Author's response to reviews

Title: Associations between perceived and observational physical environmental factors and the use of walking paths A cross-sectional study

Authors:

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Version: 6
Date: 5 April 2014

Author's response to reviews: see over
Response to Reviewer#1

Title: Associations between perceived and observational physical environmental factors and the use of walking paths: A cross-sectional study

Reviewer's report:
This paper examines the characteristics of users of walking paths in Shanghai, China. The manuscript addresses an important public health problem and is generally well developed. However, there are some areas of the manuscript that could use additional clarification.
Overall, the writing in the paper is good. However, there are some awkward phrases and incorrect grammatical statements. The paper could use a through proofreading from a native English speaker.

Response to Reviewer’s report:
We appreciate your kind suggestions. The manuscript has been revised based on your comments. The manuscript has received a professional editing service. We sincerely hope this manuscript will be finally acceptable to be published on BMC Public Health.

Major Compulsory Revisions

2. Methods: It is unclear how or why the six walking paths were selected.

3. Methods: More specific times for the observations would be helpful. For instance, were morning data collection from 6-8 or 7-11?

4. Methods: Were all paths observed on the same days? Were the 20 days of observation consecutive? What month was the data collected? Seasonality and daylight hours could have large effects on usage.

5. Is there reliability and validity information for the rating scale of environment features?

6. Mean of the two observers was used to report the data. Was an IRR calculated?

7. It might be good to provide a description (table) of the walking paths in the methods section.

8. More information is also needed for the survey sampling. How were the neighborhoods selected? How were households within the neighborhoods selected? Were individuals randomly selected within homes?

Response to Reviewer’s comments:

1. According to some Chinese literature, the sentence has been revised as follows: “With changes in modern working and lifestyles, the number of people who participate in moderate and vigorous physical activity during their leisure time is generally <20%, and physical activity levels decline in Chinese adults, particularly in the middle-aged working population.”
2. Based on the comments, we added several sentences in the method part: “We had paid a visit to 10 communities and sport parks before performing the study. An intercept convenient sample of 20 community residents (>20 years old) from several neighborhoods was interviewed. The results revealed that length of the walking path and the surroundings might influence walking path utilization. Therefore, six walking paths in the community were selected according to the permanent physical and current conditions of each path.”

3. Based on the comments, we added several sentences in the method part: “Direct observation was performed on each Tuesday, Thursday, Saturday, and Sunday between April 13th and May 16th. Four periods of observations were used: the morning (6:30–7:30 AM), noon (11:30–1:30 PM), afternoon (3:30–4:30 PM), and evening (6:30–7:30 PM).”

4. Yes, all paths were observed on the same days. The 20 days of observation were not consecutive to balance the number of working days and weekends. Observation was conducted on each Tuesday, Thursday, Saturday and Sunday between April 13th and May 16th.

5. No. We appreciate your kind advice. We added several sentences in the discussion part: “The rating scale for the environmental features of the walking paths was developed based on literature reviews and intercept interviews with local residents. However, the reliability and validity of the scale have not been tested.”

6. Yes, the consistency of variables was calculated as follows.

We added several sentences and Table 3 in the result part: “The consistency of observational variables was calculated in Table 3. The consistency ranged from 72.7% to 94.7%, which showed an acceptable reliability.”

**Table 3- The consistency of observational variables**
### Variables

<table>
<thead>
<tr>
<th>Observation period</th>
<th>Consistency</th>
<th>Method of calculation</th>
<th>Means</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>Current rating</td>
<td>540</td>
<td>A/B</td>
<td>92.6</td>
</tr>
<tr>
<td>Total person-times</td>
<td></td>
<td>540</td>
<td>A/B</td>
<td>94.7</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>540</td>
<td>A/B</td>
<td>92.6</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>540</td>
<td>A/B</td>
<td>93.0</td>
</tr>
<tr>
<td>Speed</td>
<td>Person-times of brisk walking</td>
<td>540</td>
<td>A/B</td>
<td>72.8</td>
</tr>
<tr>
<td></td>
<td>Person-times of casual walking</td>
<td>540</td>
<td>A/B</td>
<td>72.7</td>
</tr>
<tr>
<td>Age</td>
<td>≤19</td>
<td>540</td>
<td>A/B</td>
<td>90.2</td>
</tr>
<tr>
<td></td>
<td>20-59</td>
<td>540</td>
<td>A/B</td>
<td>84.4</td>
</tr>
<tr>
<td></td>
<td>≥60</td>
<td>540</td>
<td>A/B</td>
<td>74.3</td>
</tr>
</tbody>
</table>

(A and B were the results from a pair of observers at same time and same place)

7. Thanks for your suggestion. Table 3 has been split to two tables (table 1 and table 4). Table 1 has been added in the method part.

**Table 1 - Description of the walking paths**

<table>
<thead>
<tr>
<th>Walking path</th>
<th>Length (m)</th>
<th>Area covered (1000 m2)</th>
<th>Population (thousands)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>144</td>
<td>6.78</td>
<td>4.128</td>
<td>Border</td>
</tr>
</tbody>
</table>
*Unlike the other walking paths, C3 was located in the park. As the area covered by C3 and population were difficult to estimate, the utilization index cannot be computed.

Table 4 - Environmental assessment rating of the walking paths by observational methods

<table>
<thead>
<tr>
<th>Walking path</th>
<th>Utilization index*</th>
<th>Brisk walking prevalence (%)</th>
<th>Permanent rating</th>
<th>Current rating</th>
<th>Overall rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>3.25</td>
<td>53.30</td>
<td>69.53±6.01</td>
<td>85.09±8.86</td>
<td>77.31</td>
</tr>
<tr>
<td>A2</td>
<td>2.17</td>
<td>35.89</td>
<td>40.29±5.21</td>
<td>70.59±14.62</td>
<td>55.44</td>
</tr>
<tr>
<td>B1</td>
<td>3.89</td>
<td>37.01</td>
<td>79.47±3.61</td>
<td>84.19±10.64</td>
<td>81.83</td>
</tr>
<tr>
<td>B2</td>
<td>3.15</td>
<td>31.86</td>
<td>64.71±4.60</td>
<td>70.44±14.19</td>
<td>67.58</td>
</tr>
<tr>
<td>C1</td>
<td>1.91</td>
<td>38.74</td>
<td>60.91±8.08</td>
<td>77.25±12.93</td>
<td>69.08</td>
</tr>
<tr>
<td>C2</td>
<td>12.86</td>
<td>50.98</td>
<td>58.13±3.97</td>
<td>79.50±12.62</td>
<td>68.82</td>
</tr>
</tbody>
</table>
8. Based on the comments, we added several sentences in the method part: “The subjects were selected during two-stages of sampling. During the first stage, 17 different neighborhoods were selected randomly in the Minhang district of Shanghai, China. In the second selection stage, 1800 participants aged 15–75 years were identified randomly after stratifying by gender and age.”

**Response to Reviewer#2**

*Title: Associations between perceived and observational physical environmental factors and the use of walking paths: A cross-sectional study*

*Version:2 Date:11 March 2014*

*Reviewer: Tracy Kolbe-Alexander*

*Reviewer's report:*

**Major Compulsory Revisions:**

**General Comments:**

The manuscript should be edited by an English language reviewer to improve the grammar and assist with some of the translations.
of terms. The methods section lacks some key information that would assist the reader with the interpretation of data and to draw their own conclusions. Most of the methodology should be revised, so that it’s a comprehensive summary of how paths were chosen, which and how the neighborhoods were chosen, the measures included and scoring applied, for example.

**Response to Reviewer’s report:**

We appreciate your kind suggestions. The manuscript has been revised based on your comments. The manuscript has received a professional editing service. We sincerely hope this manuscript will be finally acceptable to be published on *BMC Public Health*.

**Specific Comments:**

**Abstract:**

**Background:**

1. The statement in the 2nd sentence is not completely accurate as there is some evidence of the relationship between the environment and physical activity.

**1. Response to Reviewer’s comments:**

The sentence has been revised as follows: “Although the application of environmental approaches is believed to promote resident walking, there remains insufficient evidence of the effectiveness of these interventions.”

**Methods:**

2. Provide the duration and times of day that the path was observed.

**2. Response to Reviewer’s comments:**
Based on the comments, we added several sentences in the method part:” Observations were performed on each Tuesday, Thursday, Saturday, and Sunday from April 13th to May 16th. Four periods of observations were designed including the morning (6:30–7:30 AM), noon (11:30–1:30 PM), afternoon (3:30–4:30 PM), and evening (6:30–7:30 PM).  ”

3. Provide more information on the content and scoring used in the ‘observation forms’.

**3. Response to Reviewer’s comments:**

Based on the comments, we added several sentences in the method part:” Observers rated the walking paths based on two sets of scale: the permanent, and current rating scales. Permanent physical features included the path length, aesthetics, path material, resting areas, path slope, the placement of healthy signs along the paths, and the prohibition of vehicles. These seven items were weighted with different scores based on the perception of 20 residents regarding the contribution of the environment to physical activity. The maximum score for aesthetics was 25, those of length, material, and healthy signs were 15, and that for the remaining three items was 10. The current rating scale was developed based on lighting, cleanness, and accessibility conditions, and the organization of walking activities. The maximum score of organization of walking activities was 10, and that for other three items was 30.”

4. Were the questionnaires self-administered? The last two sentences are very confusing – why was the response 84% if they were interviewer-administered? Or does this refer to the percentage of people who agreed to participate after being invited to the study?

**4. Response to Reviewer’s comments:**

Yes. All of the questionnaires were self-administered unless the respondents were unable to understand. All the participants returned
their questionnaires. However, there were 15.1% invalid questionnaires with more than 10% missing value. The sentence has been revised as follows: “Trained interviewers were responsible for collecting the self-administered questionnaires, unless the respondents were unable to understand them during door-to-door visits.”

Results:

5. Please provide some data to that the reader knows what determines ‘good agreement’.

5. **Response to Reviewer’s comments:**

The sentence has been revised as follows: “The results of both observation and questionnaires showed good agreement regarding the characteristics of walking path users (for observation, female = 54.4%; for questionnaire interviews, female, OR = 1.441), and the environmental features associated with walking path utilization (for observation, positive associations were observed between the utilization index and observational environmental variables; for questionnaire interviews, roads and aesthetics were important, OR = 1.044).”

6. Report the confidence intervals when reporting the Odds ratios

6. **Response to Reviewer’s comments:**

Based on the comments, we added the confidence intervals as follows: “Female participants were more likely to use walking paths than males (OR = 1.441, 95% confidence interval [CI] 1.126–1.846). BMI and traffic hazard safety were significantly negatively associated with walking path use (OR = 0.948, 95%CI 0.915–0.981, and OR = 0.933, 95%CI 0.887–0.981, respectively). Roads, aesthetics, and knowledge of physical activity were significantly positively correlated with use of walking paths (OR = 1.044, 95%CI 1.017–1.072, and
OR = 1.175, 95%CI 1.043–1.323). Participants that resided further than 1 km from the park were less likely to use walking paths (OR = 0.703, 95%CI 0.530–0.933). Gender-specific associations between potential correlates and walking path use were also found. In males, BMI and traffic hazard safety score were significantly negatively associated with use of walking paths (OR = 0.926, 95%CI 0.880–0.975, and OR = 0.901, 95%CI 0.838–0.969, respectively). In contrast, roads and aesthetics scores were significantly positively correlated with walking path use (OR = 1.078, 95%CI 1.036–1.123). Among females, knowledge of physical activity was the only variable that was significantly associated with walking path use (OR = 1.179, 95%CI 1.007–1.381).


7. Response to Reviewer’s comments:
Based on the comments, we added several sentences in the result part:” In males, BMI and traffic hazard safety score were significantly negatively associated with use of walking paths (OR = 0.926, 95%CI 0.880–0.975, and OR = 0.901, 95%CI 0.838–0.969, respectively). In contrast, roads and aesthetics scores were significantly positively correlated with walking path use (OR = 1.078, 95%CI 1.036–1.123). Among females, knowledge of physical activity was the only variable that was significantly associated with walking path use (OR = 1.179, 95%CI 1.007–1.381).”

8. Conclusion: Insufficient data and information on permanent and current conditions are presented in the results to lead to the conclusion stated in the last sentence.

8. Response to Reviewer’s comments:
The sentence has been revised as follows:” Data suggested that the permanent and current conditions of the paths might influence
walking path utilization, and that gender-specific promotion strategies should be considered.”

Background:

9. Page 5, line 7: what were the expected associations?

**9. Response to Reviewer’s comments:**

The sentence has been revised as follows: “More recently, studies revealed either positive or no associations between the built environment and physical activity”

10. Page 6, line 4: reference needed to support the statement made.

**10. Response to Reviewer’s comments:**

Reference has been added.

11. Page 6, lines 9,10: references are required to support these statements.

**11. Response to Reviewer’s comments:**

References have been added.

Methods:

Section 1.1.1

12. What is meant by ‘community’? Does this mean that the paths observed were not located in parks?

**12. Response to Reviewer’s comments:**

Yes. It means that the paths were located in the neighborhoods. The sentence has been revised as follows:” six walking paths in the
neighborhoods were selected according to the permanent physical and current conditions of each path.”

13. How were the paths and their locations chosen?

**13. Response to Reviewer’s comments:**

Based on the comments, we added several sentences in the method part: “We had paid a visit to 10 communities and sport parks before performing the study. An intercept convenient sample of 20 community residents (>20 years old) from several neighborhoods was interviewed. The results revealed that length of the walking path and the surroundings might influence walking path utilization. Therefore, six walking paths in the community were selected according to the permanent physical and current conditions of each path.”

14. Please provide more detail on the content, variables measured and scoring criteria, for the observation forms. There is insufficient information provided for these forms.

**14. Response to Reviewer’s comments:**

Based on the comments, we added several sentences in the method part:” Observers rated the walking paths based on two sets of scale: the permanent, and current rating scales. Permanent physical features included the path length, aesthetics, path material, resting areas, path slope, the placement of healthy signs along the paths, and the prohibition of vehicles. These seven items were weighted with different scores based on the perception of 20 residents regarding the contribution of the environment to physical activity. The maximum score for aesthetics was 25, those of length, material, and healthy signs were 15, and that for the remaining three items was 10. The current rating scale was developed based on lighting, cleanness, and accessibility conditions, and the
organization of walking activities. The maximum score of organization of walking activities was 10, and that for other three items was 30."

15. Was there one form per path? Is this also part of section 1.2.1?

**15. Response to Reviewer’s comments:**
Based on the comments, we added several sentences in the method part:” The same tables were applied to assess the permanent environment and current environment for all the paths. All the observers were required to rate the permanent environment of all the walking paths once. During each observation period, the two observers need to rate the current environment of paths and record the person-times.” Therefore, there were 228 forms rating the permanent environment, 1080 forms assessing the current environment, and 1080 forms recording the person-times.

16. The additional walking path in a park – was this in a different area?

**16. Response to Reviewer’s comments:**
Based on the comments, we added several sentences in the method part:” The walking path in sport park was also in Minhang district as same as the other six paths. However, it was located in the park rather than a neighborhood. The park was built for recreation and exercises for all the residents in the district.”

Section 1.1.2

17. How were the residents selected?

**17. Response to Reviewer’s comments:**
Based on the comments, we added several sentences in the method part:” The subjects were selected during two-stages of sampling. During the first stage, 17 different neighborhoods were selected randomly in the Minhang district of Shanghai, China. In the second selection stage, 1800 participants aged 15–75 years were identified randomly after stratifying by gender and age.”

18. How far did they live from the paths observed?

**18. Response to Reviewer’s comments:**

Based on the comments, we added several sentences in the method part:” Among all the 17 neighborhoods, there were six neighborhoods where the paths were observed. The average distance from park to their neighborhoods was 4.15km.” More details were presented in the table below.

<table>
<thead>
<tr>
<th>ID of neighborhood</th>
<th>Distance to park</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.9000</td>
<td>61</td>
</tr>
<tr>
<td>2</td>
<td>1.9000</td>
<td>126</td>
</tr>
<tr>
<td>3</td>
<td>.8680</td>
<td>98</td>
</tr>
<tr>
<td>4</td>
<td>1.2000</td>
<td>98</td>
</tr>
<tr>
<td>5</td>
<td>.9670</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>6</td>
<td>1.9000</td>
<td>122</td>
</tr>
<tr>
<td>7</td>
<td>1.3000</td>
<td>118</td>
</tr>
<tr>
<td>8</td>
<td>.9480</td>
<td>111</td>
</tr>
<tr>
<td>9</td>
<td>.7340</td>
<td>106</td>
</tr>
<tr>
<td>10</td>
<td>2.1000</td>
<td>88</td>
</tr>
<tr>
<td>11</td>
<td>8.7000</td>
<td>117</td>
</tr>
<tr>
<td>12</td>
<td>9.2000</td>
<td>116</td>
</tr>
<tr>
<td>13</td>
<td>8.9000</td>
<td>114</td>
</tr>
<tr>
<td>14</td>
<td>8.9000</td>
<td>91</td>
</tr>
<tr>
<td>15</td>
<td>9.2000</td>
<td>50</td>
</tr>
<tr>
<td>16</td>
<td>9.1000</td>
<td>35</td>
</tr>
<tr>
<td>17</td>
<td>9.2000</td>
<td>25</td>
</tr>
</tbody>
</table>
19. Or were these intercept interviews with people using the paths?

**19. Response to Reviewer’s comments:**

No, all the questionnaires were collected by door-to-door visits. The sentence has been revised as follows: “Trained interviewers were responsible for collecting the self-administered questionnaires, unless the respondents were unable to understand them during door-to-door visits.”

20. What is meant by valid questionnaires? Did the interviewers administer them – if so, why were some invalid? Did participants return the questionnaires? In general, the wording needs to be revised so that it’s clear if the questionnaires were self or interviewer administered, how the participants were selected and what is meant by invalid questionnaires.

**20. Response to Reviewer’s comments:**

All of the questionnaires were self-administered unless the respondents were unable to understand. All the participants returned their questionnaires. However, there were 15.1% invalid questionnaires with more than 10% missing value. The sentence has been revised as follows:” Trained interviewers were responsible for collecting the self-administered questionnaires, unless the respondents were unable to understand them during door-to-door visits.”

Sections 1.2.1:

21. How were the walking paths chosen?

**21. Response to Reviewer’s comments:**
Based on the comments, we added several sentences in the method part: “We had paid a visit to 10 communities and sport parks before performing the study. An intercept convenient sample of 20 community residents (>20 years old) from several neighborhoods was interviewed. The results revealed that length of the walking path and the surroundings might influence walking path utilization. Therefore, six walking paths in the community were selected according to the permanent physical and current conditions of each path.”

22. What time of day were the morning, afternoon and evening observations? Were these 20 consecutive days?

**22. Response to Reviewer’s comments:**

Based on the comments, we added several sentences in the method part:” Direct observation was performed on each Tuesday, Thursday, Saturday, and Sunday between April 13th and May 16th. Four periods of observations were used: the morning (6:30–7:30 AM), noon (11:30–1:30 PM), afternoon (3:30–4:30 PM), and evening (6:30–7:30 PM). “

23. What were the characteristics of the 6 walking paths (line 10)

**23. Response to Reviewer’s comments:**

Table 3 has been split to two tables (table 1 and table 4). Table 1 which provides the description of walking paths has been added in the method part.

Table 1 - Description of the walking paths

<table>
<thead>
<tr>
<th>Walking path</th>
<th>Length (m)</th>
<th>Area covered (1000 m²)</th>
<th>Population (thousands)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Unlike the other walking paths, C3 was located in the park. As the area covered by C3 and population were difficult to estimate, the utilization index cannot be computed.

**Table 4 - Environmental assessment rating of the walking paths by observational methods**

<table>
<thead>
<tr>
<th>Walking path</th>
<th>Utilization Index*</th>
<th>Brisk walking prevalence (%)</th>
<th>Permanent rating</th>
<th>Current rating</th>
<th>Overall rating</th>
</tr>
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<tbody>
<tr>
<td>A1</td>
<td>3.25</td>
<td>53.30</td>
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<td>40.29±5.21</td>
<td>70.59±14.62</td>
<td>55.44</td>
</tr>
<tr>
<td>B1</td>
<td>3.89</td>
<td>37.01</td>
<td>79.47±3.61</td>
<td>84.19±10.64</td>
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<tr>
<td>B2</td>
<td>3.15</td>
<td>31.86</td>
<td>64.71±4.60</td>
<td>70.44±14.19</td>
<td>67.58</td>
</tr>
<tr>
<td>C1</td>
<td>1.91</td>
<td>38.74</td>
<td>60.91±8.08</td>
<td>77.25±12.93</td>
<td>69.08</td>
</tr>
<tr>
<td>C2</td>
<td>12.86</td>
<td>50.98</td>
<td>58.13±3.97</td>
<td>79.50±12.62</td>
<td>68.82</td>
</tr>
<tr>
<td>C3*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Park
C3 / 76.99 94.97±6.13 87.58±6.95 91.28

* Utilization Index = Person-times/Observing Unit/covering population*1000

24. Line 10 and 11: for how long did they observe ‘before the start of each observation period’. What was the purpose of this component of the observation?

24. Response to Reviewer’s comments:
The sentence has been revised as follow: “Each observer took 15 minutes to examine and rate the permanent and current environment of a pre-determined walking path before the start of each observation period.”

25. The calculation of ‘person-time’ isn’t clear and should be explained.

25. Response to Reviewer’s comments:
The sentence has been revised as follow: “The number of walkers who passed the target area was defined as person-time. If the same person passed the target area more than once, then additional person-times were recorded.”

26. How was age and walking speed assessed? We people using the path stopped to ask these questions? What were the criteria for ‘brisk’ or slow walking speeds?

26. Response to Reviewer’s comments:
Although age, gender, and walking speed of walkers were assessed by observers, all the observers have received a training lesson. The observers didn’t stop people to ask questions. There were no accurate criteria for walking speeds. Brisk walking was defined as
moderate activity which can make people breathe harder and increases their heart rate. The observers need to judge the walkers according to their own opinion. Considering the inaccuracy, we arranged two observers to observe one path at same time.

27. How was the length of each path measured? What were the criteria for breaking up the paths into three groups, and were these groups of similar length?

27. **Response to Reviewer’s comments:**

The length of each path was measured by professional instruments. We measured the length of each path on the field trips with ranging rod. Yes. Seven walking paths in community were divided into three groups including group A, B and C according to the length of walking path.

28. More information on the rating scale and environmental attributes assessed is required.

28. **Response to Reviewer’s comments:**

More information has been added in the method part:” Observers rated the walking paths based on two sets of scale: the permanent, and current rating scales. Permanent physical features included the path length, aesthetics, path material, resting areas, path slope, the placement of healthy signs along the paths, and the prohibition of vehicles. These seven items were weighted with different scores based on the perception of 20 residents regarding the contribution of the environment to physical activity. The maximum score for aesthetics was 25, those of length, material, and healthy signs were 15, and that for the remaining three items was 10. The current rating scale was developed based on lighting, cleanness, and accessibility conditions, and the organization of walking activities. The
29. The authors should provide information on the scales used and when the measurements took place, e.g., at the start or end of the observation period.

29. **Response to Reviewer’s comments:**

More information has been added in the method part:“Observers rated the walking paths based on two sets of scale: the permanent, and current rating scales. Permanent physical features included the path length, aesthetics, path material, resting areas, path slope, the placement of healthy signs along the paths, and the prohibition of vehicles. These seven items were weighted with different scores based on the perception of 20 residents regarding the contribution of the environment to physical activity. The maximum score for aesthetics was 25, those of length, material, and healthy signs were 15, and that for the remaining three items was 10. The current rating scale was developed based on lighting, cleanliness, and accessibility conditions, and the organization of walking activities. The maximum score of organization of walking activities was 10, and that for other three items was 30.” **Each observer took 15 minutes to examine and rate the permanent and current environment of a pre-determined walking path before the start of each observation period.”**

30. This is especially important as Table 3 refers to this section of the methodology and I am unclear of how some of the scores were calculated.

30. **Response to Reviewer’s comments:**
More information has been added in the method part:” Observers rated the walking paths based on two sets of scale: the permanent, and current rating scales. Permanent physical features included the path length, aesthetics, path material, resting areas, path slope, the placement of healthy signs along the paths, and the prohibition of vehicles. These seven items were weighted with different scores based on the perception of 20 residents regarding the contribution of the environment to physical activity. The maximum score for aesthetics was 25, those of length, material, and healthy signs were 15, and that for the remaining three items was 10. The current rating scale was developed based on lighting, cleanness, and accessibility conditions, and the organization of walking activities. The maximum score of organization of walking activities was 10, and that for other three items was 30.”

Section 1.2.2.2

31. When was the IPAQ completed? And was it with a different group of participants to those who were observed or who completed the ‘questionnaire interviews’?

**31. Response to Reviewer’s comments:**

The IPAQ was completed in May, 2012. IPAQ was completed during the questionnaire interviews. As different sampling methods were employed for observation and questionnaire interviews, the participants who were observed might be different from the respondents who provided questionnaires. Among all the 17 neighborhoods, there were six neighborhoods where the paths were observed. Therefore, some of the respondents who provided questionnaires were possible to be observed.

32. I don’t really see this data presented, except perhaps in Table 4. In table 4, how were participants grouped into ‘low, moderate and high’ levels of physical activity?
32. Response to Reviewer’s comments:
More information has been added in the method part 1.2.2.2: “The IPAQ survey and scoring protocols (available online at: http://www.ipaq.ki.se) were adopted for this study. There were three levels of physical activity used to classify populations: low, moderate, and high. The two criteria for classification as “high” were (a) vigorous intensity activity on at least 3 days, achieving a minimum total physical activity of at least 1500 metabolism equivalent (MET)-minutes/week or (b) 7 or more days of any combination of walking, moderate-intensity, or vigorous-intensity activities, achieving a minimum total physical activity of at least 3000 MET-minutes/week. “Moderate” activity was classified as: (a) 3 or more days of vigorous-intensity activity of at least 20 minutes per day, or (b) five or more days of moderate-intensity activity and/or walking for at least 30 minutes per day, or (c) five or more days of any combination of walking, moderate-intensity, or vigorous intensity activities achieving a minimum total physical activity of at least 600 MET-minutes/week. Individuals who did not meet the criteria for “moderate” or “high” were considered to have a “low” level of physical activity. “

Section 1.2.2.3

33. What were the criteria for walkable environments?

33. Response to Reviewer’s comments:
In our opinion, there were no explicit criteria for walkable environments. Therefore, the walkable environmental variables were assessed as continuous variables in the logistic regression.

34. Were these 20 people a different sample or were they a sub-sample of one of the other groups of people who completed
34. Response to Reviewer’s comments:
No. These 20 people were a different sample. We predetermined three communities with good, modest and poor walkable environment separately based on a prior observation. 20 adults were then selected from these three neighborhoods. Each of them was face-to-face interviewed and was asked to sort the items based on their perceptions of environmental contributions to physical activity.

35. I am unsure of what is meant by ‘intercept convenient samples’ – does this refer to intercept interviews with people using the path? What were the r-values or ICC for reliability and validity?

35. Response to Reviewer’s comments:
No. A sentence had been added: “Another convenient sample of 360 residents who lived in the community (>20 years old) from two neighborhoods with different walkable environments were interviewed by intercept investigations.” “Intercept convenient samples” refer to intercept interviews with 360 people who lived in the community. The 360 people were interviewed by intercept investigations. Therefore, “intercept” was used to refer the method of investigation. For the Neighborhood Environment Walkability Scale for Chinese residents (CNEWS), Cronbach’α=0.807, ICC=0.945, and r= 0.721.

36. How were distances from participants communities to the paths measured?

36. Response to Reviewer’s comments:
The distances from participants’ communities to the park were measured by professional instruments on electronic maps.
Results:
Due to some of the sections of the methods being unclear, I had some difficulty with the results presented.

Section 2.1

37. Page 14, how ‘large’ is large

**37. Response to Reviewer’s comments:**
It was hard to define “large”. There was no information about the person flow. The park occupies over an area of 60,600m$^2$. The park was built for recreation and exercises for all the residents in the district. However, the other six paths were built for the residents in the neighborhood.

38. Correlations with person-time may have been significant, but was low (in the discussion these can be compared to other correlations found in other studies. As in the field of environment and PA, they might actually be good? )

**38. Response to Reviewer’s comments:**
Some sentences have been added in the discussion part:” Although the correlations between person-time and observational environment were low, they might actually be good in the field of environment and PA because there were many potential influencing factors of PA, such as gender, age, education.” There was no available literature about the association between person-time and observational environment. So it was difficult to be compared to other correlations.

39. How was brisk walking measured?

**39. Response to Reviewer’s comments:**
Walking speed of walkers was assessed by observers. Considering the inaccuracy, we arranged two trained observers to observe one path at same time.

40. How was brisk walking used in the ‘index of quality of walking’? This is unclear and confusing.

40. Response to Reviewer’s comments:
More information has been added in the method part: “Brisk walking is recommended as a more effective form of exercise compared with casual walking by local health authorities. Brisk walking can improve one’s cardiovascular fitness more effectively than casual walking.”

41. How and why were the pairs A and B created?

41. Response to Reviewer’s comments:
As the length of walking path might affect usage, seven walking paths in community were divided into three groups including group A, B and C according to the length of walking path. According to the data, we found that the location had a significant effect on walking path utilization. Thus, C1 and C2 cannot be a pair. We wanted to explore whether the permanent environment and current environment can influence utilization if the length and location of paths were nearly similar, so we created pair A and B.

42. The calculation of utilization needs to be described in the methods.

42. Response to Reviewer’s comments:
The sentence has been added in method part: “A new indicator, the utilization index, was calculating using person-times, observing units, and the population of the community to assess the impact of the population on path use (utilization Index =
person-times/observing unit/covering population × 1000)."

43. The authors state that there were ‘associations’ - is this based on the odds ratios? The odds ratio determines the odds or likelihood of something. I don’t see any correlation analysis that was performed?

**43. Response to Reviewer’s comments:**

For observational data, correlation analysis was performed. We found that walking path use was positively associated with current environmental variables (lighting: $r=0.101$; accessibility=0.180; cleanliness=0.130; organization of activities=0.076). In our opinion, data shown in Table 3 was not fit for correlation analysis. As shown in Table 3, positive associations between utilization index and observational environmental variables, including permanent and current ratings, were represented in both pair 1 and 2.

44. First time 17 neighborhoods mentioned – this should be in the methods section. The authors should also provide more information on how the neighborhoods were chosen.

**44. Response to Reviewer’s comments:**

More information has been added in the methods section.

**Discussion:**

45. In general much of the discussion is a repetition of the results. Once the methodology and results have been revised, it might be easy to restructure the discussion so that it emphasizes and discusses the main finding.

**Table 1:**

**45. Response to Reviewer’s comments:**
The discussion part has been restructured so that it emphasizes and discusses the main finding. The sequence of the paragraphs has been changed. First, we discussed the agreement between results from observation and that from questionnaires. Second, the characteristics of walking path users have been discussed. Then, association between environment and walking has been discussed. Last, we discussed the limitations of our study.

46. The right hand side of the table doesn't seem to relate to the left hand side – this should either be a separate table or be placed underneath the walking path rows.

46. **Response to Reviewer’s comments:**

All the variables in Table 1 were from direct observation. We put the table like this in order to save place.

47. What is meant by 'good agreement' on page 17?

47. **Response to Reviewer’s comments:**

More information has been added.

48. We also have no idea of how the walking paths were chosen or their location.

48. **Response to Reviewer’s comments:**

More information has been added in the methods section.

49. Table 3:

How were the other areas measured (paths A1 to C2)? Population – of what?

49. **Response to Reviewer’s comments:**
The data of areas covered and population of each neighborhood were provided by local government.