

Improving Access to Outdoors for Persons with Disabilities: A Qualitative and Quantitative Research Study
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Importance: Historically, access to outdoor spaces has been fundamentally inequitable to marginalized communities (Groulx et al., 2022). Although consideration of outdoor accessibility within major stakeholders such as the National Parks Service (NPS) has gained momentum within the last several decades, the voices of individuals with disabilities within this sphere remain largely underrepresented. In order to effectively address barriers to occupational justice in outdoor spaces, it is essential first to accurately understand what these barriers are. To date, there are no large-scale research publications on individuals in the disability community's distinct perspective on the issue of outdoor accessibility.

Objective: To uplift the voices of the disability population in outdoor accessibility through a large-scale survey and provide rich qualitative and quantitative data for current and future advocacy efforts.

Design: Online survey with qualitative and quantitative components, 5 weeks.

Participants: Sixty-three individuals over the age of 18 who have one or more disabilities or are the support provider of a person with disability.

Outcome and Measures: Measured importance of outdoor recreation, comfortability in participating in outdoor recreation, and perceived supports and barriers to these experiences as captured in percentages. Qualitative data on personal narratives surrounding outdoor recreation and accessibility.

Results: 85.7% of participants (**n=54**) identify their ability to access the outdoors as being directly impacted by their disability. 97% of participants identify outdoor recreation as something which improves their quality of life. Only ten participants (15.8%) report feeling well-represented and accounted for in outdoor spaces and communities.

Conclusions and Relevance: There is a fundamental gap between perceived importance of outdoor recreation for quality of life and accessibility to these forms of recreation for individuals with disability.

What This Article Adds: Despite modern efforts to address accessibility in outdoor recreation, there is a lack of statistical research which accurately represents the perspectives of individuals with disabilities. Occupational therapists and advocates can more effectively support this population with an improved understanding of the unique barriers they face in outdoor participation.

Background

There are few bodies of literature which aim to systematically understand the lived experience of individuals with disabilities in pursuits of outdoor recreation. Those which do exist illustrate the barriers which individuals with both physical and cognitive disabilities continue to face in their experiences outdoors. These barriers can be broadly categorized into attitudinal, environmental, and geographical. In 2022, the Journal of Outdoor Recreation published one of the first systematic reviews which addressed the accessibility of nature spaces within 41 relevant studies (Groulx et al., 2022). While this review recognized the limited number of studies which analyze the implementation and effectiveness of accessibility standards, it found that within 23 audited parks, only 14 met a “reasonable level of accessibility (Groulx et al., 2022). Case studies

which encapsulate the individual perspectives of individuals with disabilities shed light on identifiable shortcomings. Several articles recognize the attitudinal barriers to equitable outdoor recreation as embedded in a lack of training and knowledge within park rangers and adaptive recreation volunteers (Ross J.E., 2001; Kafarowski, J, 2013; Chikuta et al., 2019; Merick et al., 2021; Menzies et al., 2021). Merick and Menzies (2021) specifically identify a lack of support for activities involving transfers for individuals with mobility impairments at outdoor facilities. Semi-structured interviews conducted for individuals who participated in an outdoor paddling program identified the competency and confidence of volunteers in transfer skills greatly improved the experience of participants (Merick et al., 2021). Other articles more broadly point to ableist attitudes amongst society as negatively impactful to the comfortability of individuals with disabilities in enjoying the outdoors (Bell, 2019). A relevant theme amongst publications included the lack of user friendly equipment in adaptive outdoor programs for individuals with disabilities (Merick et al., 2021; Burns et al., 2013; Cordell et al., 2004). Cordell et al addressed the accessibility of adaptive equipment for outdoor recreation from a financial perspective and found that 47.5% of individuals surveyed with mobility disabilities reported not having enough money to participate in their desired outdoor pursuits (Cordell et al., 2004). Some publications categorize the predominant ableism towards individuals with disabilities in these spaces as one which is predicated on perspective “risk,” which removes the autonomy of individuals in informing their own decisions (Burns et al., 2009 and Bell, 2019). Difficulties surrounding the built environment of outdoor recreation spaces were a common theme within existing research. Pavement and slope, distance from the visitor’s center, accessibility of public restrooms, crowding and noise, and inadequate transportation are amongst some of the most frequently cited

shortcomings in park accessibility (Chen, 2013; Bell, 2019; Chikuta, 2019; Kaforowski, J (2003); Cordell et al., (2004); Aguillar-Carrasco (2023).

In order to continuously improve accessibility standards and promote an accurate awareness of common barriers, it is necessary first to have an adequate collective sample of the experiences of people with disabilities. Existing research fails to encapsulate a strong sample size and direct responses from persons of various disabilities. Therefore, this survey exists to expand the breadth of research which currently exists highlighting persons with disabilities' perceived benefits and barriers to outdoor recreation.

Methods

Survey Design and Survey Instruments

This study is a cross-sectional survey with quantitative and qualitative components. The electronic survey was developed through google forms by an occupational therapy doctoral student and reviewed by an expert, faculty mentor, and registered speech therapist/adaptive program executive director. The questions within the research study were formed retro-actively utilizing thematic deductions from literary analysis. Questions were reviewed three times from three separate perspectives prior to finalization. Consensus was achieved on appropriate wording, format, and number of questions. The survey was tested on a trial basis with two participants for content validity, clarity, and understanding. The survey was modified once more before finalization.

The survey consisted of 17-22 questions with mixed methods of likert scale (strongly agree, agree, neutral, disagree, strongly disagree,) yes, no, maybe questions, and open-ended questions.

Target Population

A convenience sample of High Country Adaptive athletes and direct caregivers to athletes were invited to participate in the survey in June of 2024. The survey was simultaneously shared to relevant facebook groups, and posted to the AOTA General Forum for participation and sharing. Eligibility for the survey was clearly outlined in the introduction to the survey and introductory email sent to High Country Adaptive athletes. Participants were individuals over the age of 18 with a disability or the direct support provider of a person with a disability.

Participants

The Google Survey was available internationally without restriction, though only available in English. Of the 63 total respondents, 54% have a disability which impacts ambulation, 24% represent a family member or advocate of a person with a disability, 3.2% report having a disability which impacts their ability to perform self care related tasks, 4% have two or more of listed disabilities, and one person (1.6%) represent each of the following: complete spinal cord injury with paralysis, teacher working with a person with disabilities, cognitive disability, disability which impacts hearing, psychiatric disability, complete spinal cord injury with paralysis, neurofibromatosis, or other. 71.4% of participants (n= 45) utilize a form of assistive technology in their regular lives. Demographic questions which addressed a person's prior experience with the outdoors identified 50.8% of respondents participated in outdoor recreation often, while 39.7% (n=25) attended outdoor events “sometimes” and 9.5% (n=6) rarely participated in outdoor recreation.

Positionality

The survey was first created by an occupational therapy doctoral student as an element of a doctoral capstone project. The project was in partnership with High Country Adaptive, an adaptive sports organization in Flagstaff, Arizona. The survey was reviewed with distinct input from an expert mentor with spinal cord injury, and therefore offers unique experiential input. The survey is intended to support voices of individuals with disability in the outdoor recreation spaces as supported by an adaptive recreation organization.

Data Collection and Analysis

The survey was created utilizing Google Forms software. An initial email was sent through the High Country Adaptive official address to all adaptive athletes over the age of 18. This email contained an explanation of purpose, identification of the primary investigator, and outlines for eligibility for participation. An informed consent form was attached to the email for direct caretakers and individuals under the age of 18. The survey was conducted in accordance with standards of the Huntington University Institutional Review Board (IRB). The survey was shared with four disability related Facebook groups and posted to the American Occupational Therapy Association (AOTA)'s General Forum and Rehabilitation subforum. No follow up emails were sent. The survey was open for five weeks.

Data was transcribed infographically from google forms software with relevant descriptive analyses (counts and percentages).

Following the close of the survey, data as collected and represented from google forms was downloaded for analysis. Relevant averages and ranges were derived from likert-scale based questions to comprehensively represent data. Results from open-ended questions were grouped

thematically utilizing a grounded theory where responses were organized based on repetition of key words and ideas.

Results

In order to accurately synthesize results from the survey, findings are presented in counts, percentages, and representative tables.

Perceptive Benefits of Outdoor Spaces

Findings as collected and summarized through Google Forms software revealed consistent themes amongst respondents surrounding perceptive benefits of access to outdoor recreation. 92.1% of respondents (n=58) strongly agree that access to outdoor spaces improves quality of life. 4.8% of respondents n=3 agree with this statement, while 2 respondents felt neutral towards the statement. When categorized into spheres of mental health and physical health, results which overwhelmingly demonstrate participant's benefit from outdoor recreation remained consistent. 92% of respondents either strongly agree or agreed with the statement "my ability to access the outdoors is important for my mental health," where 93.7% either strongly agreed or agreed that their ability to access the outdoors is important for their physical health. These results indicate strong collective perceived benefits of outdoor recreation on occupational wellness.

Attitudes Towards Access

Participants were asked a series of questions relating to individual and environmental attitudes towards accessibility in outdoor recreation spaces. Results indicate mixed sentiments and experiences among individuals with disabilities and support providers.

Self Confidence

In order to understand individual relationships with outdoor recreation within this population, respondents were asked to assess their levels of confidence when planning outdoor activities with families and friends. Results to this question were diverse, however more respondents (46%) either strongly disagreed or disagreed with the statement “I feel confident when planning outdoor activities with my family and friends,” as compared to those who agreed/strongly agreed (30.2%). In relation to self confidence, participants were also asked to rate their confidence in advocating for personal needs and accommodations in outdoor spaces. Results to this question were similarly diverse, with 55.5% of respondents reporting to agree or strongly agree that they feel confident, while 25.4% either disagreed or strongly disagreed with the provided statement.

Attitudinal Barriers

External attitudes towards outdoor accessibility are reflected in the attitudinal, political, and built environment surrounding persons with disabilities. The way in which individuals with disabilities are seen and met in outdoor recreation spaces is fundamental to generating inclusive and safe spaces.

Participants were asked to respond to the statement “I feel well represented and accounted for in outdoor recreation spaces and communities.” While 69.8% of respondents either strongly disagreed or disagreed with this statement, only 3 respondents (4.8%) strongly agreed and 7

participants (11.1%) agreed. In order to better understand the distinct barriers individuals who disagreed with this statement face, participants were additionally asked to rate their level of agreeance with the statement “I feel I am heard when I self-advocate for my needs in outdoor activities/experiences.” More than half of participants (50.8%) either strongly disagreed or disagreed with this statement, indicating experiences with poor attitudinal awareness towards inclusivity in their respective outdoor spaces. As an extension of this question, 46% of respondents strongly agreed or agreed with the statement “I have felt unsafe or unwelcomed in outdoor spaces and communities.”

In order to discern the awareness and attitudes of outdoor recreation amongst healthcare professionals, participants were finally asked to rate their level of agreeance with the statement “health care providers have recommended outdoor recreation activities and/or facilities to me.” In this scenario, more respondents (46%) agreed or strongly agreed with the statement than those who disagreed or strongly disagreed (36.5%).

Physical Barriers

Most participants (82.5%) either agreed or strongly agreed with the statement “I have had difficulty accessing outdoor sports, leisure activities, parks, and trails of my interest due to my disability.” In an effort to better contextualize this response, participants were asked to rank a series of provided barriers as derived from research from most to least impactful in their experiences outdoors. Responses which occurred as most prevalent included: lack of online resources to determine accessibility of spaces (n=42,) environment is too even for mobility needs (n=40,) environment is too narrow for mobility needs (n=38,) high cost of assistive technology related to desired form of recreation (n=31,) lack of appropriate signage to determine

accessibility of spaces (n= 28,) lack of self-confidence (n=23,) and lack of appropriate transportation to and from outdoor experiences (n=19). Responses which appeared as “other” and were represented individually include “lack of facilities and coaches,” “unleashed dogs,” “gates and physical barriers to trails,” and “lack of volunteers.”

Open-Ended Response

Participants were provided a final optional open-ended space in order to provide any thoughts or experiences they have surrounding outdoor accessibility which they were unable to address in the quantitative results. Utilizing an inductive approach, the researcher identified four relevant themes which appeared across responses.

TRUST AND FEAR (n=3)

“One of the biggest hesitations is a fear that I’m not going to be transferred properly or be able to get back into my chair comfortably so having experienced help is very important”

“I don't want to drive. Too risky.”

“High. Country Adaptive really has been the forefront of knowing my needs and listening and trusting volunteers.”

ENVIRONMENTAL BARRIERS (n=7, 21%)

“Even when I have done extensive research on a site before visiting, when I arrive, there are often many obstacles that prevent me from enjoying the experience. Inappropriate or inaccessible restrooms is near the top of my list because I’m not able to just go squat in the woods. I have had accidents in my pants because of lack of available facilities for me, and it’s

absolutely humiliating. Also, often the trails or boardwalks aren't even, level, or maintained. For example, one recent trip had me trying to wheel over giant tree roots in a paved trail. I drove for hours, only to have to turn around within a short distance of the trail head since the "ADA" path contained obstacles I couldn't overcome."

"Transportation will be an issue forever. I don't want to drive. Too risky."

"Mobility is one of my biggest challenges. The TBI and nerve damage cause balance and sight issues. I'm not able to drive and my family works bring the day so accessing accessible sport events during the day is impossible. My family helps me a lot, we do many activities together. The GRIT Spartan Chair and the all terrain walker give me some access to outdoor recreation but finding places to go for hikes is extremely limited. We access rail trails and other flat trails but they are very limited in NH. When traveling the vehicle has to be big enough to accommodate all the equipment I need and I am not able to pack everything myself. Most websites have the accessibility information hidden and what is provided is extremely limited. Without my family helping I would be home bound."

"Our family loves to hike and go to the park. Most hiking trails require us to carry our 8 year old daughter. This makes it hard for her to enjoy (pick flowers) or go to the lakeside.

We went camping not long ago and the campground claimed the space was accessible. However, our daughter could not move freely in her wheelchair at the site nor could she access the lake without being carried."

"I need power for oxygen and Bipap to be my best and that is hard to find camping for me... so much gear is also hard to transport and be in the shade. Most campsites do not have that info

online so i end up at the same two camp places over and over when i have the energy to prep and pack and go!!!”

“It's important to remember that not everyone who has a physical challenge is available during the day to attend activities as many still work FT & have commitments too. Even if I wanted to go there is not much in Surprise, all activities for weekends, etc are in Mesa/Tempe, Ability360 in Phoenix. Fatigue in driving with the heat and doing adventures can take a toll, wish more things were in West side”

ABLEIST ATTITUDES

“My ability to hike is highly variable. I hike at about half the speed of other hikers. Ultralight gear makes overnight and weekend trips possible, and I am now considering a thruhike. One of the barriers I am finding is the assumption that all hikers can cover long distances in a day and reach particular waypoints/destinations/campsites/water sources within certain time frames.”

“Society needs to do better. Those with disabilities already have a difficult life and our community should do more to be inclusive and create spaces accessible to all.”

Have you considered how aggressive people are to people with disabilities? It is really discouraging to experience being told you are not as disabled as others etc when your disability is largely hidden.

FINANCIAL RESTRICTIONS

“Most people don't have access to or know people with money to help even get basic equipment covered. Coming up with nice things that actually work is difficult, it's expensive as it has to be

custom and out of pocket because insurance doesn't care that we can't go off of the sidewalk. We will be stuck in the pine needles if we veer off even a little. Accessibility is different for everyone and it takes a lot of. Compassionate people with ideas and money to help."

"I am a C6 Asia D incomplete quad from transverse myelitis. I hike with crutches or AFOs/ my dog. I've hiked Wheeler Peak, Tallac, Mt Rose, Lassen Peak, Brokeoff, and many more. My crutches were \$900, the snow attachments \$200. My braces were \$1500. My free wheel was \$500. my rugby chair was \$2500. None covered by insurance. Not to me you the cost of the PT, gym membership, trainer, nutritionist, pilates coach, etc it takes to be able to do this. it takes to travel to places- I need to bring more, have the ability to carry less, have to stay in places with temperature control and preferably no stairs. I am a physician working part time. If I was not a physician I wouldn't know about half the equipment I have not would I be able to afford it. You cannot afford it on disability checks. It should not cost this much to be a successful disabled person."

Most people don't have access to or know people with money to help even get basic equipment covered. Coming up with nice things that actually work is difficult, it's expensive as it has to be custom and out of pocket because insurance doesn't care that we can't go off of the sidewalk. We will be stuck in the pine needles if we veer off even a little. Accessibility is different for everyone and it takes a lot of. Compassionate people with ideas and money to help

ADAPTIVE RECREATION PROGRAMS

"Thank goodness for Ability 360 & its programs! It is because of A360 that I can be active. They make it easier."

“After my spinal cord injury I could no longer do the outdoor activities I loved to do without help. I found an outdoor recreation group (no longer around due to city funding stopped) that gave me an access to get back outdoors. It was a life changer. I was able to ride a bike again and try new sports such as kayaking and white water rafting. These outings filled me with joy and provided me to opportunity to meet people who shared my same challenges. I have found new organizations which I do things with now. These staff and volunteers add so much to my life. I would like to go out to access parks and national parks on my own but do not have the necessary equipment and I do need assistance.”

“Afraid of rock climbing until one of your staff offered to help me. That was very kind and changed my experience of the whole thing to a more positive expedition.”

“Accessible outdoor recreation opportunities are out there and they are increasing all of the time. Finding out about them, having access to them, being able to afford them are all huge barriers for a person with a disability. I have been involved with accessible outdoor rec since 2010ish, 20 years after acquiring my disability. As someone that grew up spending as much time outdoors as possible this was a hard change for me. All along there were opportunities out there, but I didn't know about them and know one ever told me. When I did start hearing about them, it was people I met that hand cycles or played tennis or kayaked...etc All activities that need

accessible equipment to participate in and I didn't have those funds to be able to participate at a very high level. Example would be playing tennis in my daily chair against players in chairs made specifically for wheelchair tennis. Things have changed for the better since then with many grant opportunities.. if you know about them.”

“As an advocate for my brother we have been fortunate to become aware of Ability 360 in Phoenix and HCAS in Flagstaff. He has participated in kayaking, adaptive rock climbing, skiing with assistance on a sit ski, river rafting in the Grand Canyon and hiking in Cottonwood. Even surfaces are very important to help him walk with a cane, trekking pole or walker. He enjoys all of these experiences and always wants more!”

“Non profits that focus on the outdoor rec are like the cheat codes to access. Programs like High Country Adaptive Sports and Ability 360 structure events to provide safe access to the outdoors.”

“I've found that there are adaptive sports organizations at lots of different locations to help me be successful. They have equipment and volunteers to assist and help me to be successful. I can't afford my own equipment in most cases.”

“High. Country Adaptive really has been the forefront of knowing my needs and listening and trusting volunteers.”

NOTES FOR THE FUTURE

“I hike the Ice Age Trail and in my experience there are a lot of challenges that I have to overcome mostly by myself. I And I found there is nothing we can't do. We just have to find ways to resolve any problems we cross. NEVER GIVE UP”

“Spaces in national and state parks are getting better at accessibility. “

“When I have met with Trail builders or individuals with positions of influence and outdoor management of spaces, all are willing to listen take feedback and integrate accessibility needs. This is promising and encouraging moving forward, allowing for a more inclusive experience for people with disabilities of the outdoors.”

“We need joined up writing . E.g have a personal battle where ownership of a park is not park authority so everyone passes the buck. Even a good private hotel that puts down car barriers to protect lodges but leaves a mud pathway round barrier as access, loathe to spend a few £s to put down decking . Always have to expect the unexpected and it's exhausting battling. 30 years ago as new laws introduced things seemed possible. Going backwards now as everyone blames money rather than working together to improve”

“ I believe that being in nature is, without any doubt, required for enjoyment, mental health, and physical health. However, many families are intimidated to partake in outdoor recreation because they do not know what is accessible and what is safe for their child. I believe many state and national parks are making their areas more accessible but there is always more that we can do to provide opportunities for all to experience nature in a way that suits them best. More communication from cities and states about what is available, more education, and more awareness of what families need would be essential.”

Discussion

This research study successfully approached the aim of better understanding the modern perspective of individuals with disabilities and their unique experiences with outdoor spaces.

Relative to existing research studies in this sphere, this study has a large sample size (n=63) and is representative of a variety of disabilities.

Findings are consistent with pre-existing literature which analyzed barriers to outdoor accessibility. It is clear that individuals with disabilities continue to face barriers to accessing outdoor recreation and that many of the barriers reported in research as early as 2003 and 2004 remain prevalent today (Kaforowski, J (2003); Cordell et al., (2004)).

Results indicate a fundamental gap between the prospective benefit of outdoor recreation and accessibility to these pursuits. While almost all participants agreed that access to outdoor recreation is important for quality of life, mental health, and physical health, only 3.2% felt their access to outdoor recreation is the same as individuals without disability. This discrepancy highlights an area of occupational deprivation in which individuals are unable to equitably access the occupations they hold important for self-identity.

The most prevalent barrier reported by participants is “a lack of online resources to determine the accessibility of spaces.” This finding presented in quantitative results was backed by narratives within the quantitative survey, including “more communication from cities and states about what is available...what be essential,” “most websites have the accessibility information hidden and what is provided is extremely limited” and “Most campsites do not have that info online so i end up at the same two camp places over and over.” This thematic response indicates a need for clear, direct accessibility information across outdoor recreation webspaces.

Barriers within the physical environment were rated as: environment is too uneven for mobility needs, environment is too narrow for mobility needs, and a lack of appropriate signage to determine the accessibility of a space. These results were contextualized in qualitative responses,

such as “many families are intimidated to partake in outdoor recreation because they do not know what is accessible and what is safe for their child” “most hiking trails require us to carry our 8 year old daughter” and “there are often many obstacles that prevent me from enjoying the experience. Inappropriate or inaccessible restrooms is near the top of my list.” Although many individuals reported an apparent attitudinal shift towards accessibility in individuals close to them, it is evident that these attitudes are not reflected in the greater built environment they encounter.

Many participants reported success in attending outdoor recreation programs, even referring to these programs as the “cheat code.” Outdoor recreation programs, when adequately trained and informed, appear to form accessible, supportive environments for outdoor enjoyment. However, a significant portion of this population’s sample were recruited through convenience sampling of adaptive athletes from an adaptive sports organization (High Country Adaptive Sports and Ability 360.) For this reason, future studies which examine a wider-range of individuals will better indicate the experiences of individuals who do not live near or have immediate access to these resources. It is evident, however, through these findings that well-formed adaptive recreation programs positively impact quality of life for individuals with disabilities.

There is limited demographic data on participants to this study, allowing minimal room to understand the way a person’s specific race, gender, age, geographic location, and socioeconomic status may impact outdoor accessibility. Research in the future specifically addressing demographic features of this community is essential to better understanding the population in a nuanced way.

Individuals with disabilities, much like individuals without disabilities, find access to outdoor recreation to significantly improve quality of life. However, individuals with disabilities continue to face attitudinal, financial, and physical barriers to accessing the benefits of the outdoors equitably. Results from this survey provide a ground-work for foundationally understanding and addressing the unique barriers which individuals with disabilities face in pursuit of outdoor recreation. Information derived from this survey may be impactful in directing future advocacy efforts towards accessible outdoor spaces and experiences.

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