Appendix S4. Psychometric data regarding the Nature Exposure Scale (NES)

**Preamble**

A psychological scale is an instrument usually composed by several items, designed to measure a person’s or a group of individuals’ position on a construct or variable, for instance Place attachment or Self-esteem. For each statement or items, one has generally to indicate the extent of agreement on a response scale (Likert scale) with different alternatives (generally 5 - 7).

To use a scale as measure of a given variable (dimension) it is necessary to empirically demonstrate that the scale measures what it is supposed to measure (internal validity), presents acceptable correlation scores between the different parts of the same instrument (internal consistency reliability), and/or could also replicate the result more than once in the same situation and population (test-retest reliability).

The psychometric properties (or methodological qualities) to assess the scales used in this paper are described below.

**Nature Exposure Scale (NES) (Kamitsis & Francis 2013)**

The Nature Exposure Scale (NES), with four items (cf. Table S4.1), is designed to measure ‘direct physical and/or sensory contact with the natural environment’ (Kamitsis & Francis 2013). Two items are designed to assess exposure to nature in everyday life, and two items to assess exposure outside of everyday environments.

The NES items reliability was assessed through Cronbach’s alpha tests (‘Alpha’ and ‘Alpha if Item Deleted’), and item-total correlation analysis.

We found a Cronbach’s alpha of 0.70 (Table S4.1), which is considered an acceptable level of internal consistency (Pestana and Gageiro 2014), similar to the value reported by Kamitsis and Francis (2013) (Cronbach’s α = 0.73). Cronbach’s alpha if item deleted increased with item 1 deleted. Item 1 was also reported as the weakest item-total correlation (0.374) (Table S.4.1), although acceptable according to Streiner & Norman (2008). However, neither the differences between Cronbach’s alphas with or without Item 1 (0,70 and 0,71, respectively), nor correlation’ values justify the exclusion of this item. Besides, it is considered of high conceptual importance in a small scale such as NES.

NES item score ranged between 1 – 5. In Table S4.1, items 2 and 4 related to the participants ‘attention to the environments’ showed higher score average, in comparison to the items 1 and 3 related to ‘frequency of exposure to the environments.

Overall, the indicators of reliability – NES Cronbach’s apha (> 0.70), Cronbach’s apha if item deleted (> 0.60) and corrected item-total correlations (> 0.200) values and descriptive statistics (Table S4.1) – show this scale as a consistent and good measure, according to the recommended thresholds (Pestana & Gageiro 2014).

Table S4.1. Internal Consistency Analysis and Exploratory Factor Analysis of the Nature Exposure Scale (NES; Kamitsis & Francis 2013) (Azorean teachers’ sample; N = 235) (BTS, Bartlett's Test of Sphericity; KMO, Kaiser-Meyer-Olkin).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Items in English (in Portuguese) | Mean | Standard deviation | Corrected item-total correlation | Cronbach’s α if item deleted | Factor 1  Loading |
| 1. In your everyday home, travel and work environments and activities, please rate your level of exposure to ‘natural environments’ (Por favor, avalie a frequência de exposição a “ambientes naturais” no seu quotidiano doméstico, profissional e em trânsito de uns contextos para os outros). | 3.948 | 0.909 | 0.374 | 0.711 | 0.604 |
| 2. How much do you notice the natural environments in your everyday life (Quanto é que repara nos ‘ambientes naturais’ no seu quotidiano)? | 4.294 | 0.675 | 0.596 | 0.595 | 0.828 |
| 3. Please rate the frequency (how often) of exposure to nature-rich environments outside of your everyday environment (Por favor avalie a frequência de exposição a ‘ambientes naturais ricos’). | 3.855 | 1.031 | 0.448 | 0.679 | 0.683 |
| 4. How much notice would you take of the nature in these environments (Quanto é que repara na natureza neste tipo de ‘ambientes naturais ricos’)? | 4.306 | 0.773 | 0.607 | 0.571 | 0.841 |
| Total | 16.404 | 2.493 |  |  |  |
| Cronbach’s α item-total |  |  |  | 0.701 |  |
| Eigenvalue |  |  |  |  | 2.225 |
| Total of variance explained (%) |  |  |  |  | 55.6 |
| KMO = 0.654  BTS = 230.927; *p* =0.000 |  |  |  |  |  |

Validity analysis was performed by an exploratory factor analysis, through the principal component condensation method and according to the Kaiser rule (Pestana & Gageiro 2014) with a *Varimax* rotation, which has shown NES structure composed by one factor (see factor loading in Table S4.1). According to Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's test of sphericity (BTS), the assumptions indicated that our sample size was adequate for the factor analysis and it was useful (KM =0.654 and BTS *p* <0.000; Table S4.1), following the criteria of KMO > 0.50 and *p* <0.005, where the combined variance explained 55.62% of the factor loadings, above 50% was considered a significant value for the measured variables (Table S4.1; Hair et al. 2019).

Thus, psychometric data corroborate NES as a consistent and valid unidimensional instrument to measure a group of individuals’ exposure to nature.

**Bibliographic references**

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Kamitsis I, Francis AJ (2013) Spirituality mediates the relationship between engagement with nature and psychological wellbeing. *Journal of Environmental Psychology* 36: 136-143.

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