

IPEN manuscript proposal form

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Country and institution: Australia, Baker IDI

Date of submission to the publications committee: Draft 29 August 2012:

Subject of the proposed publication (working title), specify paper # from list

Paper 3: Perceived neighborhood environmental attributes associated with adults' recreational walking: Findings from a 12-country study

Main objectives

Overall purpose: To examine associations of neighborhood environmental attributes with recreational walking

Aims of paper: To identify perceived environmental attributes associated with recreational walking for the whole sample, and to examine if different attributes are relevant in different countries

Key innovations or contributions to literature or policy implications: This study could identify environmental attributes associated with recreational walking in 12 countries, and those relevant to recreational walking in specific countries. If countries have different patterns of associations, it will suggest that local evidence is needed to inform local policy and planning initiatives to promote physical activity. If the same attributes are significant (no interaction), we can argue that international evidence applies to different countries.

If you have a conceptual model, add here:

Statistical analysis responsible person (analyst should be involved prior to submitting this proposal)

Ester Cerin (local analyst at Baker IDI as a backup)

Data needed

Please identify *specific* variables (summary scales, individual items, calculated variables) from the codebook and list the IPEN variable names below. Only variables listed will be included in your data set. For measures beyond NEWS & IPAQ, verify how many countries have the variables as this may affect the number of countries that can be included in your analyses.

Outcome measures (continuous or categorical?): Self-reported recreational walking derived from the IPAQ

Option 1: Frequency of recreational walking per week (I_LEI_1)

Option 2: Total duration of recreational walking per week (I_LeiWikPA)

Independent variables (continuous or categorical?): Perceived environmental attributes derived from the NEWS (residential density, access to utilitarian destinations, access to recreational destinations, street connectivity, sidewalk, neighborhood aesthetics, safety from crime, traffic speed, traffic volume). These will be continuous. The factors derived from Ester's confirmatory factor analysis will be used.

Covariates (standard covariates are listed, add others as needed): age_final, gender_final, educ_3grp_final (less 12 yrs/high school, high school degree, or university degree), marital_2grp_final (married/living with or other), (city), SES (Neighborhood income/SES, low or high), employment situation (no variable name in the full code book)

For clustering: country_cluster_unit

If using accelerometer data: model (accelerometer model type), Vldhrvd (valid hours across valid days), Vlddays (# valid days)

For GIS variables, you will want to analyze both buffer sizes (500 and 1000m) so please request both sets of variables.

Rationale for requesting these variables:

Countries likely to contribute data to analyses (see codebook for data availability by country): US, Australia, Belgium, Brazil, Colombia, Czech Republic, Denmark, Hong Kong, Mexico, New Zealand, Spain, UK

Statistical analysis plan

Description of statistical model(s) (see appendix): *(begin with a conceptual outline of a likely sequence of analyses)*

Generalized additive mixed models (GAMMs) will be used to examine shape (linear vs. curvilinear), strength, and direction of associations. First GAMMs with single confounder-adjusted environmental perceptions as predictors will be conducted. Significant environmental predictors showing no signs of multicollinearity (inter-correlations > .70) will be included in multiple-predictor GAMMs [Note: multicollinearity is unlikely given that the NEWS-A items will be scored according to the CFA-based models]. We will be aiming to create a "walking-friendly environmental index" including those factors that are independently associated with frequency or recreational walking; weekly/min of recreational walking (in the multiple-predictor model). We will then estimate the magnitude and shape of relationship between the environmental index and the measures of recreational walking. We will examine possible inter-site heterogeneity in effects.

Questions or decisions to be made: Whether we use the frequency or the duration of walking for the outcome of the study.

Proposed statistical analysis plan: *(give as many details as possible about the statistical approach and identify areas where assistance is requested. If you don't have a detailed plan, send in what you have for now and we'll work with you to develop a plan)*

Takemi will construct the data set, and conduct descriptive analyses. Ester will look at missing data on each variable. If more than 5% of the cases have missing data, multiple imputations will be performed resulting in 10 imputed datasets. Imputed datasets will be screened for integrity/plausibility of values of imputed data and corrected, if necessary. GAMMs will be used to explore the magnitude and shape of the associations described above allowing for heterogeneous (moderating) effects at the site level. Significant interaction effects will be followed up by the estimation of site-specific effects. A graphical representation of non-linear effects will be provided.

Identify likely tables and figures (include clear, descriptive titles): *(we encourage the use of figures to illustrate findings, when possible)*

Table 1: Sample characteristics

Table 2: Country-specific description of the outcome and environmental attributes

Table 3: Results of GAMMs (for the whole sample)

Table 4: Estimates of site-specific effects for attributes where interaction was significant

Figures: Associations of recreational walking with environmental attributes (only for non-linear associations?)

Target Journal(s) or Conference

Health and Place, Journal of Epidemiology and Community Health, Journal of Urban Health

Time Schedule

First draft: December 2012

Submission: Early 2013

Writing Group

Writing Group: *(identify a 3-6 member writing group who will work on drafting the manuscript. Our suggested approach is to assign each person in the group a section to draft)*

Takemi Sugiyama (conceptualisation)

Adewale Oyeyemi (assist writing)

Ester Cerin (analysis)

Maybe one more person?

Executive committee member: *(a member of the Executive Committee should serve as a mentor on each writing team. If you aren't sure who to suggest, we can make a recommendation)*

Neville Owen (mentor)

Additional Comments & Questions

Feedback and date of approval by IPEN Publications Committee