

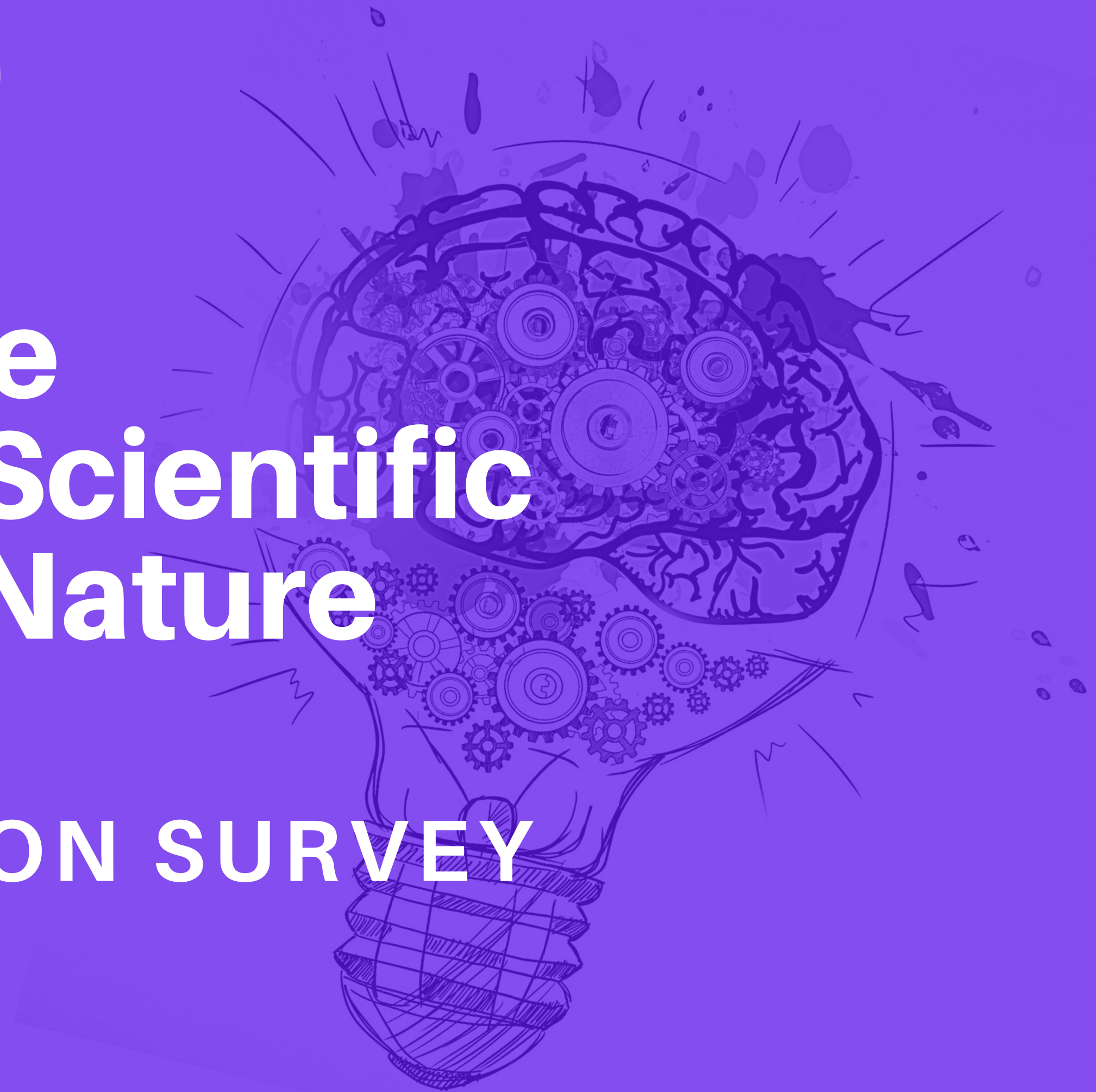
Northwestern
University


Health & Technology
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Developing the Awareness of Scientific Knowledge & Nature Belief Survey: AN EXPERT OPINION SURVEY

ACTIVE LIVING CONFERENCE 2021



AUTHORS OF THE STUDY

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BACKGROUND → NATURE & HEALTH

- * Health depends on our ability **to understand and manage the interaction** between human activities and the physical and biological environment.
WHO, 1992

- * Biophilia suggests a connection to nature; Self Determination Theory further argues that humans have a basic, innate need to connect and relate to others and the world around them.
Deci & Ryan, 2012; Kellert & Wilson, 2008

- * Research has shown that engaging with outdoor settings **positively impacts physiological, psychological, and social outcomes.**
Shanahan et al., 2019; Bratman et al., 2019; Frumkin et al., 2017; Hartig et al., 2014



PURPOSE *AND* GOALS

- During the COVID-19 pandemic, we have seen a rise in popular press discussing nature and health.
- Develop a tool to measure the public's awareness and acceptance of the health benefits of greenspace.
- First, identify a **consensus among experts** as to the level of evidence that exists within the robust literature on the health impacts of nature.

**UNDERSTANDING WHAT THE PUBLIC BELIEVES ABOUT
HEALTH & NATURE CAN HELP INFORM LEVERAGING
SUPPORT FOR COMMUNITY PARKS & GREENSPACES**



METHODS STUDY APPROACH



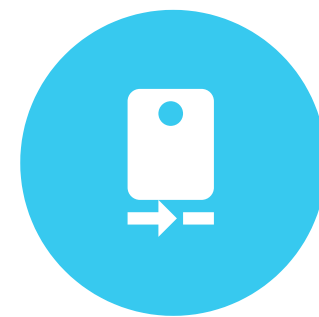
1 - Systematic Literature Review

Identified peer-reviewed evidence of mental and physical health benefits from engaging with greenspace; used to generate survey items



2 - First Round of Surveys September 2020

n=50 identified and solicited experts known to the research team



3 - Second Round of Surveys December 2020

n=78 identified and solicited through SHIFT conference Slack channel



4 - Surveys Completed January 2021

n=61; 47.6% response rate

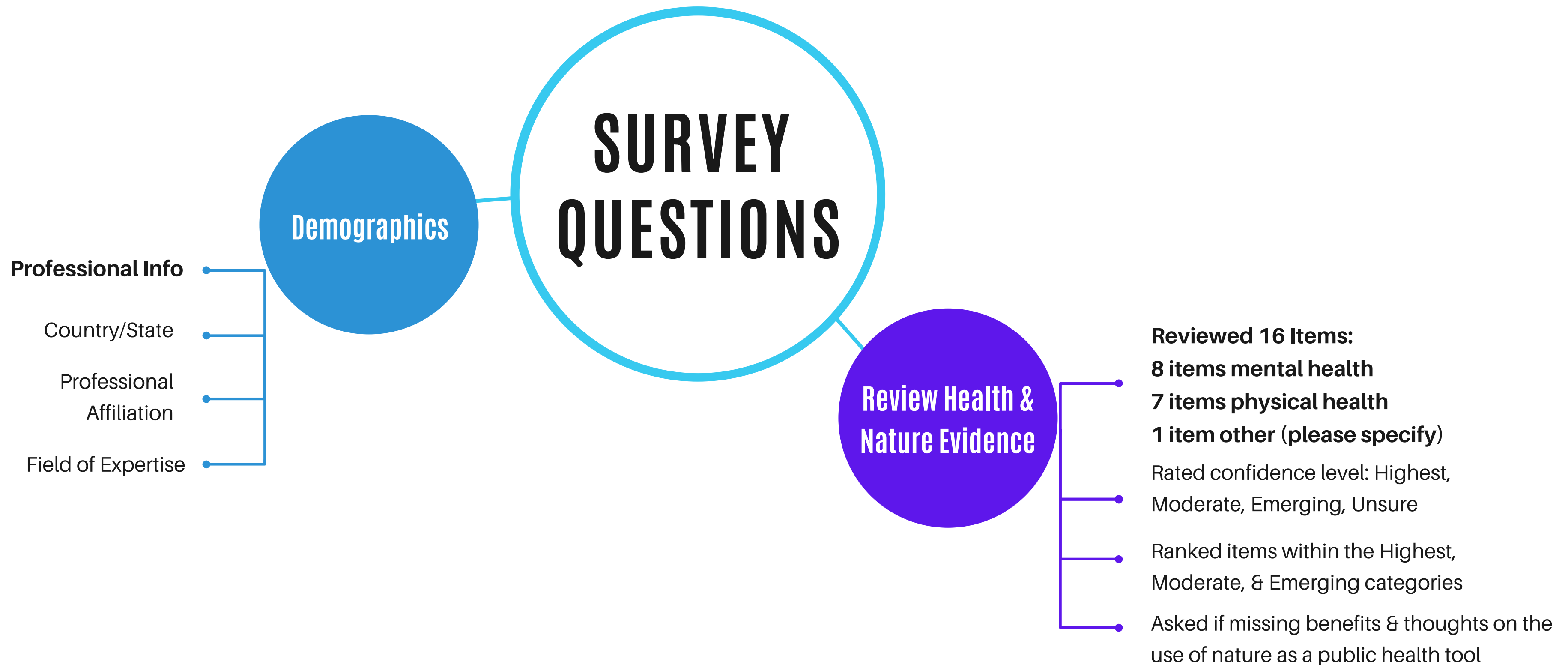


5 - Analysis of Rank Data

16 item statements were reviewed and ranked by the robustness of substantiated evidence



SURVEY STUDY APPROACH



RESULTS PARTICIPANTS

Figure 1. Participant Location

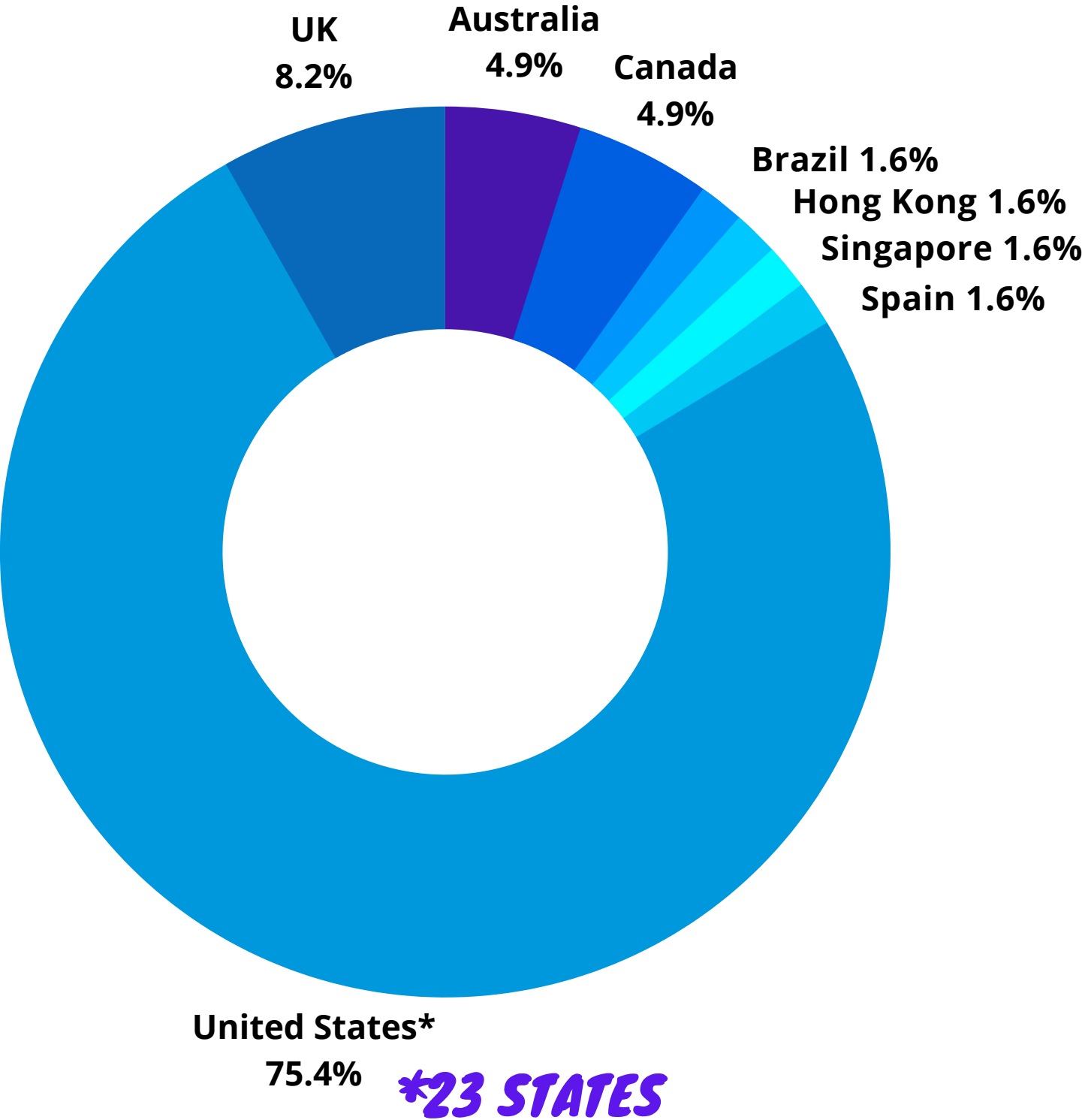
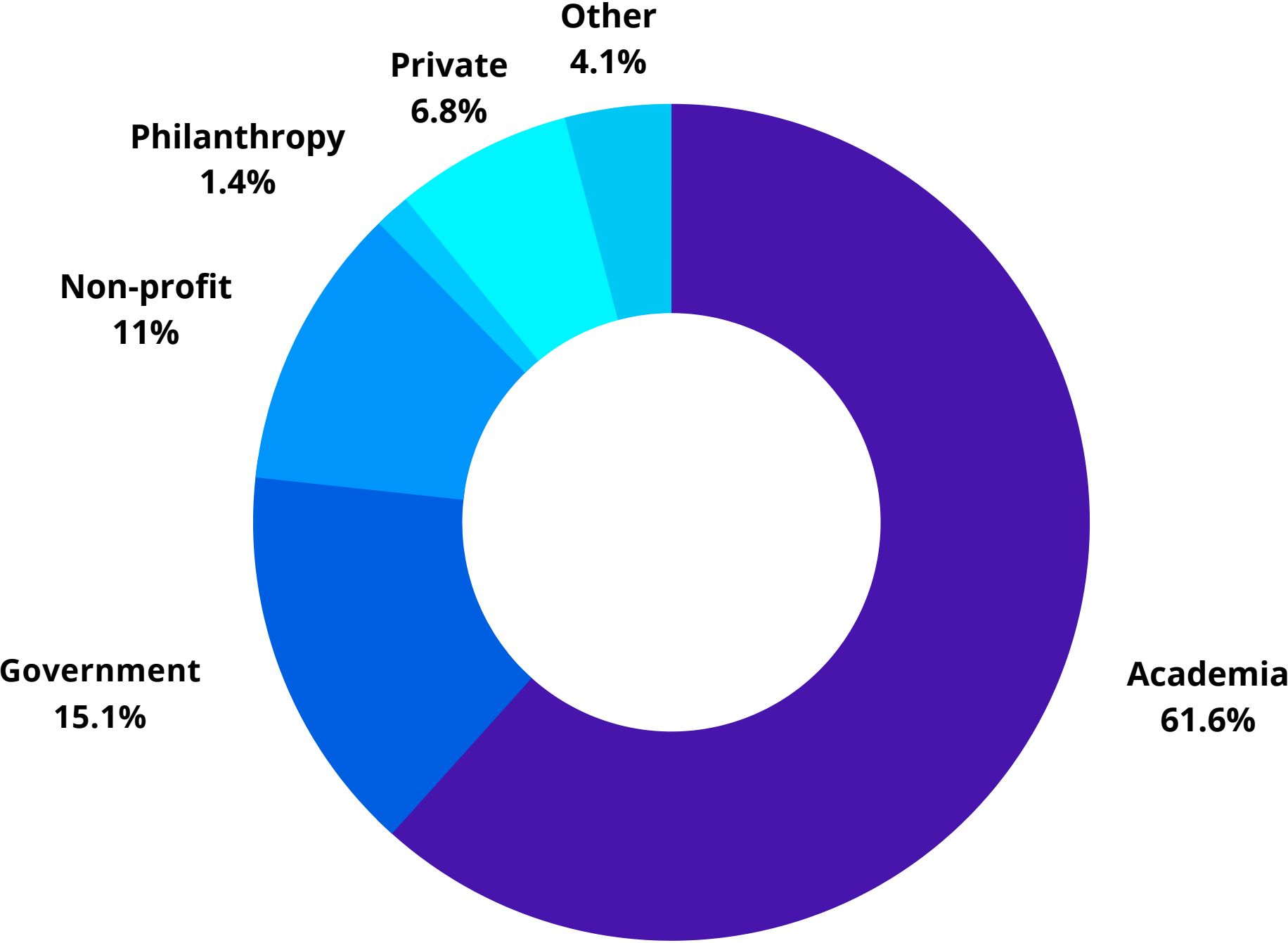
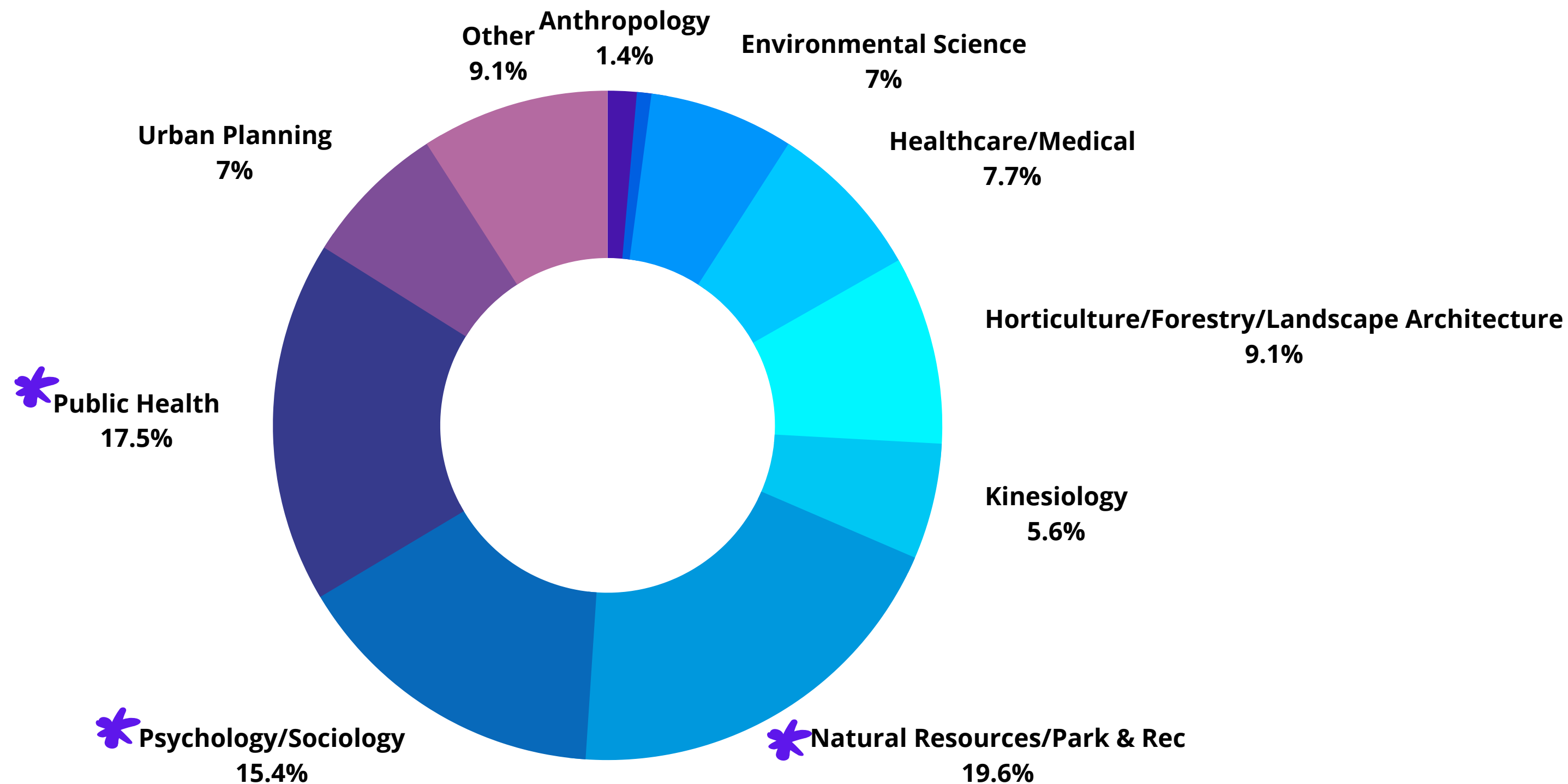


Figure 2. Professional Affiliation



RESULTS PARTICIPANTS

Figure 3. Field of Expertise



RESULTS 16 SURVEY ITEMS RATED

16 Items Assessed for Level of Evidence Friedman's Test

1. Spending time in nature reduces anxiety
2. Spending time in nature is linked to reduced mortality
3. Spending time in nature can improve self esteem
4. Spending time in nature helps kids focus
5. Exercising in nature improves mood more than exercising indoors
6. Spending time in nature positively influences mental health
7. More exposure to nature likely reduces depression
8. Spending time in nature can decrease cholesterol
9. Spending time in nature reduces anger
10. Spending time in nature can treat certain chronic illnesses better than pharmaceutical drugs
11. Spending time in nature increases people's inclination to lead a healthy lifestyle
12. Incorporating nature into standard forms of therapy is likely to increase the effectiveness of the therapy
13. Being in a forest rather than a city increases anti-cancer defenses in humans
14. Exercising in nature leads to a healthier blood pressure than exercising indoors
15. Spending time in nature positively impacted short term memory
16. Other (please specify)



STATISTICALLY SIGNIFICANT DIFFERENCE ($P < 0.001$) AMONG THE PERCEIVED LEVEL OF EVIDENCE FOR THE 16 HBN ITEMS ($\chi^2 = 54.632$)

RESULTS LEVEL OF EVIDENCE RANKING

Chi-square Provided for Highest Evidence and Friedman's Test

	Top 3 Items			Bottom 3 Items		
	Spending time in nature positively influences mental health	Spending time in nature reduces anxiety	More exposure to nature likely reduces depression	Exercising in nature leads to a healthier blood pressure than exercising indoors	Spending time in nature can treat certain chronic illnesses better than pharmaceutical drugs	Spending time in nature can decrease cholesterol
Chi-Square	20.138	13.739	18.143	.667	.000	.000
p value	<.001	.008	.003	.955	1.00	1.00
Friedman Mean Rank	4.00	5.00	5.44	10.61	12.61	14.28

Does location impact these results?



RESULTS LEVEL OF EVIDENCE RANKING

Friedman's Test US vs World Top Items

	Top 3 Items for US Respondents			Top 3 Items for International Respondents		
	Spending time in nature positively influences mental health	Spending time in nature reduces anxiety	More exposure to nature likely reduces depression	Spending time in nature positively influences mental health	Other	Tie Between: <ul style="list-style-type: none">• Impact short-term memory• Reduce depression• Improve mood• Improve self esteem• Reduce anxiety
Friedman Mean Rank	4.00	4.64	5.21	4.00	4.00	6.25



RESULTS LEVEL OF EVIDENCE RANKING

Friedman's Test US vs World Bottom Items

	Bottom 3 Items for US Respondents			Bottom 3 Items for International Respondents		
	Exercising in nature leads to a healthier blood pressure than exercising indoors	Spending time in nature can treat certain chronic illnesses better than pharmaceutical drugs	Spending time in nature can decrease cholesterol	Spending time in nature can decrease cholesterol	Spending time in nature increases people's inclination to lead a healthy lifestyle	Incorporating nature into standard forms of therapy is likely to increase the effectiveness of the therapy
Friedman Mean Rank	10.93	12.64	14.36	14.00	14.00	14.00



What does this mean?



**Overall, health benefits
of nature items related
to mental health were
ranked higher than those
of physical health**



CONCLUSIONS *AND* IMPLICATIONS

- Survey provided expert consensus on the strength of evidence for the top health benefits of nature items.
- In this survey, there is a difference in perception of the evidence strength between U.S. and international experts.
 - Need to further examine possible reasons, such as the maturation of the field.
- Items often cited in both peer-reviewed and popular press articles (such as "Being in a forest rather than a city increases anti-cancer defenses in humans") were not rated highly.

*THE EXPERT OPINION SURVEY SUGGESTS THAT THERE IS
A DIVIDE BETWEEN ITEMS FREQUENTLY CITED AND THE
PERCEIVED STRENGTH OF EVIDENCE FOR THOSE ITEMS*



NEXT STEPS FOR ASK-NB



- ① Items with strongest expert consensus will be used to develop a tool to measure public awareness of existing scientific evidence and the acceptance of the health benefits of nature (Awareness of Scientific Knowledge and Nature Beliefs (ASK-NB)).
- ② Test and validate the tool with diverse community populations.
- ③ Ultimately, the ASK-NB could be used alongside instruments measuring nature/environmental attitudes, beliefs, and affinities.

Questions?

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