   DNK/DNA-9
Now let´s talk about things related to your family, friends, neighbors, the weather and opportunities in your neighborhood:
33. Does any friend or neighbor invite you for a walk, to ride a bicycle or prectice sports in your neighborhood?   yes-1   no-2
34. Does any relative invite you for a walk, to ride a bicycle or prectice sports in your neighborhood?   yes-1   no-2
35. Do sport events and/or guided walks take place in your neighborhood?   yes-1   no-2   DNK/DNA-9
36. Does the weather (cold, rain, heat) difficult your walk, your bicycle riding or your sports practice in your neighborhood?   yes-1   no-2   DNK/DNA-9
37. Do you have dog?   yes-1   no-2
38. Do you use to walk with your dog in the streets of your neighborhood?   yes-1   no-2

DNK (Do not know) e (DNA (Do not answers).