

From Parks to Personal Wellness: Exploring the Relationship between Access to Recreational Areas and Human Well-Being

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Introduction

It has come to the world's attention in recent years the importance of how human health can be impacted by the environment. More specifically, recreational areas such as parks, green spaces, and other outdoor leisure spaces have been recognized as significant contributors to human wellbeing. This paper seeks to better understand this topic and discuss research on the positive relationship between the presence of recreational areas and human wellbeing. To explore this topic, we conducted a class-wide research project in our Sustainability Science course at Colorado State University. Our question was "How do Fort Collins residents feel that natural areas (or lack thereof) affect their personal sense of well-being?" which we tested by having the class conduct surveys in Fort Collins.

Due to urbanization and rapid industrialization that has taken place all over the world, humans have distanced themselves from the environment at a rapid rate, having negative consequences on human's physical, mental, and social health. Over the past 30 years, the average amount of time that people spend outside has decreased, especially with the recent pandemic; (Moula, 2022). Recreational spaces offer opportunities for people to improve their physical health, relax, connect with nature, and connect with friends and family, all of which are essential for a healthy wellbeing. The ways in which recreational spaces improve overall human wellbeing are endless, some examples include better physical health, self-esteem, connection with nature, more time spent with loved ones, and decreased rates of depression.

While it is intuitive that time in natural areas positively correlates with good wellbeing, only recently has it become a topic of research. This conversation involves fields of research such as public health, psychology, citizen science, environmental science, and urban planning. All these scientific fields have contributed to the growing knowledge of recreational areas and wellbeing. Another important aspect of this is the appearance of natural areas, this correlates

positively with physical health, thus improving human wellbeing. Building off this, it is important to consider how someone's environment impacts their access to natural spaces. For example, people's access to walking trails can have significant positive results on their physical and mental wellbeing; (Kwon, 2019).

It is important to note that this discussion involves not only individuals but communities, so examining social dynamics is vital. By knowing how this topic interacts with communities at various levels, policymakers can be better equipped to integrate interventions. The presence and use of natural areas can have positive impacts on entire communities, by increasing the wellbeing of a society; (Azara, 2018). Another way in which the existence of natural areas and protected areas can benefit communities is by increasing eco-tourism, thus benefiting the local economy; (Azara, 2018). This is relevant to our study area, Fort Collins, because the community is highly interested in recreation and protecting the climate. With this in mind, natural areas also need to be managed in a way that preserves their function and healthiness by reducing the negative human impacts that can take place; (Stigner, 2016). Ecosystems need to be protected and conserved to produce ecosystem services that humans can benefit from. An additional benefit to the presence of natural spaces is the influences they can have on people's awareness of environmental problems and practice of environmentally friendly behaviors; (Moula et al., 2022). This has a significant impact on people's willingness to protect the environment, if they are educated on the issue or not.

While there is some research out there regarding specific parts of this topic, this paper aims to address the focused gap that remains: how natural areas impact overall human wellbeing. To do this, we will focus on three main themes for responses to our survey. These include proximity to natural areas, level of agreement of the impact on wellbeing that natural areas provide, and the biggest barriers/challenges to using natural areas. In the following sections, we will review existing literature on this topic, discuss how we went about our research methods, present our findings, and discuss potential future areas for further research.

Background

There is extensive existing literature investigating the relationship between access to natural spaces and human well-being, highlighting that spending time in natural areas can have benefits for physical, mental, and emotional health. The “biophilia hypothesis” posits that since humans have evolved in tandem with nature, there is an inherent, biological draw towards natural areas and features because of the benefits associated with that familiarity. Building on this, research conducted throughout numerous studies suggests the Stress Reduction Theory (SRT) and the Attention Restoration Theory (ART) complement the “biophilia hypothesis”.

The Stress Reduction Theory details how spending time in natural areas can activate the parasympathetic nervous system to activate feelings of relaxation and reduce autonomic arousal due to the feelings of comfort evoked in nature (Jimenez et al. 2021). Additionally, the Attention Restoration Theory suggests that spending time in nature allows people to access a source of “direct attention” and reduce the mental fatigue associated with modern life (Jimenez et al. 2021). When combined, these two theories help to identify specifically why spending time in natural areas can induce positive feelings of calmness, heightened awareness, and elation.

Regarding the physical benefits of spending time in natural areas, access to the outdoors is commonly associated with physical activities such as walking, running, hiking, biking, and swimming. The rate of participation in all these activities is significantly increased when there is a natural area within the proximity of one’s home, increasing the frequency of physical exercise achieved each week by as much as 500% (Jimenez et al. 2021). This can lead to many physiological benefits such as reduced blood pressure, decreased rates of obesity, and a healthier cardiovascular system.

While access to natural areas provides many physical benefits, it has also been demonstrated that they can have impacts on mental health and well-being. Natural areas have long been thought to induce a positive headspace for those who visit them, but a synthesis of studies observing the effect of natural spaces on overall health has shown that “mental health outcomes improved across 98% of studies while physical and cognitive health outcomes showed improvement across 83% and 75% of studies respectively.” (Nejade et al. 2022) This demonstrates what has been traditionally known to be true, that natural areas have benefits that reach beyond the physical exercise one can obtain from them. Access to natural areas within a

reasonable distance can impact the physical health, mental state and well-being, as well as social connections of those who utilize them.

Methods

The research project was done in collaboration between all students in ESS 312. To begin this research project, we had to produce a research question. We did this by having every student in the class submit a question related to sustainability they would like to explore. After the questions were submitted, we used the Q-Method, a way of organizing data and surveys, to select a question from the ones provided by the class. We had everyone rank the questions from the ones they liked most to the ones they liked least. As a class we then combined a few questions to get our research question: How do Fort Collins residents feel that natural areas (or lack thereof) affect their personal sense of well-being? To collect the data to conduct a proper research analysis, we created a survey. We started off by having every student in the class submit one or more questions to ask people in the survey.

We selected the most appropriate questions for the survey to help us understand our research goal. The survey had 33 research questions ranging from demographic questions to questions related to well-being and personal experience in natural areas. Each person in the class interviewed at least two people, and we gathered 152 survey responses. As a class we organized the surveys by question in Google Sheets and cleaned the data so that it was usable.

Results and Discussion

Once the data was organized, each group categorized the data into main themes of questions, and then made a report analyzing specified questions. We will evaluate some of the most relevant questions below in greater detail, with graphs to depict the trends we found among the data. The key themes we choose to analyze were levels of agreement that natural areas positively impact human wellbeing, why people choose to go to certain natural areas, the impact that distance has on a person's decision to go to a natural area, and the benefits natural areas bring to people.

To start off with, we will look at the levels that people agree natural areas positively impact their wellbeing. In order to evaluate questions 4 and 25, we constructed graphs to depict the number of responses that corresponded with various levels of agreement. The organized data sheet allowed us to see how many responses matched each level of agreement. For these questions, the interviewees ranked their levels of agreement with the prompt, the options were “1= Not at all, 2= Mostly not, 3= Somewhat, 4= Definitely, 5= Extremely”. After we counted the number of responses in each category, they were graphed in Excel and analyzed the results. We found more responses corresponding to higher levels of agreement for both questions than lower levels. For question 4, most of the responses fell under “Definitely” and “Extremely”, with “Extremely” having 15 more responses than “Definitely”. For question 25, most responses fell under “Somewhat”, “Definitely”, and “Extremely”. With the greatest number of responses being under the “Definitely” category, which had 17 more responses than the “Extremely” category. We showed in Figure 1 that the majority of people enjoy spending time outdoors, we deciphered this from the levels of agreement. As far as Figure 2, we found that most people agree that natural areas contribute to their sense of well-being. In general, the graphs below are a good depiction of how much participants agreed with question 4 and 25.

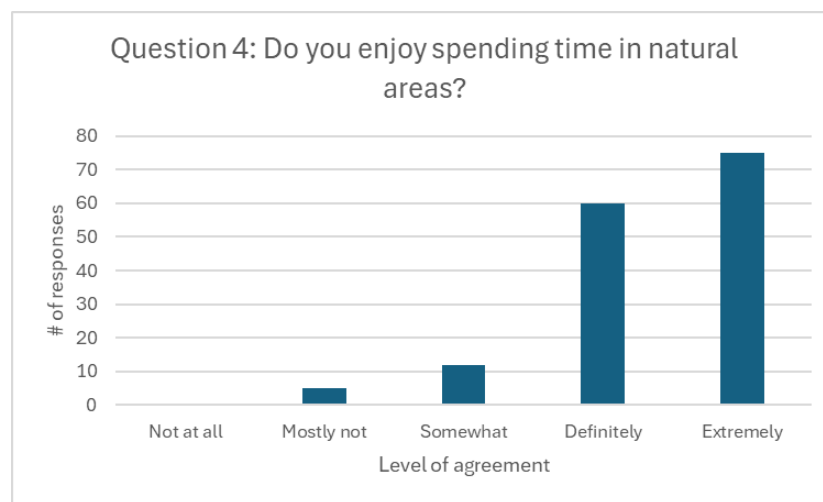


Figure 1. Enjoyment of Natural Areas

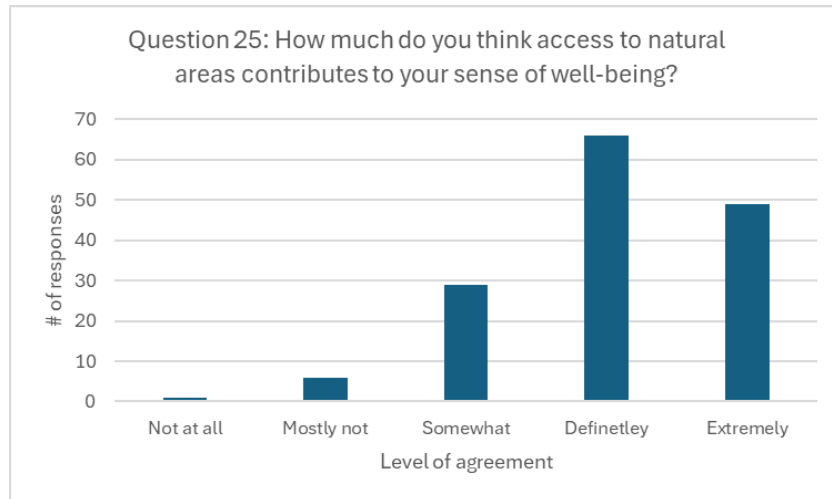


Figure 2. Effect of Access to Natural Areas on Well-Being

In order to gauge what factors participants considered to be most influential when accessing natural areas, Question 15 asked them to rank the following factors from 1 (most significant) to 7 (least significant): proximity to home or work, scenery, availability of amenities, safety and security of the area, information about events or activities, recommendations from family or friends, and crowdedness. An analysis of the frequency each factor was ranked in each position demonstrated that proximity to work or home, and scenery had the highest frequency of being ranked both #1 and #2, which can be seen in Figure 3. Conversely, information about events or activities, and availability of amenities were ranked #6 and #7 at a higher frequency than any other factor. The remaining three factors that included crowdedness, safety and security of the area, and recommendations from friends or family received a range of rankings that skewed towards a lesser significance.

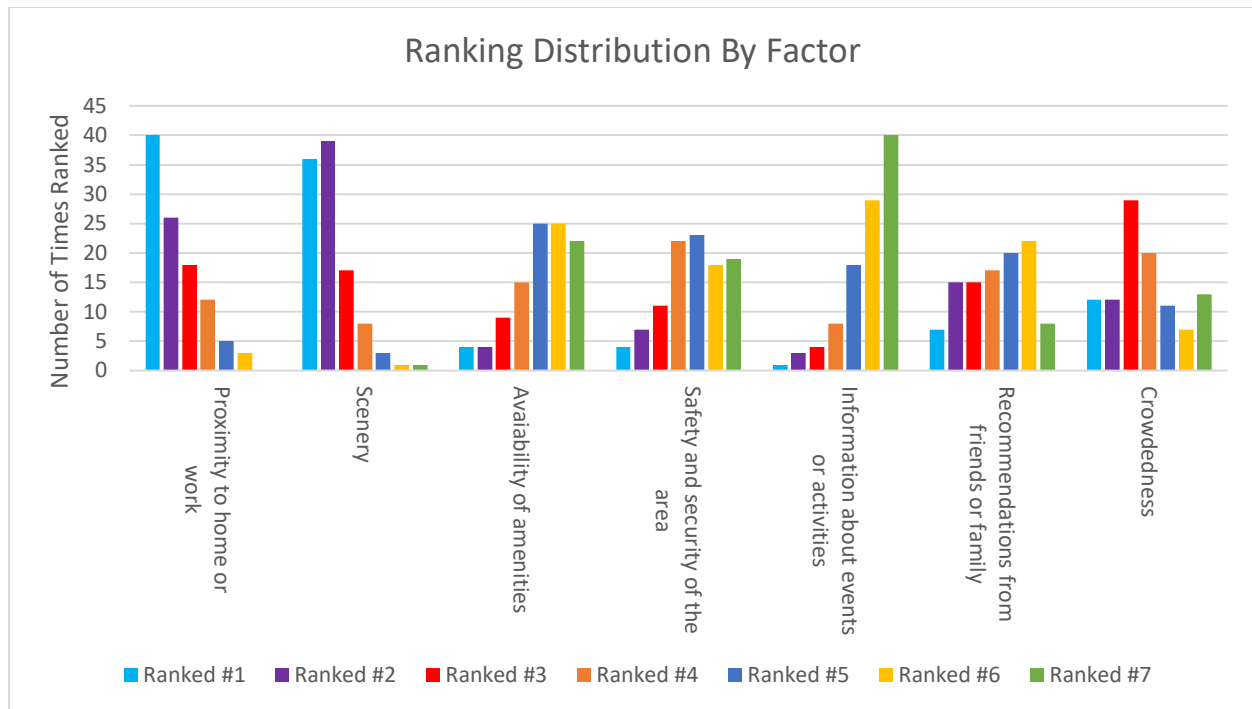


Figure 3. Ranking Why an Individual Chooses a Natural Area by Factor

The data received from this question indicates that while each respondent perceived every factor with a different degree of significance, people tend to prioritize the proximity and accessibility of natural areas, as well as the physical characteristics of those natural areas. This evidence supports that people prioritize the accessibility of natural areas and that they would be more likely to utilize them if they were within a reasonable distance. Additionally, the aesthetic nature and the crowdedness of these natural areas are a significant influence on the likelihood of individuals utilizing natural areas. We can use this evidence to further support the creation and maintenance of more natural areas locally so we can meet the needs of those who access them.

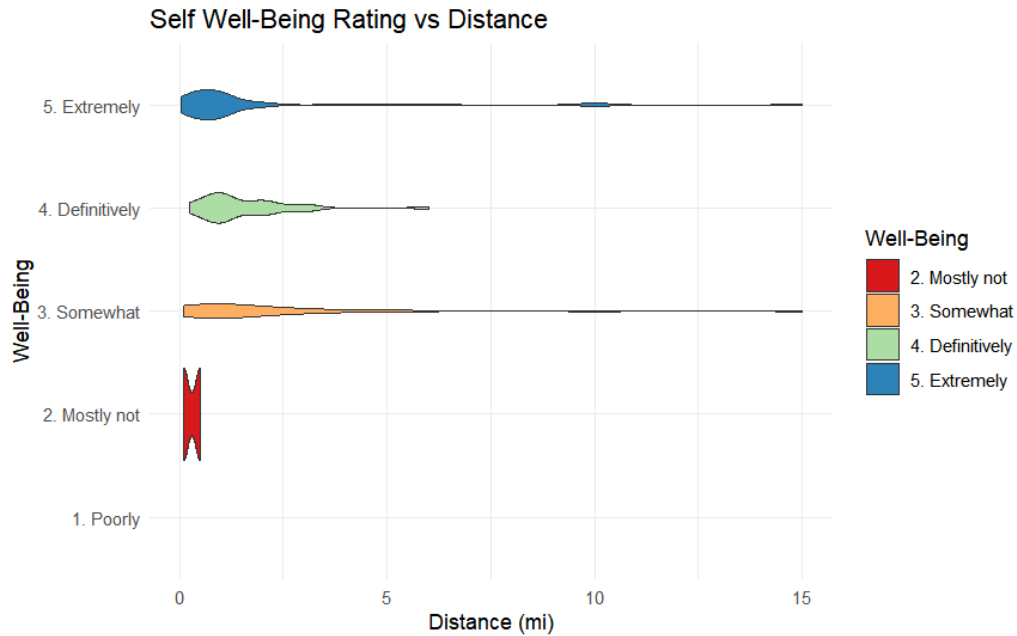


Figure 4. Self-Well-Being Rating Compared to Distance of Natural Area from Residency

As our research question asked how access to natural areas, or lack thereof, affected people's well-being, we decided to cross analyze Questions 25 and 5. We set Question 25 as our dependent variable as the question was, “How much do you think access to natural areas contributes to your sense of well-being?” We then analyzed how this response changed in comparison to how a participant responded to Question 5 which was, “How far is the closest natural area from your home? [Estimated number of miles].” By comparing these questions, it allowed us to visualize whether distance to a natural area affected how a person rated natural areas affecting their well-being. We did so by creating a violin plot in R which compared distance in miles the closest natural area is from a person's residence to how that participant rated natural areas affecting their wellbeing on a scale of 1-5. This plot can be seen in Figure 4 above. The figure shows that there is no correlation between distance and wellbeing ratings. This may be because most of Fort Collins is less than 5 miles away from a natural area. Therefore, further studies should be conducted comparing resident ratings from a city which is further away from natural areas.

As it was established that most people find some benefit in the availability of natural spaces, a further examination into what motivates people to utilize these spaces and the specific benefits they perceive can provide insight into the design of natural areas that will have the most

impact. To analyze this lens, qualitative data was compiled from survey questions 19 and 20 which allowed participants to provide their own rationale on these stated aspects. To organize this data, we conducted a coding process in which we went through each response and identified the occurrences of keywords that summed up the overall theme of each answer. The distribution of each keyword's number of occurrences is shown in Figures 5 and 6.

Beginning with question 19, participants identified the motivating factors in their use of natural spaces. The major emerging theme, as demonstrated by the number of occurrences in Figure 5, was the importance of visiting natural spaces with friends and family, highlighting the importance of natural areas as a site for social gathering. Many participants indicated their frustration with the lack of social spaces outside of work, home, or school without a financial barrier to entry, something which natural spaces provide. In opposite cases, respondents indicated their desire to go to natural spaces alone as a place to facilitate decompression, mindfulness, and relaxation. In either case, responses pointed to nature as providing a necessary break from the constant demands of productivity that is baked into modern life. Natural spaces therefore were desired due to their slow pace, lack of distractions, and beauty in their atmosphere.

Another emerging theme was the chance to connect to the natural world. Respondents identified immersion within nature and a chance to see wildlife as being positive reminders of their inherent connection to the natural world, something which can be lost in city environments that separate people from the provisioning and supporting services the environment provides. A common through-line in the connection with nature is its ability to lead to personal reflection. This could be because natural spaces remove outside distractions and remind us that we are not separate from the natural world, sparking questions of belonging and our place in the world. One response illustrating this connection said motivating factors included “to do some self-care through having a peaceful adventure, taking time to admire the small things in nature like rocks or bugs, or reflecting on my current life and how to achieve my aspirations” (Survey 35, question 19).

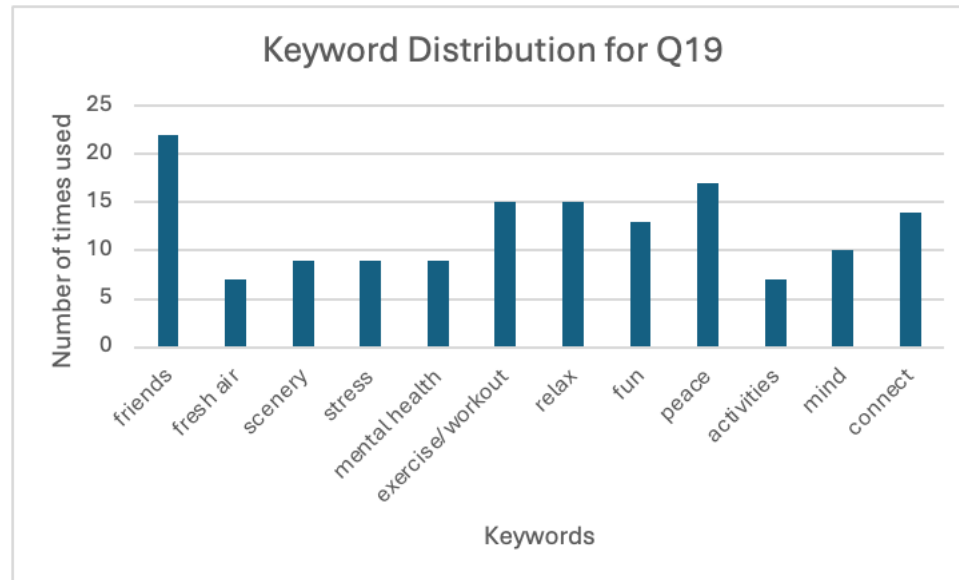


Figure 5. Frequently occurring words from Question 19: Why do you choose to spend time in natural areas? What motivates you?

Question 20 gauges the perceived benefits of using natural spaces, with trends within responses displayed in Figure 6. The most perceived benefits were to overall physical and mental health, with respondents pointing to exercise, recreational fulfillment, fresh air, and beauty as contributing factors. Respondents identified outdoor specific activities that are provided by natural spaces, such as fishing, hiking, mountain biking, swimming, running, etc. The access to open spaces facilitated these outdoor activities, but also activities such as reading or journaling that can be done anywhere but were preferred to be done outside. This indicates that when open spaces are available, regardless of activity, people will seek them out as a location to fulfill personal interests, overall contributing to a higher sense of wellbeing. The desire to recreate in natural areas is reflective of the positive experience of being immersed in nature. The sentiment from question 19 that the outdoors provided a peaceful environment for relaxation and reflection was shared in responses to question 20, indicating that people not only recognize the benefit of open spaces to their mental health, but specifically seek them out to fulfill their mental and emotional needs. Again, immersion in nature is emphasized as a path to improved mental health, illustrated by one response saying, “I think the biggest benefit natural spaces provide me is by giving me a grounding space which helps my mental health so much since I am able to clear my mind and have an escape from ‘reality’ for a little bit to get a breath of fresh air” (Survey 121,

question 20). This underscores the fact that modern city living can have a taxing effect on people's mental health and an outlet to get away is extremely valued.

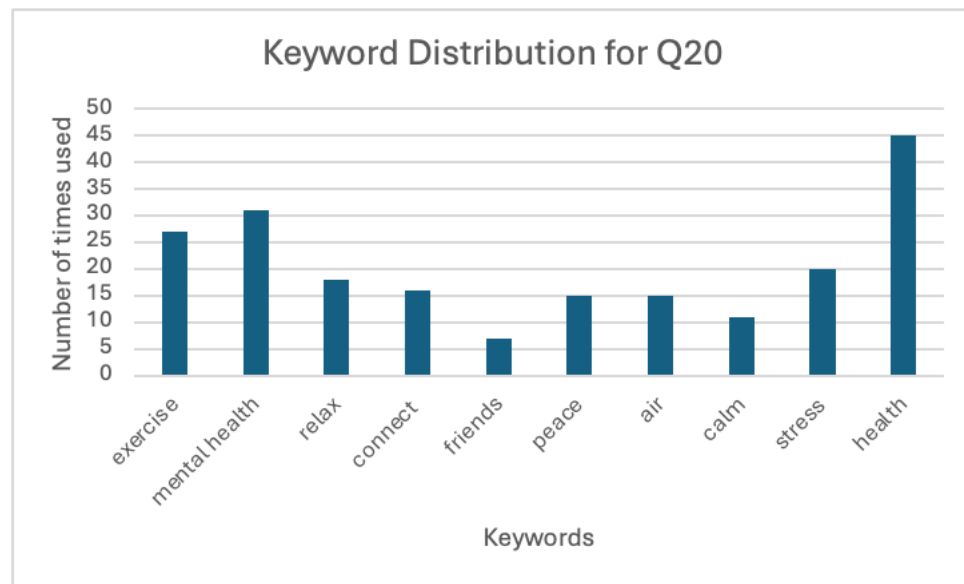


Figure 6. Frequently occurring key word responses for Question 20: What benefits do you think natural areas provide for you?

Conclusion

Our exploration into the relationship between natural areas and personal wellbeing illustrates the profound impact these areas have on personal and communal wellbeing. As Fort Collins becomes a more developed city, the significance of recreational areas is increasingly important to recognize. Through our research, we confirmed what many studies have suggested before: natural areas significantly contribute to physical, emotional, and social well-being.

Natural areas allow Fort Collins residents to have health benefits by allowing for physical exercise and mental health benefits. Mentally, this study showcases how natural areas can allow for reduced stress and a calming environment. Importantly, our research showcases the importance of natural areas as a communal space. These spaces allow for friends, family, and strangers to connect in a free and accessible atmosphere. The study highlights the importance of aesthetics and accessibility to natural areas, as these factors emerged as primary factors

influencing usage of these spaces. Furthermore, our study reinforces the idea that as urbanization increases, it is ever more important to prioritize aesthetic, accessible natural spaces.

Going forward, our study calls for deeper exploration between the motivations and deterrents for individuals utilizing natural areas. It may be beneficial to examine areas closer to natural areas than areas not as accessible to natural areas. By understanding these dynamics, urban designers and policy makers can understand and emphasize the importance of natural areas. Ultimately, our study showcases that natural areas are not only vital for the environment's health, but also for happier, healthier individuals and community.

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