

COVID-19 AND HUMAN-NATURE RELATIONSHIPS: VERMONTERS' ACTIVITIES IN NATURE AND ASSOCIATED NONMATERIAL VALUES DURING THE PANDEMIC

Joshua W. Morse^{1,2}
Diana M. Hackenburg^{1,2}
Tatiana M. Gladkikh^{1,2}
Rachelle K. Gould^{1,2}

Contact:
Joshua.morse@uvm.edu

Affiliations:
1 University of Vermont,
USA
2 Gund Institute of
Environment, USA

IN BRIEF

In a survey near the beginning of the COVID-19 pandemic, Vermonters reported increased engagement in 15 outdoor activities. Gardening, photography and other art, relaxing alone outside, walking, and wildlife watching saw the biggest increases.

Vermonters reported shifts in what they consider to be the most important values they receive from nature during the beginning of the pandemic. Mental health and wellbeing, exercise, appreciating nature's beauty, sense of identity, and spirituality were most frequently described as more important.

Changes in both activity engagement and values that Vermonters found important were statistically related to socio-demographic factors including urban/rural residence, income, employment status, and gender.

We hope policymakers can use our findings to ensure that a wide range of outdoor activities remain accessible to all Vermonters as a source of crucial benefits to wellbeing during the pandemic, and can help planners and managers prepare natural areas across the state for the increased demands and challenges of future crises.

WHAT WE LEARNED

THE PANDEMIC IMPACTED OUTDOOR ACTIVITY, WITH CLEAR TRENDS FOR CERTAIN DEMOGRAPHICS

During the early months of the pandemic, people reported doing most outdoor activities either the same amount or more. We ana-

lyzed socio-demographics trends for

the most commonly engaged-in activities in our sample: gardening, hiking, relaxing alone, relaxing socially, walking, and wildlife watching. Women were likelier to report increased engagement for all six

"I am valuing the time I spend outdoors, with nature more. [I] have always loved it, but took for granted getting out in it. Perhaps the increased appreciation I am feeling comes because of the many restrictions in our lives these days." - survey respondent

(Continued on page 2)



THE UNIVERSITY OF VERMONT
RUBENSTEIN
SCHOOL OF ENVIRONMENT
AND NATURAL RESOURCES



WHAT WE LEARNED

(Figure 2). Respondents who had lost their jobs as a result of the pandemic were likelier to report increased engagement in gardening, relaxing socially, walking, and wildlife watching. Urban residents were likelier to report increased walking while rural respondents were likelier to report increased wildlife watching.

IMPORTANT CONSIDERATION #1

Some people also reported **decreased engagement** in all surveyed activities (Figure 1). For example, one older respondent felt limited in where they could go to experience nature because of increased risk to someone their age:

"Since the pandemic began, I pace up and down my street when most families are eating or walk in the bike lanes in full traffic, trying to avoid crowds of people not wearing masks. Other than what I see from my front windows or when I find space to wander around outside, I've been mostly cut off from 'experiencing nature' during this pandemic."

Understanding demographic trends related to decreased outdoor activity engagement is also

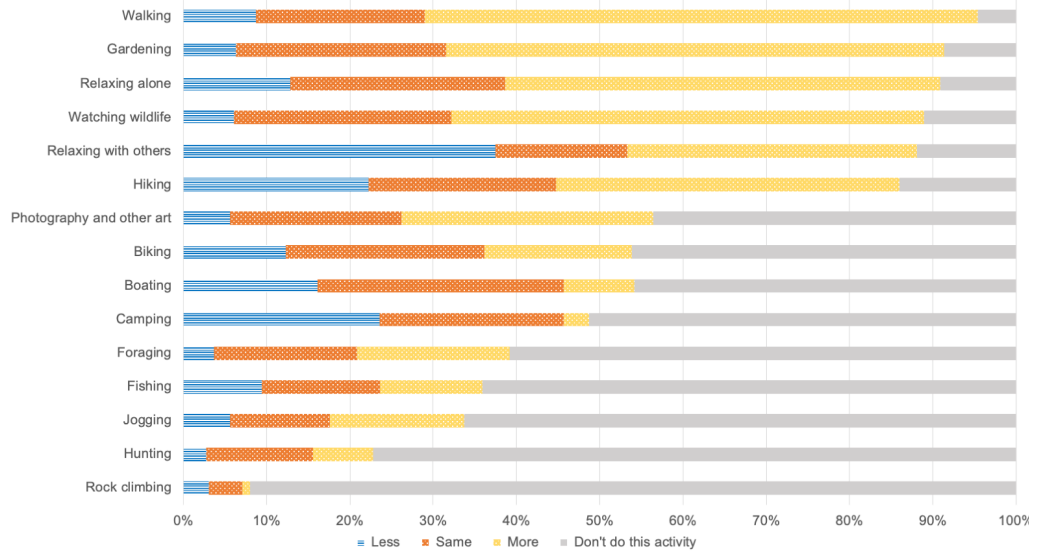


Figure 1. Levels of self-reported engagement in outdoor activity in May 2020 relative to the same time period in 2019

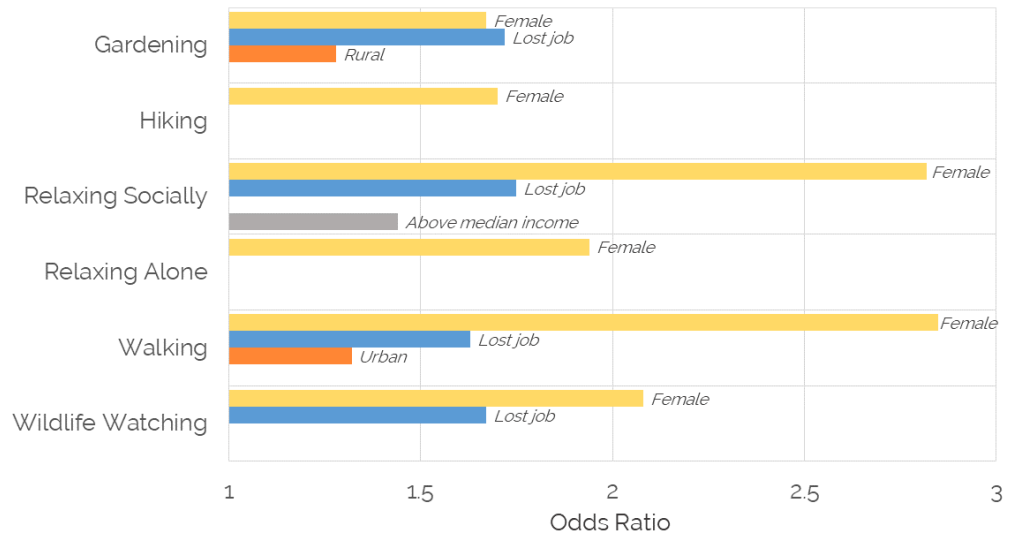


Figure 2. Likelihood of reporting increased engagement in the most common outdoor activities we surveyed. For example, the top bar can be read as "female respondents were roughly 1.7 times likelier to report increased gardening than male respondents."

important. However, due to the small sample size, our analysis was not powerful enough to capture such trends for any activities except relaxing socially (where urban respondents and

women were slightly likelier to report decreased engagement) – this is an area for future research.

WHAT WE LEARNED

VALUES FROM NATURE INCREASED IN IMPORTANCE AND GROUPED TOGETHER DURING THE PANDEMIC

Respondents rated and ranked 13 benefits from nature during the pandemic and nearly half highlighted the increased importance of nature as a source of mental wellbeing (n > 1,909). In participant rankings, mental wellbeing was often grouped with related values from nature: exercise, leisure, feelings of familiarity with place, and experiences of beauty (Figure 3). This grouping can be seen clearly in how this respondent talks about the psychological and physical benefits of getting outside:

"I am diagnosed with depression and have been working from home and finding this to be very challenging. Taking frequent breaks to walk my dog out in the fields by my house and watching the spring growth emerging has been crucial to my mental health during this pandemic."

This "Nurture and Recreation" factor was common enough in our sample (n = 1,776) that we could look at socio-demographic trends. We found that women,

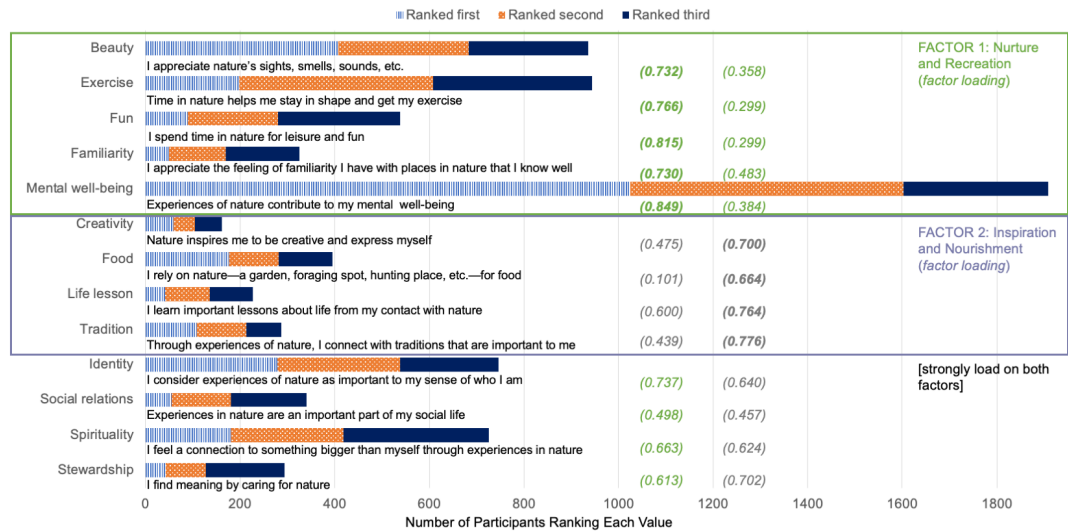


Figure 3. Values from nature that participants ranked as more important during the pandemic, organized into groups generated by the factor analysis statistical method, which identified values that were often ranked together.

urban respondents, and median and above-median income earners were likelier to report these values as more important during the pandemic.

We also found a much less common (n = 136) but still statistically significant factor, that grouped together a different set of values from nature as more important during the pandemic: food, creative inspiration, learning life lessons, and connection to traditions.

IMPORTANT CONSIDERATION #2

Our analysis was not powerful enough to identify socio-demographic factors that may be associated with respondents

who prioritized food, creativity, life lessons, and traditions because of the small sample size. However, as evidenced by this respondent, these are important values to many Vermonters:

"[Nature is] more meaningful during COVID 19 as I really appreciate now more than ever that I grew up on a farm, learned to hunt, fish, trap, garden and forage. It's much more meaningful to learn more about your food than it is to enter a grocery store and buy something wrapped in plastic."

Better understanding and elevating non-majority perspectives of nature's importance during the pandemic should be a focus of future research.

KEY TAKEAWAYS

Policymakers should allocate resources to sustain and increase opportunities for outdoor activity with awareness that diverse values underlie the many forms of engagement with nature Vermonters seek during the pandemic (and beyond). Similarly, though many Vermonters report increased engagement with nature during the pandemic, policymakers should be aware that this

trend is not universal (due to, for example, various impediments to access).

Messaging about how nature can help maintain well-being under social distancing should both draw on commonly held values to reach large swaths of the population and also take care to avoid overlooking less common activities and values.

For more information, check out the [full paper in PLOS One](https://doi.org/10.1371/journal.pone.0243697) (<https://doi.org/10.1371/journal.pone.0243697>)

Citation:

Morse JW, Gladkikh TM, Hackenburg DM, Gould RK (2020) COVID-19 and human-nature relationships: Vermonters' activities in nature and associated nonmaterial values during the pandemic. *PLoS ONE* 15(12): e0243697.

Acknowledgments:

Many thanks to Margaret Lee, Eliza Merrylees, Jesse Freedman, Timothy Terway, Walter Kuentzel, Meredith Niles, Nelson Grima, Jessica Wikle, Alison Adams, and our community partners. This material is based upon work supported by a grant from the Gund Institute of Environment COVID-19 Rapid Research Fund.

SURVEY RESPONDENTS

We surveyed 3,204 Vermont residents over 18 living in all 14 counties, (Figure 4) recruited through Front Porch Forum (FPF) and outreach by 23 NGOs and government agencies

Characteristic	Sample	U.S. Census
Mean age	54.7 years	50.5 years
Gender		
Female	63.2% (2,013)	50.7%
Male	35.8% (1,139)	49.3%
Non-binary	1.0% (32)	
Race		
White	91.6% (2,936)	94.3%
All other identities	4.3% (138)	5.2%
2019 Household Income		
Below median	26.8% (808)	41.7%
Median range	22.3% (673)	18.9%
Above median	51% (1,542)	39.3%
Zip Code within Census urban-rural classes		
Urbanized area	26.0% (823)	17.4%
Urban cluster	25.9% (820)	28.2%
Rural	48.2% (1,528)	54.4%

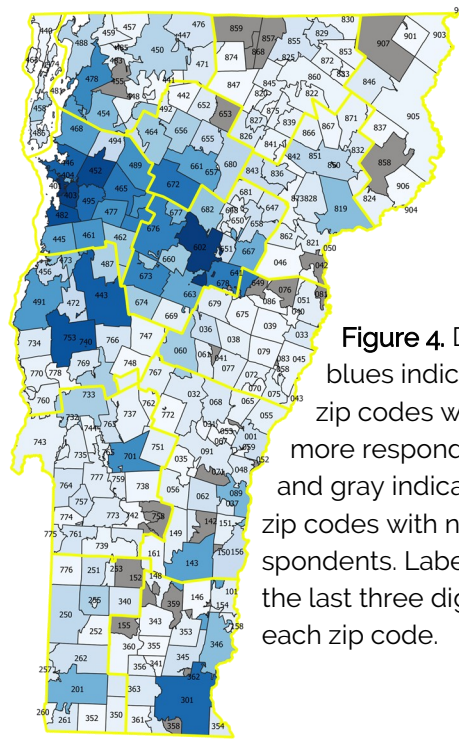


Figure 4. Darker blues indicate zip codes with more respondents and gray indicates zip codes with no respondents. Labels are the last three digits of each zip code.

Our sample loosely reflects the Vermont population, but under-represents those who are male, not White, rural residents, and earning a below-median range income.