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Survey development to measure the awareness and acceptance of the health benefits of nature

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Introduction

- **Climate change and urbanization pose great risks for global health and wellbeing**
  - Heat islands, flooding, pollution
  - Decreasing access to nature
- Presence of urban green and blue spaces—green infrastructure—can promote health
  - Physical activity in green spaces, as opposed to man made or "gray spaces" increases both mental and physical health

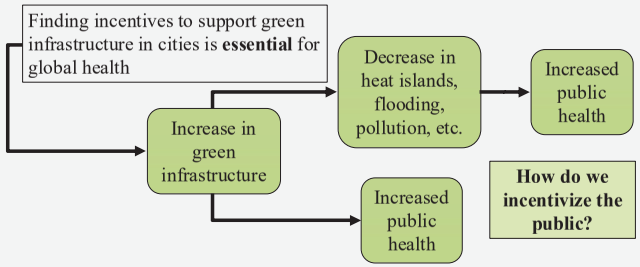

Figure 1: *Pathways from green infrastructure to public health*

Objectives

- Individual **health benefits of nature** can be used to leverage support for the creation and protection of parks and other green spaces
  - These benefits can also increase pro-environmental behavior
- Behavior modification research indicates that **personal acceptance** of scientific evidence in necessary to sway decision making
- The extent of the public's ***awareness of*** the health benefits of greenspaces and the **acceptance of** these benefits is **unknown**

Objective: create a survey instrument that can measure **both** the awareness of existing scientific evidence and the acceptance of that evidence.

Methods

Phase 1

Systematic Literature Review → First Round Item Generation

- A systematic literature review was used to identify peer-reviewed reports of the mental and physical health benefits of engaging with greenspace
  - **12 total publications**—meta-analyses and systematic reviews
- Generation of 17 items originally, then two were discarded

*Phase 2

Qualtrics Expert Survey → Item Validation

- Items were placed into Qualtrics (Figure 1)
- A **nonrandomized convenience sample** of participants (n=65) was recruited internationally via direct contact and snowball recruitment
  - **Dillman's modified Tailored Design Method for Electronic Surveys**

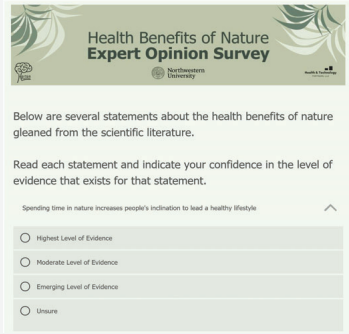

Figure 2: Sample Question. *Respondents were asked to evaluate and rank fifteen items based on the robustness of substantiated evidence. All 15 items were ranked in this way.*

Respondents were also given the opportunity to add their own ideas that were not included in the original 15 items.

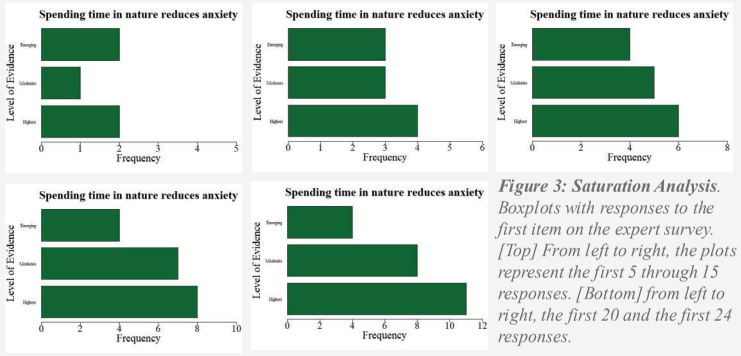

Figure 3: Saturation Analysis. *Boxplots with responses to the first item on the expert survey. [Top] From left to right, the plots represent the first 5 through 15 responses. [Bottom] from left to right, the first 20 and the first 24 responses.*

- Currently, there is a **48%** response rate (24 responses)—excluding the snowball responses
- In the process of sending out another round of emails to identified experts
- Once data saturation is reached and the ranking is statistically validated, the top ranked items will be used to **construct a survey to assess the public's awareness and acceptance of the evidence for health benefits of nature**
  - **Response Saturation** occurs when the pattern no longer changes when responses are added

Discussion

Phase 3

Survey Creation

- Use in conjunction with other tools assessing environmental identity and pro-environmental behavior
  - Pro-Environmental Behavior Scale developed by Gail Markle
- Determine if **personal or public health** is a useful motivation to support nature conservation, preservation, and restoration
- **Incentivize green infrastructure, increase public health, and in the long-term, mitigate effects of climate change.**

References

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