

MANUAL

ALPHA environmental questionnaire

1. Introduction

1.1 Why has the ALPHA environmental questionnaire been developed?

Different measures of environmental perceptions in relation to physical activity have been developed, mostly outside Europe, in the US and Australia. As the built environment in Europe differs considerably from those in the US or Australia this raises questions about the applicability of these questionnaires in a European context. No consensus exists about which environmental questionnaire should be used in Europe. The latter issue was one of the objectives of an EU-funded project called ALPHA (Instruments for Assessing Levels of PHysical Activity and Fitness), that has proposed standardised instruments for physical activity and fitness monitoring across Europe. As part of the ALPHA framework an instrument, the ALPHA environmental questionnaire, that could be used to assess environmental aspects of physical activity in the general adult populations in Europe was created:.

1.2 How was the ALPHA environmental questionnaire developed?

The development process of the ALPHA questionnaire included (1) a literature review on currently used environmental questionnaires in Europe, (2) a survey among European members of the HEPA & IPEN networks, (3) two consensus meetings with an international expert group and (4) two field testing phases in Belgium, France, UK and Austria. More information about the development of the questionnaire can be found in the following papers:

Spittaels H, Foster C, Oppert JM, Rutter H, Oja P, Sjöström M, De Bourdeaudhuij I. : Assessment of environmental correlates of physical activity: development of a European questionnaire. *Int J Behav Nutr Phys Act* 2009, 6: 39.

Spittaels H, Verloigne M., Gidlow C., Gloanec J.; Titze S.; Foster C, Oppert JM, Rutter H, Oja P, Sjöström M and De Bourdeaudhuij I. Measuring physical activity-related environmental factors: reliability and predictive validity of the European environmental questionnaire ALPHA. *Int J Behav Nutr Phys Act* (submitted)

1.3 Who has developed the ALPHA environmental questionnaire?

The core members of the ALPHA group involved in the development of the environmental questionnaire were: Ilse De Bourdeaudhuij (Belgium), Charlie Foster (UK), Pekka Oja (Finland), Jean-Michel Oppert (France), Harry Rutter (UK), Michael Sjöström (Sweden) and Heleen Spittaels (Belgium).

The questionnaire was adapted after two consensus meetings with an international expert group, including the following experts:

Andrea Backovic (Slovenia); Patrick Bergman (Sweden); Fiona C.L. Bull (UK); Basile Chaix (France); Rachel Davy (UK); Janet Klara Djomba (Slovenia); Klaus Gebel (Germany); Christopher Gidlow (UK); Maria Hagstromer (Sweden); Melvin Hillsdon (UK); Andy Jones (UK); Roger Macket (UK); David Ogilvie (UK); Neville Owen (Australia); James F Sallis (US); Kristina Sundquist (Sweden); Sylvia Titze (Austria); Frank Van Lenthe (Netherlands).

1.4 Themes of the ALPHA environmental questionnaire

The ALPHA questionnaire consists of 49 items grouped in 9 themes. These themes are:

- (1) types of residences in your neighbourhood
- (2) distances to local facilities
- (3) walking or cycle infrastructure in your neighbourhood
- (4) maintenance of infrastructure in your neighbourhood
- (5) neighbourhood safety
- (6) how pleasant is your neighbourhood
- (7) cycling and walking network
- (8) home environment
- (9) workplace or study environment

1.5 Aim of this manual

The aim of this manual is to standardize the way the ALPHA environmental questionnaire is being used, and the data is collected, cleaned and analyzed so that it would be possible to compare data across different studies.

2. Using the ALPHA environmental questionnaire

2.1 Collecting data

The ALPHA environmental questionnaire was developed and tested for its reliability and validity as a *paper & pencil questionnaire without assistance*. On average, it takes 6 minutes to complete. The ALPHA questionnaire is available in 6 different European languages: English, Dutch, French, German, Spanish and Finnish. All these versions could be found on the website of the International Physical activity and Environment network (<http://www.ipenproject.org>). Further you could also find an *SPSS data file template* and *SPSS syntax* to input, clean and analyze your data.

2.2 Input data

If you use the statistical program SPSS (now called PASW) we recommend to use the ALPHA data file template. Do not change any of the variables names as these correspond to the names used in the SPSS syntax.

If you don't use the SPSS data file template, please score your data as follows:

<i>Theme</i>	<i>Answer category</i>	<i>Score</i>
Theme 1	None	1
	A few	2
	Some	3
	Most	4
	All	5
Theme 2	1-5 min	1
	6-10 min	2
	11-20 min	3
	21-30 min	4
	More than 30 min	5
Themes 3, 4, 5, 6a, 7	strongly disagree	1
	somewhat disagree	2
	somewhat agree	3
	strongly agree	4
	not applicable	5
6b, 6c, 6d	None	1
	A few	2
	Some	3
	plenty	4
Themes 8 & 9	Yes	1
	No	0

2.3 How to clean and analyze the data?

In this section we describe how to clean and analyze the data. Question numbers are used as a reference for all the calculations. The same question numbers could be found in the SPSS syntax and SPSS data file template.

Step 1. Checking typos and missing values

Check your data on input errors by frequencies or boxplots. Input missing variables if needed.

Step 2. Recode negative items

The following items are negatively/inversely formulated (higher scores indicates a less supportive environment for physical activity): 5a, 5b, 5c, 5d, 5e, 5f, 6b, 6d, 8e, 9Ba, 9Bf. Therefore recode these answers in opposite direction:

<i>Original Items</i>	<i>Recoded items</i>	<i>Recode with following rule</i>
5a, 5b, 5c, 5d, 5e, 5f, 6b, 6d	r5a, r5b, r5c, r5d, r5e, r5f, r6b, r6d	1=> 4 2=>3 3=>2 4=>1
8e, 9Ba, 9Bf	r8e, r9Ba, r9Bf	0=>1 1=>0

Step 3. Answer category Not applicable:

If you don't use the SPSS data file template, recode answer category "not applicable" of items 4a, 4b, 4c into "missing value"

Sept 4. Summations

- Theme 1: Calculate a density score with the following rule:

$$\text{Density score} = 1a + (1b * 12) + (1c * 50)$$

- Theme 2: Calculate a distance score by summing all items of theme 2

$$\text{Distance score} = 2a + 2b + 2c + 2d + 2e + 2f + 2g + 2h$$

- Theme 3: Calculate 3 availability scores with following rules:

$$\text{Availability sidewalks} = 3a + 3b$$

$$\text{Availability bike lanes} = 3c + 3d$$

$$\text{Availability infrastructure} = 3a + 3b + 3c + 3d$$

- Theme 4: Calculate maintenance score by summing all items of theme 4

$$\text{Maintenance} = 4a + 4b + 4c$$

- Theme 5: Calculate 3 safety scores by summing recoded variables of theme 5 with following rules:

$$\text{Total safety} = r5a + r5b + r5c + r5d + r5e + r5f$$

$$\text{Safety crime} = r5a + r5e + r5f$$

$$\text{Safety traffic} = r5b + r5c + r5d$$

- Theme 6: Calculate 2 scores with following rules (attention: include recoded variables r6b & r6d)

$$\text{Pleasure} = 6a + r6b + 6c + r6d$$

$$\text{Aesthetics} = r6b + 6c + r6d$$

- Theme 7: Calculate 2 sumscores with following rules

$$\text{Network} = 7a + 7b + 7c + 7d$$

$$\text{Connectivity} = 7a + 7c + 7d$$

- Theme 8: Calculate sumscore home environment by summing all items of theme 8
(attention: include recoded variable r8e)

$$\text{Home} = 8a + 8b + 8c + 8d + r8e + 8f$$

- Theme 9: Calculate sumscore work/study environment by summing all items of theme 9B
(attention: include recoded variables r9Ba & r9Bf)

$$\text{Work/Study} = r9Ba + 9Bb + 9Bc + 9Bd + 9Be + r9Bf + 9Bg + 9Bh + 9Bi + 9Bj$$