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RESEARCH ARTICLE



Experiences in outdoor recreation among individuals with developmental disabilities: Benefits, constraints, and facilitators

Merry Armstrong^a, I. Sharaievska^a, B. M. Crowe^a and R. J. Gagnon ^a

^aParks, Recreation and Tourism Management, Clemson University, Clemson, SC, USA

ABSTRACT

Background: Individuals with developmental disabilities have specific physical and psychosocial needs that can require extra support to participate fully in and enjoy many benefits of recreation activities. Unfortunately, little is known about individuals with developmental disabilities' experiences in outdoor recreation. The purpose of this study was to explore adults with developmental disabilities' perceived benefits of outdoor recreation, and the constraints or facilitators that affected their participation.

Method: Qualitative, semi-structured interviews were conducted with seven adults with developmental disabilities. Interviews were analysed using open, axial, and selective coding techniques.

Results: Results revealed three themes: (a) benefits of; (b) constraints to; and (c) facilitators of outdoor recreation. Benefits of outdoor recreation reported by study participants included their experiencing satisfaction, mental reprieve, empowerment, enlightenment, social connectedness, and thrill. Participants also shared intrapersonal, interpersonal, and structural constraints and facilitators related to their outdoor recreation participation.

Conclusions: Practical implications and future research recommendations are discussed.

KEYWORDS

Disability; leisure participation; adventure recreation; qualitative

The Center for Disease Control (CDC) estimates that from 2009 to 2017, one in six children aged 3–17 in the United States (US) were diagnosed with a developmental disability including autism spectrum disorder, Down syndrome, or intellectual disability (Zablotsky et al., 2019). Outdoor recreation may allow individuals with developmental disabilities to gain several social and behavioural benefits, including improved quality of life, new relationships, and enhanced self-confidence (Dorsch et al., 2016; McAvoy et al., 2006; Zachor et al., 2017). Although many individuals with and without a disability can benefit from outdoor recreation, individuals with developmental disabilities may need additional support to address various communication, behavioural, or sensory-related needs during program participation (Ashburner et al., 2008; Bull & Genetics, 2011; Carter & Van Andel, 2020; Crane et al., 2009; Dekker et al., 2002). While there is some understanding of the benefits individuals with developmental disabilities may gain through outdoor recreation participation, there is limited knowledge about what factors constrain or facilitate their participation. Thus, the purpose of this study was to explore the: (a) perceived benefits of outdoor recreation; (b) the perceived constraints to out-

door recreation; and (c) the perceived facilitators of outdoor recreation among individuals with developmental disabilities. For the purpose of this study, *outdoor recreation* was defined as an activity that occurs in a natural setting, requires some physical exertion, is undertaken for pleasure (Bureau of Economic Analysis, 2017), and may include structured and unstructured activities in natural, urban, or man-made settings (Phipps, 1991).

Literature review

Developmental disabilities are defined as “a group of conditions due to an impairment in physical, learning, language, or behaviour areas. These conditions begin during the developmental period, may impact day-to-day functioning, and usually last throughout a person’s lifetime” (CDC, 2019, p. 1). Some individuals with developmental disabilities are born with atypical physiology that can make maintaining physical health challenging, which can create additional functional limitations and negatively impact the quality of life. As a result, young people and adults with developmental disabilities are at higher risk for obesity than those with-

out disabilities (Rimmer et al., 2010; Stancliffe et al., 2011). Individuals with developmental disabilities, specifically those with Down syndrome, have been found to have decreased muscular strength and sensory-motor performance compared to their peers without developmental disabilities (Carmeli et al., 2012). These neuromuscular needs could affect individuals' abilities to participate in physical activity, making it difficult to perform tasks that require strength or coordination.

Individuals with developmental disabilities can experience changes in emotional functioning. For example, young people with intellectual disabilities were found to experience increased depression, aggression, and attention difficulty, compared to their peers without disabilities (Dekker et al., 2002). Additionally, some individuals with developmental disabilities experience anxiety, stress, and mental health issues, and need support in coping with these emotions in healthy ways (Skokauskas et al., 2012; Woodcock et al., 2009).

Furthermore, individuals with developmental disabilities may need support in social settings. For example, individuals with autism spectrum disorder may have difficulties communicating with others and may process sensory information differently from peers without developmental disability (Ashburner et al., 2008; Carter & Van Andel, 2020; Crane et al., 2009). Feeling overwhelmed by stimuli can create difficulties in focusing on tasks, responding in socially appropriate ways, and/or cause one to become withdrawn (Ashburner et al., 2008), and impact individuals with developmental disabilities negatively (The National Institute of Mental Health, 2018). While the needs of individuals with developmental disabilities may vary, outdoor recreation may offer multiple benefits that could increase their functioning and quality of life.

Benefits of outdoor recreation

Research identifies several physical and psychosocial benefits of outdoor recreation (Armitano et al., 2015; Dorsch et al., 2016; Duvall & Kaplan, 2014; Zachor et al., 2017). One benefit of outdoor recreation is its ability to improve physical health. For example, Hartig et al. (2003) reported decreased blood pressure levels of individuals without developmental disabilities after walking in nature compared to an urban setting. Similarly, young people with developmental disabilities experienced improved cardiovascular endurance and grip strength after participating in an adaptive surfing program (Armitano et al., 2015). Additionally, rock climbing increased muscular strength and balance among

individuals with mild to moderate cerebral palsy (Christensen et al., 2017).

In addition to improved physical health, outdoor recreation offers psychological benefits (Garg et al., 2010; Jakubec et al., 2016; Mutz & Muller, 2016). Increased happiness, self-efficacy, and decreased perceived stress have been identified by adolescents and young adults who participated in multi-day hiking excursions (Mutz & Muller, 2016). Adaptive kayaking facilitated individuals with spinal cord injuries to experience an enhanced sense of equality, freedom, and independence (Casey et al., 2009). Dorsch et al. (2016) noted, that individuals with physical disabilities and/or developmental disabilities who participated in activities with an inclusive outdoor recreation organisation, experienced increased self-confidence and overall quality of life. Relatedly, Jakubec et al. (2016) found that individuals with various developmental and physical disabilities who participated in adaptive hiking, canoeing, and kayaking reported fewer depression markers post-activity than pre-activity.

Finally, research indicates that outdoor recreation can improve social functioning among individuals with developmental disabilities (Clapham et al., 2020; McAvoy et al., 2006; Zachor et al., 2017), as it can facilitate increased peer interactions. For example, Jakubec et al. (2016) found that participation in adaptive outdoor recreation resulted in individuals with developmental disabilities feeling more satisfied with their relationships with others. Through participation in structured multi-day inclusive outdoor programs, young people with autism spectrum disorder improved their social engagement and took on more responsibilities, such as helping others, teaching peers new skills, and taking the initiative to converse with others (Cavanaugh & Rademacher, 2014; Sutherland & Stroot, 2009). The positive impacts that outdoor recreation participation has on individuals of all abilities could be particularly valuable for individuals with developmental disabilities, who face multiple constraints to participation.

Constraints to recreation participation among individuals with a developmental disability

Individuals with developmental disabilities may experience constraints to outdoor recreation. *Constraints* are defined as factors that require negotiation that can influence the participation and/or preferences of an individual in leisure/recreation pursuits (Crawford et al., 1991). According to Crawford et al. (1991), intrapersonal, interpersonal, and structural constraints can influence an individual's leisure participation.

Intrapersonal constraints are “primarily concerned with subjective perceptions or assessments of appropriateness and relevance of participation in a given leisure activity by the individual in question” (Godbey et al., 2010, p. 121). While lower cognitive functioning among some individuals with developmental disabilities may affect their understanding of health and fitness (Burk & Sharaievska, 2017), some experience the sensory overload that results in their receding from others and activities (Ashburner et al., 2008). Other factors, such as lack of control over daily life decisions, including nutrition, exercising, and driving was identified as barriers among individuals with developmental disabilities (Burk & Sharaievska, 2017). Moreover, typical gym exercise may appear difficult and unappealing to some individuals with developmental disabilities (Heller et al., 2003).

Interpersonal constraints are associated with preferences and participation and can arise in social relationships and situations (Godbey et al., 2010). Individuals with developmental disabilities vary in their social awareness and behavioural disposition, verbal and non-verbal communication, which can become a barrier to participating in social and recreational activities (Jones, 2003). Also, the attitudes of community members involved in recreation can be discriminatory and may prevent individuals with developmental disabilities from participating (Jones, 2003). As a result, young people with developmental disabilities participate in fewer social and recreation-related activities than peers without disabilities (Taheri et al., 2016), and are often limited to family-initiated, informal leisure activities that occur within the family (Mactavish & Schleien, 2004).

Structural constraints are tangible and related to organisational or societal functioning that prevents an individual from activity participation (Crawford et al., 1991). Transportation, limited access to driving permits and the use of a personal vehicle, and the inconvenience of public transportation routes have been identified as barriers that prevent access to recreation for individuals with disabilities (Bascom & Christensen, 2017; Burns & Graefe, 2007; Freudenberg & Arlinghaus, 2009). Lack of information and/or access to recreational resources, limited knowledge on using gym equipment and performing exercises, and confusing process of registering for recreation programs are among other structural constraints experienced by individuals with developmental disabilities (Burk & Sharaievska, 2017; Heller et al., 2003). Lack of flexibility and accommodations in recreation programs and activities, the focus of community recreation on competition and performance as a team, and

lack of trained staff also constrain individuals with developmental disability’s participation (Emira & Thompson, 2011; Jones, 2003; Shields & Synnot, 2014).

Facilitators of recreation participation among individuals with a developmental disability

In order to serve individuals with developmental disabilities better, it is important to understand what facilitators help them participate in recreation. *Facilitators* are defined as “resources for leisure” or anything that “acts to produce (leisure) participation” (Raymore, 2002, pp. 39–40). Similar to constraints, factors that influence individuals’ ability to participate in leisure exist at intrapersonal, interpersonal, and structural levels.

Intrapersonal facilitators are “individual characteristics, traits and beliefs ... that encourage or enhance participation in leisure” (Raymore, 2002, pp. 42–43). Having healthy self-efficacy, and having an optimistic and easy-going personality makes it easier to participate in physical activity (Bar-Mor et al., 2000; Shields & Synnot, 2016). Similarly, adults with developmental disabilities reported feeling happier and more energetic as a result of physical activity, which increased their motivation to remain involved (van Shijndel-Speet et al., 2014). Having interest and knowledge about the health benefits of physical activities, including those occurring outdoors, also facilitates participation (van Shijndel-Speet et al., 2014). Likewise, activities that seem fun, exciting, and provide some social interaction may motivate individuals with developmental disabilities to participate (Heller et al., 2003).

Interpersonal facilitators are related to group and individual connections that encourage leisure participation (Raymore, 2002). Individuals with developmental disabilities have indicated that having support from family facilitates their recreation participation (Alesi & Pepi, 2017; van Shijndel-Speet et al., 2014), as parents provide emotional, motivational, and financial support (Alesi & Pepi, 2017). Additionally, having an opportunity for social interaction and encouragement from peers facilitated recreation participation among individuals with developmental disabilities, and resulted in more meaningful and enjoyable experiences (Caton et al., 2012). Recreation program staff who maintain an open mind, treat every participant with respect and dignity and create a supportive environment as one of the main interpersonal facilitators for individuals with developmental disabilities’ recreation participation (Jones, 2003; Sharaievska & Burk, 2018).

Structural facilitators are “social and physical institutions, organisations, or belief systems in society” that promote leisure participation (Raymore, 2002, p. 43). Such facilitators including the training and expertise of program staff, usability, and availability of adaptive equipment, and flexibility of programs and policies can impact the degree of recreation participation of individuals with developmental disabilities (Alesi & Pepi, 2017; Jones, 2003; Shields & Synnot, 2016). Recreation programs that encourage independence and inclusion of children with disabilities, and offer group-oriented activities focused on group success rather than individual success have been suggested as a means for including individuals with developmental disabilities (Jones, 2003; Shields & Synnot, 2016). Various policies and procedures at the facility and community level, including discounted transportation fees, scholarships and sliding fees, accessibility of buildings (Rimmer et al., 2004), and access to readily available adaptive equipment (Shields & Synnot, 2016) could facilitate participation among individuals with developmental disabilities. Currently, there is little information on the experiences of individuals with developmental disabilities in outdoor recreation. Therefore, the purpose of this study was to explore the benefits of, constraints, and facilitators to outdoor recreation among adults with developmental disabilities.

Methods

A constructivist paradigm and qualitative approach were employed for this study, to allow the researcher to explore the perspectives and realities of study participants whose voices typically go unheard (Creswell & Poth, 2018; Ponterotto, 2005). Employing a constructivist lens allowed the researcher to explore individuals with developmental disabilities’ outdoor recreation experiences, recognising that each individual has their own unique perspective and understanding of life experiences that they co-construct through everyday interactions (Mertens, 2019; Schwandt, 2000). While complete objectivity is unobtainable according to constructivism, the researcher has a responsibility to engage in reflexivity to decrease researcher bias in influencing participants’ stories.

Purposeful snowball sampling was employed to recruit participants (Creswell & Poth, 2018) through social media, personal contacts, community programs for individuals with developmental disabilities, professional listservs, and outdoor recreation organisations offering inclusive programs in the Southeastern region. The primary researcher shared informational flyers about the study with personal contacts, asking them to

distribute information about the study to individuals they knew who might be appropriate for, and interested in the study. To mitigate potential influence on the decision to participate, the primary researcher did not directly contact any potential participant(s). Adults diagnosed with developmental disabilities who consented to participate in the study were able to communicate verbally (or through verbal assistive technology), and answer sample questions were eligible for participation in the study. Sample questions, such as “What fun things do you like to do outdoors?” and “How does participation in outdoor recreation [activities mentioned by participant] make you feel?” were provided to ensure participants would be able to successfully participate in the interviews. All participants had to have been engaged in outdoor recreation within the last five years in the Southeastern region (i.e., AL, FL, GA, KY, LA, MS, NC, SC, TN, VA, and WV).

Following IRB approval by the Institutional Review Board, and consent/assent forms had been signed and mailed back to the researcher, semi-structured interviews were conducted via Zoom. Participants who had their own legal guardianship completed one interview. When participants with developmental disabilities had a legally appointed representative (LAR), a semi-structured dyadic format (Caldwell, 2014; Stuckey, 2013) consisting of three separate interviews was used (see Table 1). Utilising a dyadic approach with participants who had a LAR allowed the individual with developmental disabilities to maintain their independence while acknowledging the relationship between the individual with a developmental disability and their LAR and embracing this relationship as a source of information (Caldwell, 2014). The dyadic interview technique has been used previously to address some of the difficulties of conducting interviews with individuals with developmental disabilities (Caldwell, 2014). This approach was not warranted in cases when participants had their own legal guardianship.

The first interview was intended to establish rapport with the individual with developmental disabilities, and gather a general understanding of their outdoor recreation experiences. As part of the first interview, participants were asked to identify the person who supports them most in outdoor recreation (Caldwell, 2014). The second interview occurred with the participants’ key support person named during the first interview, and aimed to triangulate information shared during the first interview and learn about techniques (e.g., posing questions a certain way, asking about certain activities or events) that may contribute to the conversation with the individual with a developmental disability in the third interview (Caldwell, 2014). The purpose of

Table 1. Example interview questions.

Topic	Interview 1	Interview 2	Interview 3
<i>Recreation and leisure pattern</i>	a. Could you tell me about the things you like to do for fun? [Things that make you happy/things you enjoy]. <ol style="list-style-type: none"> i. Why is that fun? ii. Who does [insert fun activity] with you? 	a. On average, how much free time does [Participant with developmental disability] typically have in a week? b. What does [Participant with developmental disability] like to do for fun?	a. During our first interview, you talked about doing ____ for fun. Can you tell me more about that?
<i>Pattern of participation in outdoor recreation</i>	a. Could you tell me about the fun things you like to do outdoors? <ol style="list-style-type: none"> i. Do you enjoy camp? Day trips? Outings? Do you like to be near water or around the trees? Do you enjoy mountains? ii. If no, why not? What about it do you not like? Could you tell me more about that? b. Can you tell me about your first time trying this outdoor activity? c. Tell me about the last time you did an outdoor recreation activity? d. How do you usually plan this outdoor recreation [insert activity mentioned] experience? Tell me more about this?	i. What types of outdoor recreation does [Person with developmental disability] usually participate in? ii. Where does [Person with developmental disability] typically go to participate in outdoor recreation? iii. Who typically helps [Person with developmental disability] participate in outdoor recreation? iv. How specifically do they help? <ol style="list-style-type: none"> 1. Organizing and planning? 2. Transportation and/or equipment? 3. Instructions and technical support? 4. Companionship and emotional support? 	e. During our first interview, you spoke about doing _____ for fun in outdoor recreation. Could you tell me more about that?

the third interview was to verify previous content shared and explore any additional information participants with developmental disabilities wanted to provide (Caldwell, 2014).

Interviews were recorded and transcribed verbatim, and pseudonyms were used to protect participants' identities. Following Charmaz (2008) coding technique, open and selective coding was used to identify initial codes, core categories, and subcategories. Then, axial coding was used to establish connections and relationships between codes and determine themes (Charmaz, 2006). To maintain credibility, themes that developed were constructed from codes including a majority of participants. To strengthen the trustworthiness of analysis and interpretation, the researcher wrote reflexive memos, attempting to acknowledge thoughts and biases. Additionally, the dyadic approach employed with participants who had a LAR was a way to obtain more accurate information.

Results

Interviews were conducted with seven individuals with developmental disabilities who were actively engaged or had been previously engaged in outdoor recreation. Participants included five males and two females who lived either with family ($n = 5$) or independently ($n = 2$) and had a high school diploma ($n = 4$), some college ($n = 1$), or a Bachelor's degree ($n = 2$). Participants reported having Down syndrome, Asperger's syndrome,

and autism spectrum disorder. Four participants had LARs who were also named their designated support person for outdoor recreation; three participants were their own legal guardians and did not identify designated supports. Three themes were developed through inductive qualitative data analysis, including perceived benefits of outdoor recreation, constraints of outdoor recreation participation, and facilitators to outdoor recreation participation.

Benefits of outdoor recreation

When asked about their perceptions towards outdoor recreation, participants shared ways in which they benefited from participating, what they liked about outdoor recreation, and the positive impact outdoor recreation had on them.

Outdoor recreation provides satisfaction

Participants spoke about ways in which being in the outdoors provides satisfaction. Participants stated they liked the beauty and scenery of the outdoors. For example, Lily shared, "the sunshine. The fresh air." Similarly, Heath said, "just being outside." Interestingly, Ryan indicated his senses were magnified when participating in outdoor recreation: "whenever I get out and go do those things ... it's one of those really good senses that's amplified so much more." This interpretation of outdoor recreation could be unique to individuals

with developmental disabilities who may experience heightened sensory processing.

All participants indicated that outdoor recreation was fun for them. For example, Josh stated honestly, “it’s sort of like, it’s just a really fun experience, really. Doing camping ... exploring a coral reef, canoeing through the wilderness ... It’s easier to experience it than to talk about it.” Outdoor recreation was described by some as something that provided fond memories. While Ryan and Josh specifically mentioned the good memories they had from outdoor recreation with family members, Freya shared that outdoors activities added meaning to memories: “Maybe I’m like, glorifying like being productive or like, doing things, but I think it makes like life more memorable, is like when you got to do things.”

Outdoor recreation provides a mental “reprieve”

Several participants found outdoor recreation as a way to find mental calmness. Freya said, “[rock climbing] it’s a really nice way ... I guess some people might say, it’s like you’re just disassociating from reality.” This idea was also discussed in cases when individuals experienced sensory overstimulation. For example, Ryan explained, “it’s [outdoor recreation] more like one big fat stim.” This idea of being involved in outdoor recreation and experiencing a sense of relief was mentioned by three participants, two of which had autism spectrum disorder and experienced anxiety. Freya shared that, “outdoor activities in general, have just helped me with ... mental illnesses that I have struggled with.” Additionally, Freya described her experience of decompression from outdoor recreation:

For me, it’s more of a ... a nice reprieve ... for me from like, all the things I’m normally like stressed and worried about. And I like have just one thing that I’m like, focusing on. I need to get up this section of the hill or like, I need to get to that next rock, like next hold or whatever it is.

Similarly, Ryan said:

Noise is actually exactly the word I’m looking for. Noise as in whenever it comes to communication, the stuff that interrupts the way things are translated. Noise inside my head, the stuff that makes it hard to concentrate, focus and then the noise between me and my environment, like sensory disruptions, you know. Sometimes feelings are rough, sometimes taste is difficult, sometimes smell – all that stuff starts to slow a lot down and it’s like I get kind of a clearness. Like a almost a third person perspective of myself. And feels more clarifying ... It’s like the sensory stuff slows down and my thoughts slow down. And you know, I’m glad to be there around people at the time, but at that point in time, that people don’t matter ...

they’re really just there to help me stay engaged in the moments.

In addition, Ollie shared that he used walking as a way to feel better, “Well sometimes, I’m really really mad ... Like, when I’m, when I get mad, it’s um, my mom tell me to do, to do something ... [Interviewer: How do you feel after you go walking?] Awesome.” Thus, participating in outdoor recreation can serve as a way to decompress, relieve anxiety and anger, and escape from reality.

Outdoor recreation provides empowerment

The participants indicated outdoor recreation can require perseverance at times, which is something to be empowered by and proud of. Two participants mentioned that facing challenges in outdoor recreation can positively influence their belief in themselves. For example, Andrew spoke with confidence and pride when sharing about the badges he had earned in boy scouts, “[Sister: And tell her about all the badges]. Yeah, and all the badges ... working for.” Freya spoke several times about the benefit of doing challenging and uncomfortable things:

I was a little uncomfortable doing [outdoor recreation activities], but like then, like the feeling of like, oh, I can actually do this and like, I am capable and able of doing that was definitely something that for me, was just like really rewarding.

Additionally, Freya appreciated outdoor recreation because it allowed her to control the pace and challenge level of experience to best fit her processing needs.

Outdoor recreation provides enlightenment

The multifaceted nature of outdoor recreation makes it a great way for people to learn new skills and apply lessons learned from outdoor experiences. Through boy scouts, Josh shared, “I basically learned how, how to like keep calm during a stressful situation ... I would say that was the big one.” Andrew listed different skills he has learned from hiking and camping, “camping, a tent, to set up a tent with a companion ... and what am I able to do for camp. Have wood, make fire, eat, [...] and go with the life.” Similarly, Ollie learned how to fit the gear required for going zip lining at camp, “Yeah. Well, I wear something. It’s a, it’s a harness. [...] [When asked if he learned how to put on a harness] Mm hmm.” As expressed by participants, outdoor recreation provides an opportunity for learning different technical skills and lessons applicable to life.

Outdoor recreation provides social connectedness

Many participants enjoyed being involved in outdoor activities with friends. Ollie liked the companionship provided from walking with his friend, “Well, we hang out and walk.” Additionally, Andrew expressed why he prefers doing outdoor recreation with others, “It’s more than myself, I like it with the group.” All participants specifically mentioned family members being involved in sharing outdoor recreation with them. For example, Lily said that she hikes, “Uh, mostly with my mom,” and likes “[...] being together.” Josh, Ryan, and Freya mentioned spending time outdoors with their dads. Whereas Heath and Ollie mentioned participating in outdoor recreation with both of their parents, Andrew enjoyed the companionship of his sister and brother-in-law. As shared by participants, an opportunity for spending time with others through outdoor recreation was a common benefit.

Outdoor recreation provides thrill

Outdoor recreation often takes place in an uncontrolled, natural environment, where the additional risk or danger is involved. Some participants acknowledged that they appreciate some thrill when involved in outdoor recreation. Ryan stated, “It has to be active ... has to keep my attention and have, I guess, some risk.” Similarly, Ollie shared his thrill of the outdoor experience, “I like the zipline. I love it ... And I almost freak out.” As indicated, some participants are drawn to outdoor recreation because of the excitement it fosters.

Constraints of outdoor recreation

While most participants did not express being constrained to the point of non-participation in outdoor recreation, they did mention intrapersonal, interpersonal, and structural factors that were challenging, required navigation, and influenced their preferences and degree of outdoor recreation participation.

Intrapersonal constraints

The participants experienced constraints on an individual level, including fear and anxiety, sensory overstimulation, and discomfort. For example, Andrew admitted being afraid of participating in rock climbing because, “Well, [I] tried once, I was a little nervous.” Ryan indicated that the way he processes information can make it difficult to engage in certain outdoor activities, saying:

It can be sensory overwhelming if I’m in nature ... like you know really in it. I’m fine with it, otherwise, you

know but ... get away from me ... Too much, too much of a bad thing. Too much sensory. Or too much of a good thing. Bleh.

Ollie shared his discomfort while hiking, “First of all, I’m sweaty, and second of all, it’s hard ... I don’t like when I ... walk up [any incline while hiking], it’s the hard part.”

Interpersonal constraints

All participants reported engaging in outdoor recreation with friends or family, however, two participants indicated that the core group of friends they spent the most time with did not share their same outdoor recreation interests. For example, Ryan said, “I’ve created a network of friends that I’ve been realising more and more lately, is, while they have all the same interests of me, people with those interests don’t tend to go outside. It’s frustrating.” Additionally, while Freya expressed having a network of companions who shared her same interest in outdoor recreation, she indicated that not having previous relationships with individuals in a group makes her less inclined to participate in outdoor activities alone, “I don’t know how much I’d want to do like outdoor activities by myself and like a group that I had never met before.”

Structural constraints

Participants mentioned challenges that they faced involving time, logistics, gear, and money required to participate in outdoor recreation. Additionally, insects and bad weather were mentioned. While Josh admitted “because of work and college ... and probably because of like my own ... procrastination ... I haven’t been able to do something like [roller blading] yet.” Ryan and Freya shared that planning logistics and gear involved can be taxing. For example, according to Freya, “[coordinating a trip] would be like a huge stress ... it would be like, a big chunk of maybe, why there’s some outdoor things that I don’t do [...]” Furthermore, both Freya and Josh indicated that having a stable income would allow them to participate in some outdoor activities more. For example, Freya shared, “[Outdoor recreation adventure trip] that’s something that I think I would definitely like, would like, or I’m interested in doing later on in life when I’m ... have a little bit more in my savings account.” Similarly, Josh admitted that completing school and securing a reliable job would facilitate more consistent engagement in outdoor activities for him:

I would love to go back to do that [canoeing] again. However, I don’t think I’ll be able to do that again for like another three years. Well actually, no. Probably

like, I won't be able to do that until like, until I get, until I stabilize, until I get like a comfy position, where work is alright.

Other structural aspects of outdoors, such as the weather and insects were constraining as well. For example, Lily, Heath, and Josh disliked dealing with bugs in the outdoors. Heath said, "Oh the seaweed . . . I don't like it . . . Because it's yucky . . . [and] the bugs." Similar to most other participants, Lily shared that "feeling cold . . . And raining" stops her from going outside. As evidenced by participants, there are many structural factors that can present obstacles to these individuals participating in outdoor recreation.

Facilitators to outdoor recreation

When asked what helps them participate in outdoor recreation, intrapersonal, interpersonal, and structural factors were identified. The facilitators at intrapersonal, interpersonal, and structural levels were mentioned by the participants.

Intrapersonal facilitators

Several intrapersonal factors affected individuals' involvement in outdoor recreation, including their interest level, and incorporating it into their identity. Josh explained, "it is more like uh, basically like interest in this thing, out of curiosity. And that's probably it really . . . I'm interested in this thing . . . I'm willing to try it out with you guys." Additionally, Freya said being immersed in an environment where outdoor recreation is a popular pastime, "it becomes an important part of your life and you want to continue doing." As evidenced, being personally curious, and accustomed to prioritising outdoor recreation can encourage some individuals to be involved in outdoor activities.

Interpersonal facilitators

All participants indicated that the social aspect – the involvement of friends, family, and significant others – played an integral role in participants' engagement in outdoor recreation. For example, when discussing outdoor recreation participation, Lily shared, "My mom helps me. And I like it." Family members were also identified as a source of functional support when participants have to negotiate logistics, including transportation. For example, Heath and his mom discussed, "[Mom: Have someone take you] . . . Oh yeah, have somebody take me . . . Mother, I would say . . . And dad." Additionally, the opportunity to be with others was indicated as a motivator for participants' engagement in outdoor recreation. For example, Ollie said he likes walking "cause I see my friend." Likewise, Freya

said, "the biggest sort of . . . motivator, or things that helps, that facilitates me into doing outdoor activities, is friends." As expressed by several, outdoor recreation is an enjoyable way to socialise and connect with others.

Structural facilitators

The participants also shared structural supports, such as outdoor recreation/education organisations and good weather, which positively impact their outdoor recreation experiences. For example, Freya shared, "I could definitely see that [outdoor company-led trip] being a huge facilitator, in terms of like, getting me getting outside more or doing different kinds of activities that I haven't done in a while." Additionally, talking about a camping trip, Josh mentioned that providing the right amount of support and instruction can impact a novice's experience:

I think [the troop leaders] . . . helped out the right amount. I think they helped out enough help to make it work . . . it's a situation where if they help out too much, it doesn't become a boy scout experience at all. More so, becomes a 'we blow' experience, where the adults do everything for you.

The participants stated good weather made a difference in their outdoor recreation participation. For example, Andrew shared that it must be summertime for him to be active in some outdoor activities, "I like to do tennis, and . . . swimming, in the water summertime. Nothing cold." Thus, in addition to weather, having the opportunity to participate in activities facilitated by organisations or leaders that can assist with equipment, logistics, and instruction can facilitate some individuals with developmental disabilities' involvement in outdoor recreation.

Discussion

The purpose of this study was to explore the perceived benefits of outdoor recreation among adults with developmental disabilities, and better understand the constraints and facilitators that influence their outdoor recreation involvement. Study participants reported experiencing multiple benefits as a result of outdoor recreation participation, including experiencing satisfaction, positive sensory stimulation, a brief reprieve from stress, and empowerment. Additionally, participants reported outdoor recreation provided an opportunity to learn useful skills and life lessons, engage with others, and experience thrill and excitement. These findings support previous studies indicating that individuals with and without developmental disability experience emotional, social, and physical benefits from outdoor recreation participation (Armitano

et al., 2015; Dorsch et al., 2016; Jakubec et al., 2016; Mutz & Muller, 2016). For example, two study participants stated outdoor recreation helped them de-stress and alleviate anxiety. This finding aligns with research that found outdoor recreation has the capacity to decrease stress and anxiety among some individuals without developmental disabilities (Garg et al., 2010; Mutz & Muller, 2016). Study findings also suggest a unique benefit experienced by some individuals with developmental disabilities, as some participants shared that outdoor recreation helped them decompress and focus on one task; and even served as a stimming experience. Stimming is a self-regulatory activity that helps with coping with various situations that might be overstimulating and/or anxiety-provoking (Kapp et al., 2019). While there is little research on the use of outdoor recreation as a method of stimming, outdoor recreation could be a way for individuals with autism spectrum disorder to calm their stress and focus on one task at hand (simulating stimming).

While participants spoke about the benefits of outdoor recreation, they also identified several intrapersonal, interpersonal, and structural constraints that required negotiation in order for them to participate. Similar to Ashburner et al.'s (2008) findings, study participants identified that overwhelming sensory stimulation during activities might prevent them from fully engaging. Also, previous research indicates individuals with developmental disabilities have limited social peer support when engaging in recreation (Taheri et al., 2016). Relatedly, study participants shared that they sometimes did not have friends with shared outdoor recreation interests. Additionally, participants reported that lacking substantial and stable income prevented them from engaging in outdoor recreation as much as they would like. This matches previous research indicating finances are a constraint to recreation participation among individuals with developmental disabilities (Shields & Synnot, 2016; Temple & Walkley, 2007). One interesting perspective shared by a participant with autism spectrum disorder was specific to their sensory overstimulation in outdoor spaces being a barrier. However, this same participant described outdoor recreation as a stimming mechanism. Thus, it is possible that while an outdoor environment may be overstimulating, the outdoor recreational activity may serve as a calming experience. Future research should explore whether individuals with autism spectrum disorder experience heightened sensory processing in outdoor environments (Minshe & Hobson, 2008).

Study participants also identified several intrapersonal, interpersonal, and structural factors that support their participation in outdoor recreation. For example,

participants reported that their interest in outdoor recreation activities facilitated participation. This finding is reflective of previous research suggesting personal interest and knowledge of activity facilitate individuals with developmental disabilities' recreation participation (van Shijndel-Speet et al., 2014). Also, similar to previous research (Alesi & Pepi, 2017; Shields & Synnot, 2016; Temple & Stanish, 2011) social support from family, friends, and significant others facilitated participants' involvement in outdoor recreation. Participants also indicated that organised activities (e.g., boy scouts) led by outdoor professionals can alleviate the stress associated with the time and knowledge required for planning and implementing outdoor recreation activities.

Limitations

While study findings contribute to the understanding of individuals with developmental disabilities' perceived benefits, constraints, and facilitators to outdoor recreation, some limitations exist. For example, to participate in the study, individuals with developmental disabilities needed to be actively or previously engaged in outdoor recreation. These criteria eliminated individuals who have experienced constraints strong enough to prevent them from participating in outdoor recreation. It is also possible that participants misunderstood the meaning of interview questions and responded in a context that differed from the intent of the question asked. To mitigate this limitation, we employed a dyadic interview approach in cases when communication could be a concern (Caldwell, 2014).

Recommendations for research and practice

Considering the limited existing literature on individuals with developmental disabilities' outdoor recreation experiences, a larger, national quantitative study is recommended to gain further understanding of this topic. Comparative studies that explore how outdoor recreation experiences may differ based on demographic factors (e.g., type of disability, place of residence) are also encouraged. Furthermore, while this study contributes to pre-existing knowledge about constraints and facilitators to outdoor recreation participation (Dorsch et al., 2016; Jakubec et al., 2016) encountered by individuals with developmental disabilities, there is little known about individuals with developmental disabilities who have *not* participated in outdoor recreation but have interest in doing so. It is recommended that future research give voice to individuals with developmental disabilities who have not previously participated in outdoor recreation, to understand what constraints have prevented them from doing so.

Specific to practice, the findings of this study and previous research (Bascom & Christensen, 2017; Rimmer et al., 2004; Taheri et al., 2016) suggest that outdoor recreation professionals should decrease barriers to individuals with developmental disabilities engaging in outdoor recreation by offering organised activities and trips at no or low cost, transportation to/from activities, and opportunities for social connection among participants. Lastly, some study participants shared that anxiety, fear, and sensory aspects create challenges to their participation in outdoor recreation. Therefore, it is recommended that outdoor recreation staff receive training in soft skills (e.g., patience, direct communication) and strategies for modifying activities (e.g., adaptive equipment, modifying facilitation of activity) to ensure staff can accommodate individual needs.

Conclusion

The purpose of this study was to understand individuals with developmental disabilities' experiences participating in outdoor recreation, including the constraints that may hinder their participation, and the facilitators that support their participation. Findings suggest there are many perceived benefits of outdoor recreation participation among individuals with developmental disabilities. Results also indicate that outdoor recreation experiences are unique to each individual, thus constraints and facilitators are also individualised. Future research, utilising a larger, diverse sample (i.e., age, type of developmental disability, geographic location, unstructured vs. structured outdoor recreation) is recommended, for the purpose of (a) better understanding individuals with developmental disabilities' outdoor recreation experiences; and (b) how industry providers might best support these individuals in their pursuit of such activities.

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ORCID

R. J. Gagnon  <http://orcid.org/0000-0002-0338-6370>

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