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AN EXPLORATION OF OUTDOOR RECREATION EXPERIENCES AMONG
ADULTS WITH DEVELOPMENTAL DISABILITIES: BENEFITS,
CONSTRAINTS, AND FACILITATORS

A Thesis
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
Parks, Recreation, and Tourism Management

by
Merry Hannah Armstrong
August 2021

Accepted by:
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OUTDOOR RECREATION AMONG ADULTS WITH DD

ABSTRACT

Between 2009-2017, 17% of youth were diagnosed with a developmental disability (DD) in the United States. These individuals have specific physical, emotional/psychological, and social needs that can require extra support in order to participate fully in recreation activities. The benefits of participating in outdoor recreation are abundant. Unfortunately, little is known about individuals with DDs' experiences in outdoor recreation participation, and the factors that constrain or facilitate their participation. Thus, the purpose of this study was to explore adults with DDs' perceived benefits of outdoor recreation, and the constraints or facilitators that affect their participation. Qualitative, semi-structured interviews were conducted with seven adults with DD. Interviews were transcribed verbatim and analyzed via open, axial, and selective coding technique. Results revealed three themes: (a) benefits of outdoor recreation participation; (b) constraints to outdoor recreation participation; and (c) facilitators of outdoor recreation. In addition to practical implications, future research recommendations will be discussed.

OUTDOOR RECREATION AMONG ADULTS WITH DD

DEDICATION

I would like to dedicate this study to my younger sister, Amy. Amy, you have taught me to have so much patience, be creative with everything, and add humor to difficult or tiring circumstances. Seeing you flourish and brighten up when you are in an outdoor environment has sparked my deep interest and passion for understanding and facilitating outdoor activities for people with developmental disabilities. I love you and thank you for putting up with me. Let's go rafting!

OUTDOOR RECREATION AMONG ADULTS WITH DD

ACKNOWLEDGMENTS

I would like to acknowledge all the committee members who took the time, provided such helpful feedback, and facilitated my growth throughout this project.

I would also like to recognize all the individuals who took the time and consideration to participate in the study and share their stories about their experiences in outdoor recreation.

OUTDOOR RECREATION AMONG ADULTS WITH DD

TABLE OF CONTENTS

	Page
TITLE PAGE	i
ABSTRACT	ii
DEDICATION	iii
ACKNOWLEDGMENTS	iv
CHAPTER	
I. INTRODUCTION	1
II. REVIEW OF LITERATURE	7
Individuals with Developmental Disabilities and Their Needs	7
Benefits of Outdoor Recreation	11
Constraints to Recreation Participation among Individuals with DD.....	15
Facilitators of Recreation Participation among Individuals with DD.....	23
III. METHODS	29
Paradigm, Design, and Approach	29
Participants' Recruitment.....	30
Data Collection Procedure	32
Instrumentation	34
Data Analysis	35
Trustworthiness.....	36
IV. MANUSCRIPT.....	38
Abstract	38
Introduction.....	40
Literature Review.....	42
Methods.....	52
Findings.....	57
Discussion.....	67
V. DISCUSSION AND CONCLUSION.....	73
Summary of Findings.....	73

OUTDOOR RECREATION AMONG ADULTS WITH DD

Table of Contents (Continued)

	Page
Benefits of Outdoor Recreation	73
Constraints to Outdoor Recreation.....	75
Facilitators to Outdoor Recreation.....	78
Limitations	80
Recommendations for Research and Practice.....	82
Conclusion	86
 APPENDICES	 88
A: Initial Interview Guide.....	89
B: Support Interview Guide.....	95
C: Follow-up Interview Guide.....	99
 REFERENCES	 100

OUTDOOR RECREATION AMONG ADULTS WITH DD

CHAPTER ONE

INTRODUCTION

According to the Center for Disease Control estimates, in 2016, 6.99% of children (ages 3-17) in the U.S. were diagnosed with a developmental disability (DD) such as Autism Spectrum Disorder (ASD), Down Syndrome, or Intellectual Disability, which is an increase from 5.76% in 2014 (Zablotsky et al., 2017). While it is unclear whether this increase is due to better diagnostic procedures or an actual increased prevalence, people with DDs represent a sizable population in the United States. Studies indicate a number of social and behavioral benefits individuals with DD gain from participating in outdoor recreation (McAvoy et al., 2006; Zachor et al., 2017). Unfortunately, little is known about individual with DDs' pattern of outdoor recreation participation, the constraints to participation they may face or the facilitators in place to promote their participation. To better support individuals with DD and their families, it is important to understand this population's involvement in outdoor recreation, and whether there are factors that constrain or facilitate their participation. For the purpose of this study, the term *outdoor recreation* is defined as an activity that occurs in a natural setting, requires some physical exertion, and provides gratification to individuals (Bureau of Economic Analysis, 2017). In addition, it involves activities associated with nature, but may also take place in an urban or man-made setting, such as mountain biking or rock climbing (Phipps, 1991). These activities may occur in a structured or unstructured setting.

The positive effects of participating in outdoor recreation are well known and many. For example, a study investigating experiences and perceptions of individuals with

OUTDOOR RECREATION AMONG ADULTS WITH DD

physical disabilities and/or DD and their families revealed that participation in outdoor recreation improved quality of life, relationships, and feelings of self-confidence among the individuals who participated in the study (Dorsch et al., 2016). Another study, involving individuals with a spinal cord injury, explored their perceptions of sea kayaking and showed that they experienced improved upper body strength, and felt a sense of independence, equality, and freedom (Casey et al., 2009). Unfortunately, some members of the community, particularly those with DD, do not have access to many types of recreation and the benefits they provide (Burk & Sharaiveska, 2017; Jones, 2003). Currently, there is little information regarding constraints individuals with DD face when participating in outdoor recreation, as well as what facilitates their participation. However, previous research on other types of recreation for this population, such as community and sport recreation, indicated a number of constraints were encountered.

There are a number of social, personal, and physical constraints people with disabilities experience in recreation (Jo et al., 2014; Jones, 2003). Several factors limiting opportunities in community recreation have been identified by individuals with disabilities, such as limited independence in making decisions about daily activities (Burk & Sharaiveska, 2017) and lack of access to transportation (Burns & Graefe, 2007; Freudenberg & Arlinghaus, 2009). According to a study by Solish et al. (2010), youth with DD reported participating in recreation less than their peers without disabilities. Parents of children with DD have named constraints related to availability of recreation programs in their community, the cost of leisure services, and acceptance from other

OUTDOOR RECREATION AMONG ADULTS WITH DD

members of the community (Emira & Thompson, 2011; Sharaievska & Burk, 2018). Moreover, a few studies highlighted constraints related to the negative perceptions, attitudes, and lack of training about how to adapt recreation to the needs of individuals with DD (Jones, 2003; Miller et al., 2010). The inflexible design of recreation programs to support potential crises and apply parental suggestions, and the lack of information about the programs were also named as factors preventing families with individuals with DD from enjoying community recreation (Emira & Thompson, 2011). As indicated in Emira and Thompson's study, parents admitted having difficulty understanding whether their child with DD would be provided accommodations at the recreation program or if activities offered would even be suitable for their child (Emira & Thompson, 2011). While there is evidence indicating that individuals with DD face constraints, studies also highlight facilitators to their participation in recreation.

There are many influential factors that can help increase recreation participation of individuals with DD. As indicated by Shields and Synnot (2016), possessing certain character traits can impact the likeliness of individuals with disabilities participating in recreation—those who are laid-back and athletically-inclined find it easier to participate in recreation. Likewise, individuals with DD who recognize the positive benefits, such as having more energy and happiness, are more motivated to continue their participation in recreation (van Shijndel-Speet et al., 2014). Having support and encouragement from family members, friends, and peers have been noted as facilitators to individuals' with DD participating in recreation (Alesi & Pepi, 2017; Caton, et al., 2012; van Shijndel-Speet et al., 2014). Not surprisingly, the competence, understanding, and expertise of

OUTDOOR RECREATION AMONG ADULTS WITH DD

staff to work with and provide adaptations and support promote the participation of individuals with DD in recreation (Alesi & Pepi, 2017; Miller et al., 2010; Sharaievska & Burk, 2018). Likewise, having increased structural and financial assistance at recreation and community centers also could help individuals with DD participate in recreation (Rimmer et al., 2004). While families and individuals with varying disabilities (including DD) have identified a number of constraints and facilitators to participating in community recreation and sports, there is little information about constraints or facilitators specific to the participation of individuals with DD in outdoor recreation.

Considering that the majority of the existing literature on recreation experiences among individuals who have a DD are focused on *general* recreation, the purpose of this study will be to explore the experiences of this population in *outdoor* recreation. Outdoor-related activities may present different challenges and additional risks compared to community recreation. Thus, it is important to understand participants' experiences in outdoor recreation. The main objectives of this study were to explore: a) the perceived benefits of outdoor recreation among individuals with DD; b) the perceived constraints to outdoor recreation participation experienced by individuals with DD; and c) the perceived facilitators to the participation in outdoor recreation for individuals with DD.

Definition of Terms

For the purpose of this study, the term *outdoor recreation* is defined as an activity that occurs in a natural setting, requires some physical exertion, and provides gratification to individuals (Bureau of Economic Analysis, 2017). Additionally, it includes activities

OUTDOOR RECREATION AMONG ADULTS WITH DD

(structured and unstructured) that are associated with nature, but may also be practiced in an urban or man-made setting, such as rock climbing (Phipps, 1991).

For this study, the term, *general recreation (or community recreation)*, means recreation that occurs at community recreation buildings, and can involve many types of sports, education, growth, and leadership programs (Aquatic and Community Recreation, 2020). Additionally, *general recreation* encompasses programs and services that promote quality of life, health, and connectedness between individuals who are part of a community (Edginton et al., 2017).

This study focuses on constraints and facilitators related to outdoor recreation. *Constraints* are defined as factors that require negotiation—that negotiation influences participation and/or preferences of an individual in leisure/recreation pursuits (Crawford et al., 1991). *Facilitators* are defined as “resources for leisure” (Raymore, 2002, p. 39), or anything that “acts to produce (leisure) participation” (p. 40).

The Centers for Disease Control and Prevention (2019) defines *developmental disabilities (DD)* as “a group of conditions due to an impairment in physical, learning, language, or behavior areas. These conditions begin during the developmental period, may impact day-to-day functioning, and usually last throughout a person’s lifetime” (p. 1). Some examples of DDs are gene-related disabilities, such as Down syndrome, Fragile X syndrome, and Prader-Willi syndrome. Autism spectrum disorder (ASD) and general intellectual disabilities (ID) are also DD’s. In addition to having substantial deficits in functional activities of daily living, individuals with DD are impacted in other areas of

OUTDOOR RECREATION AMONG ADULTS WITH DD

life, including social, mental, and physical health—all these affect their overall quality of life.

OUTDOOR RECREATION AMONG ADULTS WITH DD

CHAPTER II

REVIEW OF LITERATURE

Individuals with Developmental Disabilities and Their Needs

Within the United States population, there is an increasing number of people with DD. According to the Centers for Disease Control and Prevention, 17%, or one in six children ages 3-17 in the U.S. had a DD diagnosis in 2017, which is an increase of 9.5% from 2009 (Zablotsky et al., 2019). Individuals with DD have specific needs (physical, emotional/psychological, and social) that can require extra support in order to participate fully in recreation activities. It is important to understand these additional needs to explore how outdoor recreation may be beneficial in addressing these needs.

Physical Needs

Some individuals with DD may be born with atypical physiology that makes it more challenging to maintain physical health and meet common physical needs, such as energy, exercise and sleep. As a result, youth and adults with DD are at a higher risk of being overweight or obese than those without disability (Rimmer et al., 2010; Stancliffe et al., 2011). The number of individuals with DD at risk for being overweight or obese (adults and youth) is concerning. Based on data from the 2008-2010 National Health Interview Survey, researchers estimated that 20.4% of adolescents with DD were obese compared to the 13.1% of their peers without DD (Phillips et al., 2017). Segal et al. (2016) estimated in 2012 that the obesity prevalence among children with ID was 28.9% compared to the 15.5% prevalence among children without ID. This risk can create additional functional limitations and negatively impact quality of life. For example, one

OUTDOOR RECREATION AMONG ADULTS WITH DD

of the common symptoms of Prader-Willi syndrome is having insatiable hunger, which can lead to obesity and, consequently, Type 2 diabetes (National Institutes of Health U.S. National Library of Medicine, 2020). Thus, it is particularly important for this population to be involved in active recreation, in order to maintain healthy weight and prevent obesity-related health issues.

Another example of the unique physical needs of some individuals with DD is the need for accommodations due to differences in cardiovascular functioning. For example, individuals with Down syndrome have a higher incidence of heart defects, which could affect their physical activity and health (Bull & Committee on Genetics, 2011), making high-aerobic activity more taxing or difficult, as well as limit their participation in active outdoor recreation. In fact, youth with Down syndrome have a predominantly sedentary lifestyle (Esposito et al., 2012) and do not meet the recommended physical activity amount of 60 minutes of moderate-to-vigorous exercise per day for youth ages 6-17 (Esposito et al., 2012; U.S. Department of Health and Human Services, 2018). Since some team sports and general recreation outlets were shown to be unwelcoming and unaccommodating to the needs of individuals with DD (Emira & Thompson, 2011; Jones, 2003; Scholl et al., 2006), outdoor recreation activities may provide a valuable opportunity to stay active, develop new skills, and build relationships with others.

Emotional and Psychological Needs

Individuals with varying types of DD can vary in emotional and/or psychological functioning and may require additional support. As indicated by Dekker et al. (2002), youth with ID, a type of DD, have been found to have increased behavioral problems,

OUTDOOR RECREATION AMONG ADULTS WITH DD

related to anxiety and depression, aggression, and attention difficulty, compared to their peers without disabilities. These behavioral issues can appear in daily activities and can be emotionally draining. Thus, those individuals may need assistance in order to manage these behaviors in a healthy way. There are many opportunities to work on behavior control, stress management, anxiety, and attention through participating in outdoor recreation (Aras & Ewert, 2016; Mutz & Muller, 2016). For example, rock climbing (an outdoor recreation activity) can involve excitement and elements of risk, due to climbing off the ground and potentially falling. This can induce anxiety and stress for individuals, which makes it a great opportunity for practicing managing stress and learning coping mechanisms, in order to participate and enjoy the activity. Outdoor recreation could serve as a way to fulfill these needs and as a result, to improve the quality of life of individuals with DD (Aras & Ewert, 2016; Mutz & Muller, 2016).

Some individuals with DD experience anxiety and stress and need appropriate outlets for expressing these emotions in positive, healthy ways. As illustrated by Woodcock et al. (2009), youth with Prader-Willi syndrome and Fragile X syndrome respond negatively to change, which may be manifested in self-harm or angry outbursts. Moreover, youth with Fragile X syndrome have been reported to experience heightened anxiety in response to highly stimulating situations (Woodcock et al., 2009). Since outdoor recreation is often viewed as taking place in restorative and calming environments (Garg et al., 2010; Hartig et al., 1991), these spaces may be particularly beneficial to individuals with DD. Moreover, to address these differences in emotional and psychological functioning, outdoor recreation providers could offer opportunities for

OUTDOOR RECREATION AMONG ADULTS WITH DD

healthy ways of releasing stress and anger, serve as a role models for effective communication, and monitor interactions and the environment for factors that may trigger negative emotions.

In addition to stress and anxiety, some individuals with DD struggle with mental health issues, such as depression. A study investigating the mental health among youth with Prader-Willi syndrome compared to their peers without a disability indicated that they scored higher on being withdrawn and depressed than their peers (Skokauskas et al., 2012). Outdoor recreation could be helpful in addressing issues like depression, by increasing an individual's level of activity, and improving their mood (Fruhauf et al, 2016; Wilson & Christenson, 2012). Moreover, due to the nature of outdoor recreation activities, individuals with DD could improve their quality of life by building new skills, and enhancing their confidence (Widmer et al., 2014). Such increased confidence could be a great way for individuals with DD to improve their mental health by taking ownership of something and having more control and autonomy. Additionally, there are many opportunities for individuals to interact with others through outdoor recreation, which would provide opportunity for individuals with DD to feel a part of a community.

Social Needs

Due to physical, psychological, and/or emotional differences, individuals with DD may have less social interactions with their peers and as a result, have additional social deficits. For example, individuals with ASD may have difficulties communicating with others and reading emotions of others, as well as have higher sensory processing of information, such as sounds or pictures (Ashburner et al., 2008; Carter & Van Andel,

OUTDOOR RECREATION AMONG ADULTS WITH DD

2020; Crane et al., 2009). Feeling overloaded by stimuli can lead to difficulty focusing on tasks, responding in a socially appropriate way, and/or being withdrawn from others to lower the stimuli (Ashburner et al., 2008). These unique needs may negatively impact individuals' social life and could prevent them from making friends (The National Institute of Mental Health, 2018).

Social problems can also be experienced by youth with Prader-Willi syndrome due to their withdrawal and often immature actions for their age (Skokauskas et al., 2012). Long-term, this lack of social skills could lead to unmet social needs or lower participation in social events and recreation activities. Outdoor recreation can serve as an opportunity to build social skills and relationships with peers based on shared interests (Cavanaugh & Rademacher, 2014). As previous research revealed, differences may be overlooked when individuals share the same passion for leisure (Devine, 2004; Hitti & Killen, 2015). The social, emotional, psychological, and physical needs among individuals with DD should be addressed in order to increase their quality of life. Outdoor recreation could be employed as a way to meet the unique needs of this population and improve their overall functioning. In addition to being a fun pastime, outdoor recreation can provide a variety of benefits to those who participate.

Benefits of Outdoor Recreation

The research indicating positive outcomes associated with participation in outdoor recreation is abundant (Armitano et al., 2015; Dorsch et al., 2016; Duvall & Kaplan, 2014; Zachor et al., 2017). Positive outcomes can be experienced by individuals of all

OUTDOOR RECREATION AMONG ADULTS WITH DD

ages and ability. Additionally, they can affect individuals' functioning and overall quality of life. Among these benefits are physical, emotional, and social benefits.

Physical Benefits

One of the main benefits of outdoor recreation is its ability to improve physical fitness for people with and without DD. For example, Hartig et al. (2003) discovered that blood pressure levels of individuals without DD decreased after walking in nature as opposed to walking in an urban setting. Moreover, in a study focused on the physiological effects of participating in an adaptive surfing program, youth with different types of DD, such as Down syndrome, ASD and Dandy Walker syndrome, experienced improved cardiovascular endurance, grip strength, and upper body range of motion (Armitano et al., 2015). These results were recorded after participating in one-hour-long lessons twice a week for eight weeks (Armitano et al., 2015). Another study revealed that rock-climbing can increase muscular strength and balance in individuals with mild to moderate cerebral palsy (Christensen et al., 2017). Results were observed after participants of the study attended structured climbing sessions three times a week (for 2.5 hours) for three weeks (Christensen et al., 2017). As indicated by studies mentioned, individuals with DD could benefit from participation in outdoor recreation and their physical health could be improved.

Emotional and Psychological Benefits

To the researcher's best knowledge, no previous research focused on the emotional and psychological benefits of outdoor recreation specifically to individuals with DD. However, there are many studies that indicate benefits experienced by

OUTDOOR RECREATION AMONG ADULTS WITH DD

individuals of varying disabilities (physical and mental). While it is not clear whether the benefits mentioned are directly applicable to individuals with DD, it is possible they may apply. Therefore, this section will present the emotional and psychological benefits of participation in outdoor recreation for individuals with all types of disabilities.

Studies have shown that people of all ages and abilities can gain emotional and psychological benefits from participation in outdoor recreation (Garg et al., 2010; Jakubec et al., 2016; Mutz & Muller, 2016). Increased happiness and self-efficacy, as well as decreased perceived stress have been identified by adolescents and young adults as positive outcomes from participation in multi-day hiking excursions (Mutz & Muller, 2016). Similarly, veterans with PTSD experienced significant decrease in stress and anxiety levels after participating in a fly-fishing program (Vella et al., 2013). Moreover, individuals with varying disabilities and depression reported decrease in depressive symptoms after participating in outdoor recreation (Wilson & Christenson, 2012). Experiencing outdoors through whitewater rafting has been shown to have restorative effects and increase participants' positivity (Garg et al., 2010), while adaptive kayaking helped individuals with spinal cord injuries to enhance their sense of equality, freedom, and independence (Casey et al., 2009). Among studies involving individuals with different DD, Dorsch et al. (2016) revealed that individuals with various physical and/or DD who participated in inclusive outdoor recreation, such as whitewater rafting and canoeing, experienced increased self-confidence and overall quality of life. As indicated by Jakubec et al. (2016), individuals with various developmental, cognitive, and physical disabilities who participated in single- or multi-day outdoor activities, such as adaptive

OUTDOOR RECREATION AMONG ADULTS WITH DD

hiking, canoeing, and kayaking, reaped mental health benefits, such as fewer depression markers post-activity than pre-activity (Jakubec et al., 2016). Additionally, study participants reported increased health satisfaction (Jakubec et al., 2016). To summarize, it seems logical to expect that increased involvement in outdoor recreation could benefit the emotional and psychological health of individuals with DD. However, future research should explore the benefits of outdoor recreation with specific focus on people with DD.

Social Benefits

Several research studies revealed relationships between participation in outdoor recreation and increased social and behavioral functioning among individuals with DD (Clapham et al., 2020; McAvoy et al., 2006; Zachor et al., 2017). Outdoor recreation can serve as a modality to help individuals interact more with their peers. As shown by Duvall & Kaplan (2014), veterans with varying physical and mental abilities indicated that a sense of connectedness with others can be increased as a result of peer interaction in a multi-day outdoor excursion, such as whitewater rafting, backpacking, and kayaking.

Since outdoor recreation often involves partnership or groups, it provides opportunity for people to work on communication, teamwork, and assume leadership roles (Sutherland & Stroot, 2009). Moreover, individuals with different DD have reported that participating in adaptive outdoor recreation programs, such as single and multi-day hiking, canoeing, and kayaking, has helped them feel more satisfied within their community, and improved their relationships with others (Jakubec et al., 2016). Through participation in structured multi-day inclusive outdoor programs, a surfing program and a climbing trip, youth with ASD improved their social engagement and took on more

OUTDOOR RECREATION AMONG ADULTS WITH DD

responsibilities, such as helping others, teaching peers new skills, and taking initiative to converse with others (Cavanaugh & Rademacher, 2014; Sutherland & Stroot, 2009). The positive impacts that outdoor recreation participation has on individuals of all abilities should be particularly valuable for individuals with DD, who face multiple constraints to participation in such activities.

Constraints to Recreation Participation among Individuals with DD

Depending on the specific disability, place of residence, and available resources, individuals with DD may experience additional limitations to participating in outdoor recreation and as a result, experience decreased quality of life. To better support individuals with DD, it is important to understand what constrains and facilitates this population's participation in outdoor recreation. Currently, we know little about those constraints and facilitators for this particular population. However, some literature describes constraints and facilitators experienced by individuals with DD in general recreation.

Based on the conceptual framework of leisure constraints presented by Crawford et al. (1991), there are intrapersonal, interpersonal, and structural constraints that can prevent people with DD from participating in recreation (Jones, 2003; Solish et al., 2010). The Hierarchical Model of Leisure Constraints presented by Crawford et al. (1991) was employed for this project. This model identifies three types of constraints that interchangeably and holistically affect someone's leisure participation.

Intrapersonal constraints

OUTDOOR RECREATION AMONG ADULTS WITH DD

According to Godbey et al. (2010), 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” (p. 121). Issues related to physiological and psychological dispositions are considered intrapersonal, or at the individual/personal level (Godbey et al., 2010). Lower cognitive functioning among some individuals with DD may affect their ability to understand best health and fitness practices and would be considered an intrapersonal constraint (Burk & Sharaievskaya, 2017). Similarly, individuals with DD may experience sensory overload that results in their receding from others and shying away from activities (Ashburner et al., 2008). However, other factors, not directly related to the physiology of a disability, may be just as inhibiting. For example, lack of control over daily life decisions, including nutrition, exercising, and driving, were mentioned by the participants of the Burk and Sharaievskaya’s study (2017). Moreover, typical gym exercise may appear difficult and unappealing to some individuals with DD (Heller et al., 2002). Heller et al. (2002) found that many of the participants lacked internal motivation to exercise. However, activities that seem fun, exciting, and provide some social interaction may provide external motivation for individuals with DD to participate (Heller et al., 2002). Thus, alternative forms of recreation, such as team sports, active games, or outdoor recreation, may be more enticing and enjoyable for individuals with DD. Additionally, these alternative forms of recreation, including outdoor recreation activities, may be easier to understand than general recreation activities, such as competitive sports.

Interpersonal constraints

OUTDOOR RECREATION AMONG ADULTS WITH DD

According to Godbey et al. (2010), interpersonal constraints are “related to both preferences and participation,” and can arise in social and relationship-related situations (p. 112). As parents of individuals with DD reported, interpersonal constraints were experienced by their children with DD when participating in general recreation activities (Jones, 2003). Individuals with DD range widely in social awareness and behavioral disposition. This range of social skills can become a barrier to participating in recreational activities, as it can disrupt an activity at hand (Jones, 2003). Individuals with DD may experience difficulties in verbal and non-verbal communication, which can affect social interactions and relationship-building. As a result, youth with DD participate in fewer social and recreation-related activities than their peers without disability (Taheri et al., 2016). They also have limited social peer circles and primarily rely on their family members when it comes to participation in recreation (Solish et al., 2010). While there are several elements factoring into this lack of participation, having social skills and communication limitations could be a significant contributor since many recreational activities require a partner or even a team to ensure consistent participation.

In addition to individuals with DD misunderstanding cues during social interaction with peers, the attitudes of other community members involved in a recreation activity can be discriminatory and sometimes prevent individuals with DD from participating in recreation (Jones, 2003). As a result, the child who has DD is often involved in family-initiated, informal leisure activities that take place within the family (Mactavish & Schleien, 2004). The participants in Sharaievska and Burk’s (2018) study also reported that they spent leisure time with other families who have children with DD

OUTDOOR RECREATION AMONG ADULTS WITH DD

to avoid unpleasant stares, judgement, and misunderstanding from other members of the community.

Structural Constraints

Structural constraints are issues that are tangible and/or related to organizational or societal functioning that prevents an individual from participating in an activity (Crawford et al., 1991). Previous studies have identified many constraints experienced by individuals with DD that prevent them from participation in recreation and leisure. For example, Emira and Thompson (2011) explored financial constraints that hindered families with a member with a DD from participation in recreation. Due to institutional lack of accommodations, many individuals with disabilities are not provided with opportunities for employment (Bureau of Labor Statistics U.S. Department of Labor, 2020). According to the National Report on Employment Services and Outcomes, in 2012, only 22.5% of individuals with an ID of the workforce age were employed (Butterworth et al., 2014). Among those who are employed, few work at full-time, consistent jobs (Butterworth et al., 2014), and their wages are often much lower than the wages of individuals without a disability (Butterworth et al., 2014). In addition to fewer hours and lower wages, individuals with DD often do not receive consistent government support in order to be successful in the workforce, reintegrate into community, and live independently (Butterworth et al., 2014). This lower rate of employment and lack of sufficient wages can prevent some individuals with DD from participating in recreation, as payment is often required for varying leisure and recreation activities.

OUTDOOR RECREATION AMONG ADULTS WITH DD

In addition to multiple disparities in the workforce and inability to afford expenses outside of basic needs, individuals with DD experience an increased financial burden related to healthcare expenses. Many individuals with DD can develop comorbid conditions, which require more doctor visits than individuals without DD (Cooper et al., 2015). Another expense individuals with DD have to budget for is extra support services, such as assistive technology and therapy services that allow these individuals to live independently. As a result of these additional expenses and lower income, individuals with DD often experience monetary strain, which reduces the opportunity for individuals to participate in any non-essential activity, including recreation.

Transportation is another barrier that prevents access to recreation for individuals with varying disabilities (Burns & Graefe, 2007; Freudenberg & Arlinghaus, 2009). Many individuals with DD have limited access to driving permits or an individual vehicle, which makes them more reliant on caregivers for transportation. Furthermore, while public transportation is easier to access in the urban areas, living in rural areas can present an additional constraint to accessing affordable, timely transportation.

Of other structural constraints, organizational constraints are among the most important to acknowledge for the purposes of the practitioners in the field. Studies have indicated that one of the constraints that individuals with DD face in recreation participation is the lack of preparation on the side of recreational organizations to serve this population (Jones, 2003; Scholl et al., 2006). Among some constraints mentioned in previous research are the lack of knowledge, expertise, and training of staff while working with people with disabilities (Scholl et al., 2006). Recreation staff lacked

OUTDOOR RECREATION AMONG ADULTS WITH DD

understanding and awareness of the needs individuals with DD may have (Jones, 2003), and lacked the competence and skills to manage challenging behavior from children with DD (Emira & Thompson, 2011). Moreover, parents of adults with DD reported that recreation program staff serving their children lacked information to successfully lead physically oriented activities (Temple & Walkley, 2007).

Another organizational constraint that individuals with DD experience is lack of information and/or access to resources to recreate (Heller et al., 2002). For example, adults with Down syndrome have indicated that lack of instruction and user-friendliness of gym equipment and activities has prevented them from exercising at recreation centers (Heller et al., 2002). Similarly, adults with DD in another study stated that the process of registering for recreation programs at their local facility was too confusing for them (Burk & Sharaievska, 2017).

Lack of flexibility and accommodations in recreation programs and activities also constrained the participation of individuals with DD (Emira & Thompson; 2011; Shields & Synnot, 2014). For instance, many community and sport-related activities are focused on competition and performance as a team. This has hindered some individuals with DD from fully participating, as their physical and mental needs and abilities may be different from their peers (Emira & Thomson, 2011). Some individuals with DD have difficulty coping in a typical and socially acceptable way when they become stressed. In these cases, the support from a trained recreation staff is important to ensure the needs of all the participants are met. Not only is such support often not available (Emira & Thompson, 2011), the recreation industry staff also have negative attitudes towards

OUTDOOR RECREATION AMONG ADULTS WITH DD

individuals with disabilities (Shields & Synnot, 2014). As Shields and Synnot (2014) reported, non-inclusive programs were inflexible, unable to provide accommodations, and lacked positive outlooks towards disability. Similarly, parents of children with DD in Sharaievska and Burk's (2018) study provided recommendations for recreation staff to be more welcoming and understanding, as well as to ensure more age-appropriate communication. The parents also recommended to ensure more positive representation of the families like theirs in the promotional materials.

Societal Stigma of Disability

Since the introduction of the Americans with Disabilities Act in 1990, there have been gradual improvements in acceptance and inclusion of individuals with disabilities. However, negative societal outlooks on disability are still deeply rooted in everyday life. Disability stigma is evident in our culture, media, and everyday experiences. Stigma emerges from humans' impulses to place each other in categories in order to compare one another (Brown, 2013). The social comparisons are specifically dependent on a society's definition of what is normal or desirable (Brown, 2013). In the United States, the traits judged as being desirable or not desirable are race, gender, socioeconomic status, physical appearance and ability level, among others (Davis, 2013). An individual who has the most desirable characteristics enjoys multiple privileges and is assigned utmost greatness, beauty, and goodness (Davis, 2013). Therefore, peoples' differences and deviations from that standard are not praised or valued (Carlson, 2003).

Labeling individuals may lead to stigmatization of certain groups in a society. Individuals who are labeled based on their disability are at risk of being stigmatized and

OUTDOOR RECREATION AMONG ADULTS WITH DD

as a result, placed into a disadvantaged position in society (Link & Phelan, 2010). According to Bedini (2000), even some individuals with disabilities who participated in this study viewed having a disability as a negative attribute. The stigma associated with having a disability and not fitting in establishes constraints to participation in leisure and recreational pursuits (Devine & Lashua, 2002). This societal constraint on individuals with disabilities is concerning and needs to be addressed, since no individual in a community should be ostracized or excluded from leisure and recreational opportunities. As was discussed by Badia et al. (2011), some individuals with DD admitted that they did not participate in recreation activities due to the fear of being ridiculed. Badia et al. (2011), also highlighted how imperative it is for societal views to shift to be more supportive of individuals with DD in order for them to thrive, flourish, and integrate fully into the community. It is the responsibility of organizations that serve the community to serve and support *all* members of the community, regardless of disability status.

While previous research explored constraints faced by individuals with DD to participation in community and sports recreation, there is little information on constraints encountered by individuals with disabilities in outdoor recreation. Among few exceptions, a study by Burns and Graefe, (2007), explored constraints to visitation of a national forest by families with a member with a disability. However, this study focused on people with any sort of disability and their families and inquired only about constraints related to visiting the national forest, not participation in outdoor recreation activities (Burns & Graefe, 2007). Further exploration of this topic may assist in removing barriers to participation in outdoor recreation from the individuals with DD and

OUTDOOR RECREATION AMONG ADULTS WITH DD

their families, and as a result, lead to a change in a negative view of this population.

Additionally, it would be beneficial to understand what facilitates the participation of individuals with DD in outdoor recreation. While there is little information regarding outdoor recreation, literature exists on facilitators to general recreation for this population.

Facilitators of Recreation Participation among Individuals with DD

In order to serve people with DD better, it is important to understand what facilitators help them to participate in recreation. Several studies provide suggestions and share experiences from recreation consumers and professionals on what facilitates successful and enjoyable participation in recreation. Raymore (2002) places facilitators into intrapersonal, interpersonal, and structural categories, similar to leisure constraints. Likewise, each of these types of facilitators can influence an individual's ability to participate in a leisure activity.

Intrapersonal Facilitators

Intrapersonal facilitators are "individual characteristics, traits and beliefs...that encourage or enhance participation in leisure" (Raymore, 2002, p. 42-43). Similarly to intrapersonal factors that can prevent participation in recreation, there are a set of characteristics that can serve as facilitators to participation. Previous research suggested that individuals with strong self-efficacy are more likely to participate in recreation than those with a lower level of self-efficacy. Bandura (1997) identified self-efficacy as one's perception of their own personal competence. Having a healthy level of self-efficacy is important and related to self-esteem, independence, and a feeling of accomplishment or

OUTDOOR RECREATION AMONG ADULTS WITH DD

ability to achieve goals. For example, Bar-Mor et al. (2000) explored self-efficacy as a predictor of physical activity among adolescents with congenital cardiac malformation. The study revealed that adolescents' belief in their abilities was the most influential factor in determining participation in physical activities, irrelevant of the severity of the disease.

In addition to believing in oneself, having certain personal attributes may also facilitate one's participation in recreation. As illustrated by parents and children with disabilities, being athletically inclined and drawn to sports naturally, and having an optimistic and easy-going personality makes it easier to participate in physical activity (Shields & Synnot, 2016). Similarly, adults with DD reported feeling happier and more energetic as a result of participation in physical activity, which made them more motivated to stay involved (van Shijndel-Speet et al., 2014). Understandably, the level of enjoyment experienced from an activity facilitates participation of some individuals with DD (Temple & Stanish, 2011). Individuals have also noted that participation in physical recreation activities prevent them from feeling sluggish (Caton et al. 2012).

Knowledge and awareness of benefits of recreation, as well as information about how to engage in these opportunities is another facilitator to participation. For example, adults with DD indicated being more inclined to be physically active when they were aware of the health benefits they would experience from participating (van Shijndel-Speet et al., 2014). More specifically, these individuals have noted that certain activities were more appealing than others, such as ones occurring outdoors or involving music (van Shijndel-Speet et al., 2014). Not surprisingly, knowing what opportunities are

OUTDOOR RECREATION AMONG ADULTS WITH DD

available in the community for individuals with DD is a key to participation in recreation. Often, parents represent the main source of this information for individuals with DD. As indicated by Shields and Synnot (2016) who studied how to increase the participation of children with disabilities in recreation, having parents who are actively seeking resources and opportunities for their children is paramount. Additionally, those parents need to be knowledgeable about the adaptations that their children need, and be advocates for them (Shields & Synnot, 2016).

Interpersonal Facilitators

Interpersonal facilitators are related to group and individual connections that encourage leisure participation (Raymore, 2002). One of the examples of interpersonal facilitator to recreation participation is support and encouragement on a side of friends and family. Not surprisingly, individuals with DD have indicated that having the support from family members facilitates their participation in recreation activities (Alesi & Pepi, 2017; van Shijndel-Speet et al., 2014). For example, participants in Alesi and Pepi's (2017) study stated that parents provide emotional, motivational, and financial support, while Temple and Stanish (2011) discussed the importance of role models among peers and family members. Moreover, having an opportunity for social interaction and encouragement from peers facilitated participation in recreation among individuals with DD, as well as made those experiences more meaningful and enjoyable (Barr & Shields, 2011; Caton et al., 2012).

Staff of recreation facilities and programs also have an integral role in facilitating successful recreation participation among individuals with DD. Previous studies named

OUTDOOR RECREATION AMONG ADULTS WITH DD

recreation providers who maintain an open mind, treat every participant with respect and dignity, and create a supportive environment as one of the main interpersonal facilitators to individuals with DD's recreation participation (Jones, 2003; Sharaievskia & Burk, 2018). Miller et al. (2010) indicated that it would help recreation providers to recruit additional staff in order to provide more one-on-one support for individuals with disabilities, when needed. Several studies also listed specific common attributes of staff that the parents of individuals with DD considered to be helpful. These included having program staff who were understanding and attentive, trained in therapeutic recreation, welcoming, and enthusiastic about working with individuals with DD (Jones, 2003; Rimmer et al., 2004). According to Shields and Synnot (2016), having one-on-one instruction and being provided positive feedback were identified as facilitators to increased recreation participation among youth with different disabilities. As indicated by parents, by meeting these conditions, staff improved their children's proficiency at skills and as a result, their confidence grew as well (Shields & Synnot, 2016). Having the right attitude and desire to help might not be enough though. In addition, coaches and instructors should be willing, motivated and able to adapt activities to fit the needs of youth with disabilities (Shields & Synnot, 2016). As a study by Alesi and Pepi (2017) revealed, the availability of Adapted Physical Activity (APA) instructors and coaches is a key facilitator to participation in recreation among youth with DD.

Structural Facilitators

Similar to structural constraints, structural facilitators are considered as “social and physical institutions, organizations, or belief systems in society” that promote and

OUTDOOR RECREATION AMONG ADULTS WITH DD

facilitate leisure participation (Raymore, 2002). Among such structural constraints is preparedness of the organization to serve patrons with DD. The preparedness of the organization can be expressed in different ways, including training and expertise of staff, usability and availability of adaptive equipment, and flexibility of the programs and policies that allow for adjustments to be made, to suit an individual's needs. For example, a study conducted by Miller et al. (2010) explored best practices of inclusivity shared by administrators of public recreation organizations. The participants of this study urged recreation providers to employ support staff, who have expertise in working with individuals with disabilities in order to promote participation of this population (Miller et al., 2010). Moreover, a professional who is trained and prepared to provide adaptations/accommodations (Alesi & Pepi, 2017), as well as eager to engage all participants in age appropriate activities (Sharaievska & Burk, 2018) is a strong structural facilitator.

In addition to trained staff, the types of programs offered at recreational facility may also affect participation among individuals with DD. For example, adults with DD have indicated that it was important to them to participate in activities that are viewed as popular or trendy (van Shijndel-Speet et al., 2014). In addition, sport and recreation professionals claimed that programs structured to encourage children with disabilities' independence and inclusion in generalized recreation programs would be helpful (Shields & Synnot, 2016). Lastly, due to different ability levels compared to their peers, participants with DD may experience difficulties participating in competitive sports-related recreation. Therefore, community recreation programs offering group-oriented

OUTDOOR RECREATION AMONG ADULTS WITH DD

activities focused on success of the group rather than the individual may be a great approach to encourage participation among youth with DD (Jones, 2003).

Financial, architectural, and design accommodations can be helpful in facilitating recreation participation among individuals with DD. For example, Rimmer et al. (2004) explored opinions of individuals with physical disabilities, city planners, fitness/recreation practitioners, and architects about facilitators to participation in fitness and recreation among individuals with disabilities. Among listed accommodations were various policies and procedures at the facility and community level, including providing discounted transportation fees to get to and from recreation centers, having more family changing rooms, and offering scholarships and sliding fees for individuals of lower income including those with disabilities (Rimmer et al., 2004). Additionally, the physical accessibility of buildings (Rimmer et al., 2004), as well as access to readily available adaptive equipment (Shields & Synnot, 2016) were mentioned as suggested accommodations.

Currently, there is little information on the perceptions of outdoor recreation among individuals with DD, the benefits they experience from participation in outdoor recreation, as well as what constraints and facilitators they encounter when it comes to outdoor recreation. This study aims to explore this information to better understand the experiences of individuals with DD in outdoor recreation.

CHAPTER III

METHODS

Paradigm, Design, and Approach

A constructivist paradigm was employed for this study. A constructivist lens allows me, as the researcher, to understand the different perspectives and realities of the people being studied (Ponterotto, 2005). This paradigm was chosen because it reflects the belief that every individual has a unique perspective in life that has been shaped by their experiences and environment, as well as the belief that every voice and “reality” should be heard in order to provide a more in-depth understanding of a phenomenon (Ponterotto, 2005). A constructivist approach focuses on the “meaningful realities” that are experienced by individuals influenced by society (Crotty, 1998). It also invites me to have an innocent and deep curiosity about a phenomenon, and allows for a deeper understanding to be achieved through open interaction and collaboration between the researcher and participants (Crotty, 1998; Ponterotto, 2005). Such deep understanding of the phenomenon is what I aim to achieve through speaking with individuals with DD.

A phenomenological approach (Creswell & Poth, 2018) was employed in this study. Qualitative research is generally exploratory in nature, and therefore coordinates well with a constructivist lens. Additionally, a phenomenological approach focuses on the lived experiences of others—its purpose is to investigate how individuals of varying backgrounds experience a phenomenon (Creswell & Poth, 2018). Phenomenology also aligns well with the constructivist paradigm, as it recognizes that individuals go through their own realities based on their background and life circumstances (Creswell & Poth,

OUTDOOR RECREATION AMONG ADULTS WITH DD

2018). Having a phenomenological approach, I was able to gain an in-depth understanding of what hinders and facilitates individuals with DDs' participation in outdoor recreation.

A qualitative approach was employed for this project to gather detailed information, stories, and/or experiences from individuals with DD (Creswell & Poth 2018). This approach is appropriate for identifying phenomena that are not easily measured, and for studying individuals or communities whose voices typically go unheard (Creswell & Poth, 2018). Additionally, qualitative research can be used to empower individuals through giving voice, which was an intention of this study (Creswell & Poth, 2018).

Participants' Recruitment

Purposeful and snowball sampling techniques were used to recruit participants for the study (Creswell & Poth, 2018). Using a purposeful sampling method allowed me to address the specific focus of the study and reach a wide variety of individuals with DD (Creswell & Poth, 2018). Working with a whitewater rafting company that hosts inclusive rafting events, I requested that the company share the study recruitment flyer in newsletter/social media forums to families of individuals with DD who had used the company's inclusive services. Several regional support groups, community programs for individuals with DD, and other outdoor recreation organizations that offer inclusive events in the Southeastern Region were contacted, as well. Among some of the organizations that were contacted to share study recruitment flyers were Catalyst Sports, the Down Syndrome Awareness Group of East Tennessee, the Autism Society of NC,

OUTDOOR RECREATION AMONG ADULTS WITH DD

and Special Olympics chapters in the Southeast. Outreach was focused on the Southeastern region (TN, NC, SC, MS, AL, FL, GA, KY, VA, WV, and LA) for participant recruitment. Individuals who participated in outdoor recreation and resided in the Southeastern region were invited to participate in the study. In addition, snowball sampling was used to make connections with potential participants (Creswell & Poth, 2018). This technique can be used when relationships within members of the community can help in identifying more potential participants.

An information packet was given to the legally appointed representatives (LAR) of the potential participants. The information packet contained a study recruitment flyer, informed consent form for the LAR, and a pre-screening form to determine eligibility. If the LAR consented, consent was also obtained from the individual with DD who wished to participate in the study. When a participant with DD was not their own LAR, an interview was conducted with the person they identified as their support person for outdoor recreation. When this was applicable, consent was obtained from the designated support persons, which in all cases, was a LAR of the respective participant. Several criteria were used to select participants for the study. First, consent was obtained from the LAR, designated support person (when applicable), and assent was obtained from the participant with DD. Second, all participants were 18 years or older. Third, participants had to meet the requirements of the pre-screening form—diagnosed with a DD, able to communicate verbally (or through verbal assistive technology), and able to answer sample questions provided in the screener, as indicated by the LAR. Fourth, only individuals with DD who were actively engaged or had previously been engaged in

OUTDOOR RECREATION AMONG ADULTS WITH DD

outdoor recreation activity in the Southeastern region (regardless of frequency) participated. This requirement was used to ensure that the participants had information needed to address the focus of this study, including benefits, constraints, and facilitators to participation in outdoor recreation in the Southeastern region.

Data Collection Procedure

Following IRB approval, informed consent was obtained from the participants, individual with DD and their support person (when applicable), as well as individual's with DD LAR (when they were not their own LAR). Interviews followed a semi-structured dyadic format (Caldwell, 2014; Stuckey, 2013) and were conducted via Zoom. Interviews lasted between 30 minutes to one hour, allowing for breaks, when needed. Interviews with each participant were audio-recorded and transcribed verbatim. I also took notes throughout the interview to aid transcription. Pseudonyms and code names were used to protect the identities of all participants.

Qualitative in-depth semi-structured interviews were employed to collect data. This approach allowed me to gain a holistic view of the participants' experiences with outdoor recreation. Additionally, this method of data collection allowed me to present voices behind the experiences reported. This opportunity is particularly valuable because individuals with DD are often underrepresented in research and practice (McDonald et al., 2013), including the field of recreation (as indicated by the lack of literature found)..

When the participants were not their own LAR, dyadic interviews were used with the individuals with DD and their designated support person to increase validity of data obtained (Caldwell, 2014). A dyadic approach consisted of three separate interviews. An

OUTDOOR RECREATION AMONG ADULTS WITH DD

initial interview was conducted with the individual with DD to establish a relationship and gather a general understanding of their experiences with outdoor recreation. During that interview, the participant was asked to name the person who was involved with and advocated for them the most in outdoor recreation activities (Caldwell, 2014). The second interview, with the key support person named by the individual with DD, aimed to triangulate initial information about the participant and learn any techniques that may facilitate the third and culminating interview with the individual with DD (Caldwell, 2014). The purpose of the last interview with the participant with DD was to verify previous content that was shared and explore any additional in-depth information she/he could provide (Caldwell, 2014).

Interviewing the individual with DD and having a separate interview with the designated support person identified by the individual with DD (when applicable) through a dyadic approach helped increase the integrity of a study by offering the individual to decide who participated in conjunction with their interview (Caldwell, 2014). In the beginning of each interview with the participant with DD who had a LAR, I asked the individual if they preferred for their LAR to be present. Only in cases when the individual with DD requested their LAR's presence, was the LAR present during the interview. This approach allowed the individual with DD to maintain their independence, while recognizing an interdependent relationship between the researcher, individual with DD, and their support system (Caldwell, 2014).

If an individual with DD (who had a LAR) preferred to have their support person or LAR to be present during their interviews for ease or comfort, they were provided with

OUTDOOR RECREATION AMONG ADULTS WITH DD

this option. However, it was clarified that the support person's role during the first and last interviews was simply to ensure comfort of a participant with DD and facilitate their interaction with me. While the information gathered from the key person in the second interview was used for triangulation, the main purpose was to hear from the person with DD. Therefore, when analyzing and presenting the results of the study, attention was be focused on accounts from the participants with DD.

Instrumentation

Three separate interview guides (see Appendix A, B, C) were created for interviewing the individuals with DD and (when applicable) their support individuals. The guides contained similar open-ended questions addressing constraints and facilitators to participation in outdoor recreation experienced by individuals with DD. During their interview, the designated support person were also asked about any modifications they thought would be helpful during communication with the participant with DD. Following recommendation of the support person, additional changes to the wording was made to make the questions more understandable for individuals with DD without changing the meaning of the questions.

The interview scripts were informed by the literature related to constraints and facilitators in outdoor recreation among other populations, as well as literature based on constraints and facilitators in general recreation experienced by individuals with DD. Although the literature was taken into consideration and informed the follow-up questions, the main questions in the interviews were kept open-ended to ensure the participants had an opportunity to express their authentic experiences. The interview

OUTDOOR RECREATION AMONG ADULTS WITH DD

script for the participant with DD consisted of eight sections, including: a) basic information (for example: how do you go places? Who do you live with?); b) the patterns of participation in recreation and leisure (for example: could you tell me about the things you like to do for fun? What about that is fun?); c) the pattern of participation in outdoor recreation (for example: what outdoor recreation activities do you participate in most? how do these outdoor activities make you feel?); d) the perceptions of outdoor recreation (for example: why do you like/dislike outdoor recreation activities? What exactly do you like/dislike about them?); e) the constraints to outdoor recreation participation experienced by individuals with DD (for example: would you like to spend more time participating in outdoor recreation activities if you could? Is there something that stops you from participating in outdoor recreation?); f) the facilitators to the participation in outdoor recreation among individuals with DD (for example: what makes it easy for you to participate in outdoor recreation?); g) how their support person/recreation partner is involved in their outdoor recreation participation (for example: do you have a person you rely on the most for recreation? How exactly do they help you? and h) demographic information related to their age, gender, socioeconomic status racial and ethnic background, and type of disability (see Appendix A). The interview script for the support person followed this same structure of questions about the individual with DD, except section g) consisted of questions regarding tips and techniques that would be helpful to facilitate the researcher's final interview with the participant with DD.

Data Analysis

OUTDOOR RECREATION AMONG ADULTS WITH DD

Recruitment and interviews with participants continued until the point of saturation was reached (Creswell & Poth, 2018). The recordings of interviews were transcribed verbatim and coded to identify themes following Charmaz' (2008) coding technique. First, open coding was used as an initial analysis of the interview transcripts in order to identify codes that led to further thematic classifications (Charmaz, 2006). Second, selective coding was used to further categorize codes and identify core categories (Charmaz, 2006). Third, axial coding was used to establish connections and relationships between codes and determine themes that emerged from the data (Charmaz, 2006). Writing memos throughout data analysis was useful in order to understand the reasoning behind different decisions made about created codes.

Trustworthiness

To ensure trustworthiness of the study, suggestions by Charmaz (2007), Maxwell (2013), and Rose & Johnson (2020) were followed. Memo writing was helpful to analyze data in a systematic and structured way. It involved writing down thoughts and feelings about data, codes, emerging themes, and my perceptions related to data interpretation (Charmaz, 2006). This helped me track the decisions made related to data interpretation and analysis. Additionally, it helped me thoroughly and systematically develop rich themes and concepts (Charmaz, 2006).

A possible threat that could have jeopardized the validity of the study was having bias as the researcher (Maxwell, 2013). In order to minimize this bias, reflexivity exercises were practiced (Maxwell, 2013). This involved identifying personal and perceptual biases that were present regarding the participants and study, as a whole.

OUTDOOR RECREATION AMONG ADULTS WITH DD

Having personal connections to the research topic in several aspects may have been beneficial, because of the depth of understanding with outdoor recreation and the population being studied. However, acknowledging what biases existed helped me to identify and limit my influence on data analysis.

Additionally, member checking was employed with the participants as another measure to ensure that the data accurately represented the participants' experiences (Maxwell, 2013). This involved sending participants a copy of the results/themes to verify information. Additionally, through the use of dyadic interviews, triangulation was employed, a technique for verifying information through more than one source—the participant with DD and their support person (when applicable) (Caldwell, 2014).

Peer debriefing is another measure that was used to maintain trustworthiness (Rose & Johnson, 2020). This comprised of discussing my interpretation of the data with another individual who was attune to the study content and analysis but was not as engrossed in the study as myself (Rose & Johnson, 2020). The purpose of this exercise was to have another perspective that may challenge ideas, provide feedback, and assist in identifying any bias that was apparent from an outsider's viewpoint. Recognizing one's own experiences and perspective through bracketing was also critical to better understand and report on the experiences and perspectives of the participants interviewed (Creswell & Poth, 2018).

OUTDOOR RECREATION AMONG ADULTS WITH DD

CHAPTER IV

MANUSCRIPT

Experiences in Outdoor Recreation among Adults with Developmental Disabilities: Benefits, Constraints, and Facilitators

Abstract

Between 2009-2017, 17% of youth were diagnosed with a developmental disability (DD) in the United States. These individuals have specific physical, emotional/psychological, and social needs that can require extra support in order to participate fully in recreation activities. The benefits of participating in outdoor recreation are abundant. Unfortunately, little is known about individuals with DDs' experiences in outdoor recreation participation, and the factors that constrain or facilitate their participation. Thus, the purpose of this study was to explore adults with DDs' perceived benefits of outdoor recreation, and the constraints or facilitators that affect their participation. Qualitative, semi-structured interviews were conducted with seven adults with DD. Interviews were transcribed verbatim and analyzed via open, axial, and selective coding technique. Results revealed three themes: (a) benefits of outdoor recreation participation; (b) constraints to outdoor recreation participation; and (c) facilitators of outdoor recreation. In addition to practical implications, future research recommendations will be discussed.

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OUTDOOR RECREATION AMONG ADULTS WITH DD

Keywords: outdoor recreation, developmental disabilities, constraints, facilitators,
benefits

OUTDOOR RECREATION AMONG ADULTS WITH DD

Introduction

The Center for Disease Control (CDC) estimates, between 2009-2017, one in six children ages 3-17 in the U.S. were diagnosed with a developmental disability (DD) such as Autism Spectrum Disorder (ASD), Down syndrome, or Intellectual Disability (ID) (Zablotsky et al., 2019). Studies indicate a number of social and behavioral benefits individuals with DD gain from participating in outdoor recreation (McAvoy et al., 2006; Zachor et al., 2017), including improved quality of life, new relationships, and enhanced self-confidence (Dorsch et al., 2016). Additionally, individuals with various developmental disabilities who participated in multi-day camping and canoeing shared that they experienced increased social satisfaction and improved their skills interacting with others (McAvoy et al., 2006).

Although many individuals with and without disability can benefit from outdoor recreation, individuals with DD may have different needs, face unique challenges, and could gain additional benefits from these experiences. As previous research suggests (Ashburner et al., 2008; Bull & Committee on Genetics, 2011; Carter & Van Andel, 2020; Crane et al., 2009; Dekker et al., 2002), in addition to the needs experienced by the general public, individuals with DD may need additional support to navigate social relationships, more opportunities to participate in engaging physical activities, and extra support of trained staff to meet participants' communication, behavioral disposition, sensory stimulation, and additional needs in order to fully be involved. Outdoor recreation could offer opportunities to meet some of these unique needs of individuals with disabilities by providing more individualized alternatives to often competitive and

OUTDOOR RECREATION AMONG ADULTS WITH DD

team-oriented programs of general recreation. While we have some understanding of the benefits individuals with DD may gain through their participation in outdoor recreation, we have little knowledge about what factors constrain and facilitate their participation.

In the area of general recreation, individuals with DD often lack access to many programs and opportunities (Burk & Sharaiveska, 2017; Jones, 2003), and as a result, often participate in general recreation at a lower rate than their peers without disabilities (Solish et al., 2010). Research has indicated a number of social, personal, and physical constraints people with DD experience in community and sports recreation (Jo et al., 2014; Jones, 2003). Among these constraints are limited independence in making decisions about daily activities (Burk & Sharaiveska, 2017), lack of access to transportation (Burns & Graefe, 2007; Freudenberg & Arlinghaus, 2009), the availability of community recreation programs, the cost of leisure services, and acceptance from other community members (Emira & Thompson, 2011; Sharaievaska & Burk, 2018). Moreover, a few studies highlighted constraints related to the negative perceptions and attitudes towards those with DD, as well as lack of training among recreation professionals (Jones, 2003; Miller et al., 2010), the inflexible design of recreation programs, and the lack of information about the programs offered (Emira & Thompson, 2011). As indicated by Emira & Thompson (2011), community recreation programs lacked flexibility by ignoring suggestions parents of youth with DD had about recreation program, and staff were unable to adjust plans when crises arose. Furthermore, parents of youth with DD reported having difficulty finding readily available information regarding

OUTDOOR RECREATION AMONG ADULTS WITH DD

recreation programs for their children and whether their children would be eligible in such programs (Emira & Thompson, 2011).

Since the majority of the existing literature on recreation experiences among individuals who have a DD are focused on *general* recreation, the purpose of this study was to explore the experiences of this population in *outdoor* recreation. For the purpose of this study, the term *outdoor recreation* is defined as an activity that occurs in a natural setting, requires some physical exertion, and undertaken for pleasure (Bureau of Economic Analysis, 2017). It also includes structured and unstructured activities that are associated with nature, but may be practiced in an urban or man-made setting, such as rock climbing (Phipps, 1991).

Based on the limited existing research on benefits, constraints, and facilitators to outdoor recreation specific to individuals with DD (Dorsch et al., 2016; Scholl et al., 2003), we do not know whether outdoor-related activities may present different challenges and provide additional benefits compared to community recreation. Thus, the main objectives of this study were to explore: a) the perceived benefits of outdoor recreation among individuals with DD; b) the perceived constraints to outdoor recreation participation experienced by individuals with DD; and c) the perceived facilitators to the participation in outdoor recreation for individuals with DD.

Literature Review

The CDC (2019) defines *developmental disabilities (DD)* as “a group of conditions due to an impairment in physical, learning, language, or behavior areas. These conditions begin during the developmental period, may impact day-to-day functioning,

OUTDOOR RECREATION AMONG ADULTS WITH DD

and usually last throughout a person's lifetime" (CDC, 2019, p. 1). Some examples of DDs are ASD, ID, Down syndrome, Fragile X syndrome, and Prader-Willi syndrome. In addition to having substantial deficits in functional activities of daily living, individuals with DD may also experience difficulties in their social, mental, and physical functioning which can negatively affect their overall quality of life. Thus, it is important to understand how outdoor recreation may be beneficial in addressing individuals with DDs' needs in a supportive environment.

Needs of Individuals with Developmental Disabilities

Some individuals with DD are born with atypical physiology that makes it more challenging to maintain *physical health*, which can create additional functional limitations and negatively impact quality of life. As a result, youth and adults with DD are at a higher risk for obesity than those without disability (Rimmer et al., 2010; Stancliffe et al., 2011). In fact, researchers estimated that 20.4% of adolescents with DD were obese compared to the 13.1% of their peers without DD (Phillips et al., 2017). One example of the unique physical needs of some individuals with DD is lower muscular strength and sensory-motor performance among individuals with Down syndrome, compared to their peers without DD (Carmeli et al., 2012; Mendonca et al., 2010). These neuromuscular needs could affect their ability and ease participating in physical activity making it more difficult to perform tasks that require much strength or coordination. Since outdoor recreation activities vary in physical demand and can provide opportunity to stay active and maintain healthy weight, it may be a great alternative to strenuous physical activity typically found in a gym setting, for individuals with DD to engage.

OUTDOOR RECREATION AMONG ADULTS WITH DD

Individuals with DD can experience varied *emotional and psychological* functioning. Youth with ID were found to have increased behavioral problems, related to depression, aggression, and attention difficulty, compared to their peers without disabilities (Dekker et al., 2002), which can be emotionally draining. Additionally, some individuals with DD experience anxiety, stress, and mental health issues, and need appropriate outlets and assistance to cope with these emotions in positive, healthy ways (Skokauskas et al., 2012; Woodcock et al., 2009). Since outdoor recreation is often viewed as taking place in restorative and calming environments (Garg et al., 2010), it may provide opportunities to improve behavior control, stress management, anxiety, and attention (Aras & Ewert, 2016; Mutz & Muller, 2016). Fulfilling these needs through outdoor recreation could result in improved quality of life of individuals with DD (Aras & Ewert, 2016; Mutz & Muller, 2016; Widmer et al., 2014).

Due to physical, psychological, and emotional differences, individuals with DD may have fewer social interactions with their peers. Furthermore, individuals with DD have *social* needs due to differing levels of communication skills and interactions with others. For example, individuals with ASD may have difficulties communicating with others, and may process sensory information differently than individuals without DD (Ashburner et al., 2008; Carter & Van Andel, 2020; Crane et al., 2009). Feeling overloaded by stimuli can lead to difficulty focusing on tasks, responding in a socially appropriate way, and/or being withdrawn from others (Ashburner et al., 2008). These needs may impact the social life of the individuals with DD in a negative way (The National Institute of Mental Health, 2018). However, outdoor recreation has the potential

OUTDOOR RECREATION AMONG ADULTS WITH DD

to serve as an opportunity for building social skills and relationships with peers among individuals with DD (Cavanaugh & Rademacher, 2014).

Benefits of Outdoor Recreation

Previous research identifies multiple positive outcomes associated with participation in outdoor recreation (Armitano et al., 2015; Dorsch et al., 2016; Duvall & Kaplan, 2014; Zachor et al., 2017), including physical, emotional, and social benefits. However, many of the studies exploring these benefits were focused on the general public, individuals with physical disabilities, or individuals with various types of disabilities (including both physical and developmental disabilities). One of the benefits of outdoor recreation is its ability to improve people's *physical health*. For example, Hartig et al. (2003) reported, blood pressure levels of individuals without DD decreased after walking in nature compared to walking in an urban setting. Of the benefits reported specifically related to individuals with DD, youth with different types of DD 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 in individuals with mild to moderate cerebral palsy (Christensen et al., 2017).

In addition to improved physical health, many studies suggested that people of all ages and abilities can gain *emotional and psychological* benefits from participation in outdoor recreation (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 as positive outcomes from participation in multi-day hiking

OUTDOOR RECREATION AMONG ADULTS WITH DD

excursions (Mutz & Muller, 2016). Adaptive kayaking helped individuals with spinal cord injuries experience an enhanced sense of equality, freedom, and independence (Casey et al., 2009). Dorsch et al. (2016) revealed individuals with various physical disabilities and/or DD who participated in activities with an inclusive outdoor recreation organization that provided adaptive equipment and staff support, 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, several studies revealed relationships between participation in outdoor recreation and increased *social* and behavioral functioning among individuals with DD (Clapham et al., 2020; McAvoy et al., 2006; Zachor et al., 2017). Outdoor recreation can serve as a modality to help individuals interact more with their peers. For example, Jakubec et al. (2016) found that participation in adaptive outdoor recreation programs facilitated individuals with DD feeling more satisfied within their community and relationships with others. Through participation in structured multi-day inclusive outdoor programs, youth with ASD improved their social engagement and took on more responsibilities, such as helping others, teaching peers new skills, and taking 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 DD, who face multiple constraints to participation.

Constraints to Recreation Participation among Individuals with DD

Individuals with DD may experience constraints to participation in outdoor recreation. *Constraints* are defined as factors that require negotiation—that negotiation influences participation and/or preferences of an individual in leisure/recreation pursuits (Crawford et al., 1991). Currently, little is known about constraints and facilitators specific to participation in outdoor recreation among individuals with DD. However, some literature describes constraints and facilitators experienced by individuals with DD in general recreation. According to Crawford et al., (1991), there are three levels of constraints that can influence an individual’s participation or non-participation in a leisure activity. These factors occur at *intrapersonal*, *interpersonal*, and *structural* levels, and influence the degree at which an individual is able to participate.

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 DD may affect their understanding of health and fitness practices (Burk & Sharaievska, 2017), some experience 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, were mentioned by the participants of the Burk and Sharaievska’s study (2017). Moreover, typical gym exercise may appear difficult and unappealing to some individuals with DD (Heller et al., 2002).

OUTDOOR RECREATION AMONG ADULTS WITH DD

Interpersonal constraints are associated with preferences and participation, and can arise in social and relationship-related situations (Godbey et al., 2010). Individuals with DD range widely in social awareness and behavioral disposition, verbal and non-verbal communication, which can become a barrier to participating in recreational activities, social interactions and relationship-building (Jones, 2003). In addition, the attitudes of other community members involved in a recreation activity can be discriminatory and sometimes prevent individuals with DD from participating in recreation (Jones, 2003). As a result, youth with DD participate in fewer social and recreation-related activities than their peers without disability (Taheri et al., 2016), and are often involved in family-initiated, informal leisure activities that take place within the family (Mactavish & Schleien, 2004).

Structural Constraints are issues that are tangible and/or related to organizational or societal functioning that prevents an individual from participating in an activity (Crawford et al., 1991). Studies have reported transportation being a barrier that prevents access to recreation for individuals with varying disabilities (Burns & Graefe, 2007; Freudenberg & Arlinghaus, 2009). Many individuals with DD have limited access to driving permits and/or the use of a personal vehicle, which makes them more reliant on caregivers. Furthermore, while public transportation is an easy method of travel for individuals with disabilities, being physically close to designated transportation routes and being able to access transportation can present an additional constraint to accessing affordable, timely transportation (Bascom & Christensen, 2017)

OUTDOOR RECREATION AMONG ADULTS WITH DD

Lack of information and/or access to recreational resources is another example of structural constraints experienced by individuals with DD (Heller et al., 2002). For example, adults with Down syndrome have indicated that lack of knowledge on using gym equipment and performing exercise activities has prevented them from exercising at recreation centers (Heller et al., 2002). Similarly, other adults with DD stated the process of registering for recreation programs at their local facility was too confusing for them (Burk & Sharaievska, 2017).

Lack of flexibility and accommodations in recreation programs and activities also constrained the participation of individuals with DD (Emira & Thompson; 2011; Shields & Synnot, 2014). For instance, many community and sport-related activities are focused on competition and performance as a team. This has hindered some individuals with DD from fully participating, as their physical and mental needs and abilities may differ from their competing peers (Emira & Thomson, 2011). Some individuals with DD have difficulty coping in a typical and socially acceptable way when they become stressed. In these cases, the support from a trained recreation staff is important to ensure the needs of all the participants are met (Jones et al., 2003).

Facilitators of Recreation Participation among Individuals with DD

In order to serve people with DD better, it is important to understand what facilitators help them to participate in recreation. *Facilitators* are defined as “resources for leisure” or anything that “act[s] to produce [leisure] participation” (Raymore, 2002, pp. 39-40). Several studies discuss what facilitates successful and enjoyable participation in recreation among individuals with DD. Similar to constraints, factors that influence an

OUTDOOR RECREATION AMONG ADULTS WITH DD

individual's 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 a healthy level of self-efficacy has been noted as being an influential factor in determining participation in physical activities of youth with congenital cardiac malformation (Bar-Mor et al., 2000). In addition to believing in oneself, having an optimistic and easy-going personality makes it easier to participate in physical activity (Shields & Synnot, 2016). Similarly, adults with DD reported feeling happier and more energetic as a result of participation in physical activity, which made them more motivated to stay involved (van Shijndel-Speet et al., 2014). Having interest and knowledge about the health benefits of physical activities, including those occurring outdoors or involving music, also facilitate participation (van Shijndel-Speet et al., 2014). Likewise, activities that seem fun, exciting, and provide some social interaction may motivate individuals with DD to participate (Heller et al., 2002). Thus, alternative forms of recreation, such as outdoor recreation, may be more enticing and enjoyable for individuals with DD.

Interpersonal facilitators are related to group and individual connections that encourage leisure participation (Raymore, 2002). Individuals with DD have indicated that having support from family members facilitates their participation in recreation activities (Alesi & Pepi, 2017; van Shijndel-Speet et al., 2014). For example, participants in Alesi and Pepi's (2017) study stated that parents provide emotional, motivational, and financial support, while Shields & Synnot (2016) expressed that parents' involvement in

OUTDOOR RECREATION AMONG ADULTS WITH DD

researching available recreation opportunities for their children with DD can be impactful to their participation. Additionally, Temple and Stanish (2011) discussed the importance of role models among peers and family members. Moreover, having an opportunity for social interaction and encouragement from peers facilitated participation in recreation among individuals with DD, as well as made those experiences more meaningful and enjoyable (Barr & Shields, 2011; Caton et al., 2012). Staff of recreation programs also have an integral role in facilitating successful recreation participation among individuals with DD. Previous studies named recreation providers who maintain an open mind, treat every participant with respect and dignity, and create a supportive environment as one of the main interpersonal facilitators to individuals with DD's recreation participation (Jones, 2003; Sharaievska & Burk, 2018).

Structural facilitators are considered as “social and physical institutions, organizations, or belief systems in society” that promote and facilitate leisure participation (Raymore, 2002, p. 43). Such facilitators as the preparedness of the organization, including training and expertise of staff, usability and availability of adaptive equipment, and flexibility of the programs and policies can impact the degree of recreation participation of individuals with DD (Alesi & Pepi, 2017; Jones, 2003; Miller et al., 2010; Shields & Synnot, 2016). A professional who is trained and prepared to provide adaptations/accommodations (Alesi & Pepi, 2017), as well as eager to engage all participants in age appropriate activities (Sharaievska & Burk, 2018) is a strong structural facilitator. Similarly, sport and recreation professionals identified that recreation programs structured to encourage the independence and inclusion of children with

OUTDOOR RECREATION AMONG ADULTS WITH DD

disabilities as well as programs offering group-oriented activities focused on success of the group rather than the individual would be helpful for the inclusion of individuals with DD (Jones, 2003; Shields & Synnot, 2016). Lastly, various policies and procedures at the facility and community level, including discounted transportation fees, scholarships and sliding fees, physical accessibility of buildings (Rimmer et al., 2004), and access to readily available adaptive equipment (Shields & Synnot, 2016) could facilitate participation among individuals with DD. Currently, there is little information on experiences of individuals with DD in outdoor recreation. The purpose of this study is to address this gap in the literature by exploring the benefits of, constraints, and facilitators to outdoor recreation participation among adults with DD.

Methods

A constructivist paradigm and qualitative approach were employed for this study—this allows the researcher to explore the different perspectives and realities of the people being studied whose voices typically go unheard (Creswell & Poth, 2018; Ponterotto, 2005). Purposeful snowball sampling was employed to recruit participants (Creswell & Poth, 2018) via social media, personal contacts of the researcher, and listservs of several regional support groups, community programs for individuals with DD, and other outdoor recreation organizations that offer inclusive events in the Southeastern region. Only adults diagnosed with a DD who consented to participate in the study, were able to communicate verbally (or through verbal assistive technology), and were able to answer sample questions provided in the screener (see Table 1) were eligible for participation in the study. When participants were not their own legally

OUTDOOR RECREATION AMONG ADULTS WITH DD

appointed representative (LAR), consent was obtained from the LAR in addition to the participants' consent. Sample questions were provided to ensure participants' ability to participate in a dialogue that involved similarly structured questions. All of the participants had to be engaged in outdoor recreation activity (structured or unstructured) within the last five years in the Southeastern region. The purpose of the screener was to recruit participants who met the criteria and eliminate those who did not meet: being 18 years of age or more; diagnosed with a DD; having engaged in outdoor recreation within the last five years; lived in the Southeast region; and able to answer sample questions.

Table 1

Sample Questions Included in Screener

Question	Response	
“What fun things do you like to do outdoors? Do you like to camp? Do you enjoy the mountains?”	<input type="checkbox"/> Yes	<input type="checkbox"/> No, please comment/explain why the participant may have difficulty answering: _____ _____
“How does participation in outdoor recreation [activities mentioned by participant] make you feel?”	<input type="checkbox"/> Yes	<input type="checkbox"/> No, please comment/explain why the participant may have difficulty answering: _____ _____
“Is there anything that stops you from participating more in outdoor recreation?”	<input type="checkbox"/> Yes	<input type="checkbox"/> No, please comment/explain why the participant may have difficulty answering: _____ _____

Following IRB approval, interviews were conducted via Zoom—an online video chat program—and ranged between 10 and 90 minutes in duration across all three

OUTDOOR RECREATION AMONG ADULTS WITH DD

interviews (first, second, and follow-up). Participants who had their own legal guardianship partook in one semi-structured interview. In cases when the individual with DD had a LAR, semi-structured dyadic format (Caldwell, 2014; Stuckey, 2013) was used. A dyadic approach consists of three separate interviews. An initial interview is conducted with the individual with DD to establish a relationship and gather a general understanding of their experiences with outdoor recreation. During that interview, the participant was asked to name the person who supports them the most in outdoor recreation activities (Caldwell, 2014). To increase their comfort, the individual with DD was provided with an option to invite their LAR to be present during the first interview. The second interview, with the key support person (who was also their LAR), aimed to triangulate initial information about the participant and learn about any techniques, such as posing questions a certain way (i.e., providing options, instead of asking open-ended questions), mentioning specific events or activities, that may facilitate the third and culminating interview with the individual with DD (Caldwell, 2014). The purpose of the third and final interview with the participant with DD was to verify previous content that was shared and explore any additional in-depth information they wanted to provide (Caldwell, 2014). This technique was previously used with adults with ID to increase validity of data obtained (Caldwell, 2014).

The interview scripts for the participant with DD consisted of eight sections, including: a) basic information about the individuals' living situations and typical day; b) their patterns of participation in recreation and leisure; c) their pattern of participation in outdoor recreation; d) their perceptions of outdoor recreation; e) the constraints to

OUTDOOR RECREATION AMONG ADULTS WITH DD

outdoor recreation participation experienced by individuals with DD; f) the facilitators to participation in outdoor recreation among individuals with DD; g) how their support person is involved in their outdoor recreation participation (when applicable); and h) demographic information. Among some examples of questions were “How does participation in outdoor recreation [activities mentioned by participant] make you feel?” The interview script for the support person in interview 2 followed this same structure of questions asked in interview 1, except for the last section where they were asked to share techniques that would be helpful to facilitate the final interview with the participant with DD. Further comparison between the questions asked in the first and third interviews is provided in Table 2.

Table 2

Comparison of Questions in First Interview vs. Third Interview

Topic Section	Interview 1 Questions	Interview 3 Questions
Recreation & leisure pattern	<ul style="list-style-type: none"> a. Could you tell me about the things you like to do for fun? [Things that make you happy/ things you enjoy]. <ul style="list-style-type: none"> i. Why is that fun?/ What about that is fun? ii. Who does [insert fun activity] with you? b. What else do you like to do for fun? <ul style="list-style-type: none"> i. Do you like to travel and go on trips? ii. Do you like to spend time outside? (Which place is your favorite? Why?) 	<ul style="list-style-type: none"> a. During our first interview, you talked about doing _____ for fun. Can you tell me more about that?
The pattern of participation in outdoor recreation	<ul style="list-style-type: none"> a. Could you tell me about the fun things you like to do outdoors? <ul style="list-style-type: none"> i. Do you enjoy camp? Day trips? Outings? Do you like to be near 	<ul style="list-style-type: none"> a. During our first interview, you spoke about doing _____ for fun in outdoor recreation.

OUTDOOR RECREATION AMONG ADULTS WITH DD

	<p>water or around the trees? Do you enjoy mountains?</p> <p>ii. [If no, why not? What about it do you not like? Could you tell me more about that?]</p> <p>b. Can you tell me about your first time trying this outdoor activity?</p> <p>c. Tell me about the last time you did an outdoor recreation activity?</p> <p>i.What exactly happen? Can you tell me step by step?</p> <p>d. How do you usually plan this outdoor recreation [insert activity mentioned] experience? Tell me more about this?</p> <p>i.Who plans it?</p>	<p>Could you tell me more about that?</p>
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Interviews were recorded and transcribed verbatim. Pseudonyms were used to protect participants’ identity. Following Charmaz’ (2008) coding technique, open and selective coding was used to identify initial codes, core categories, and subcategories. Among some codes that emerged at the initial coding stage were “happy outdoors,” “good weather,” and “sensory outdoors.” Then, axial coding was used to establish connections and relationships between codes and determine categories. Lastly, through selective coding, these categories were organized together to establish core themes reflective of the data (Charmaz, 2006). Charmaz (2006) proposes four criteria for ensuring trustworthiness: credibility, originality, resonance, and usefulness. To maintain credibility, themes that developed were constructed from codes including a majority of participants. Peer review was conducted by a researcher who was further removed from the study at several points during the data analysis process. Additionally, the researcher wrote reflexive memos regularly, attempting to acknowledge thoughts, feelings, and

OUTDOOR RECREATION AMONG ADULTS WITH DD

biases. Originality was met through the study’s design—interviewing individuals with DD rather than their caregivers. To ensure resonance, interviews were transcribed verbatim, analyzed incidence by incidence (Charmaz, 2006), and categories were developed from codes. Member-checking was employed and findings were confirmed by the two participants who responded. Additionally, the dyadic approach employed with participants who had a LAR was a way to triangulate information. Usefulness was addressed by providing recommendations and including suggestions for future research based on the findings of this study.

Findings

Participants

Interviews were conducted with seven individuals (five males, two females) with DD who were actively engaged or had been previously engaged in outdoor recreation. While four participants had legal guardians who were also named their designated support individuals for outdoor recreation, three participants were their own legal guardians and did not mention designated supports. Further participant information may be found in Table 3 (below).

Table 3

Participant Information

Participant	Age	Gender	Disability(ies)	Living accommodations	Highest level of education
Josh	Young adult	Male	Asperger’s Syndrome	With family	Some college
Freya	23	Female	ASD	Independent/By them self	Bachelor’s degree
Andrew	25	Male	Down Syndrome	With family	High school Diploma

OUTDOOR RECREATION AMONG ADULTS WITH DD

Heath	24	Male	Down Syndrome	With family	High school diploma (Special Ed)
Lily	21	Female	Down Syndrome	With family	High school diploma
Ryan	29	Male	ASD	Independent/By them self	B.S. or Associates degree
Ollie	20	Male	Down Syndrome	With family	High school diploma (Special Ed)

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 activities, participants shared ways in which they benefited from participating. These benefits were expressed through describing what they liked about outdoor recreation, and the positive impact outdoor recreation participation had on them. Sub-themes developed were outdoor recreation provides satisfaction, outdoor recreation provides mental “reprieve,” outdoor recreation provides empowerment, outdoor recreation provides enlightenment, outdoor recreation provides social connectedness, and outdoor recreation provides thrill.

Outdoor recreation provides satisfaction

Participants spoke about ways in which being in the outdoors provides satisfaction in their lives. Five participants stated they liked the beauty and scenery of the outdoors, while some, like Lily explained, “uh, the sunshine. The fresh air.” Similarly, Heath said, “[...] just being outside.” Interestingly, Ryan also indicated his senses were magnified when participating in outdoor recreation: “[...] and whenever I get out and go do those things, it is, it’s very, it’s one of those really good senses that’s amplified so

OUTDOOR RECREATION AMONG ADULTS WITH DD

much more [...].” This interpretation of outdoor recreation could be unique to individuals with DD who may experience heightened sensory processing.

All participants indicated that outdoor recreation was fun for them. Josh struggled to find words to describe how much outdoor recreation meant to him:

[...] And honestly, it's sort of like, it's just a really fun experience, really. Doing camping, exploring the uh, exploring a coral reef, canoeing through the wilderness. Just a, it's just a uh, sort of like an experience that, it's more hard, it's sort of like, it's easier to experience it, than to talk about it, I would say. 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 partaking in 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 mental “reprieve”

Four participants found outdoor recreation as a way to find mental calmness. Freya said, “[rock climbing] it's a really nice way of like, I mean, 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 ASD and experienced anxiety. Specifically related to anxiety, Freya shared that, “[...] outdoor activities in general, have just helped me with the like, sort of the, I guess mental illnesses that I have struggled with.” Additionally, Freya described her experience of decompression from outdoor recreation:

OUTDOOR RECREATION AMONG ADULTS WITH DD

[...] For me, it's more of a like, I can—since it's, it's a nice reprieve, like 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:

Yeah. This, the noise, 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. Struggling for words, um, 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, either, they're, they're really just there to help me stay engaged in the moments that I'm not going fast with whatever. I think that sounds right.

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

Three 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

OUTDOOR RECREATION AMONG ADULTS WITH DD

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 being in boy scouts, Josh shared, “I basically learned how, how to like keep calm during a stressful situation as well. That was, 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 as have, [...] 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 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 opportunity for learning different types of things, such as technical skills and lessons applicable to life.

Outdoor recreation provides social connectedness

Many participants enjoyed being involved in outdoor activities with friends and family members. All participants specifically mentioned family members being involved in sharing outdoor recreation with them. For example, Lily said that she hikes, “Uh,

OUTDOOR RECREATION AMONG ADULTS WITH DD

mostly with my mom,” and likes “[...] being together.” Josh, Ryan, and Freya mentioned spending times outdoors with their dads. Whereas Heath and Ollie mentioned participating in outdoor recreation with both of their parents, and Andrew enjoyed the companionship of his sister and brother-in-law. For example, Heath shared that he kayaks most with, “Um, that would be my mom. [Heath’s Mom: Your sisters] Oh yeah, my sisters.” 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, please. [...] [saying with liveliness] Happy!” As shared by participants, opportunity for spending time with others through outdoor recreation was one of the most common benefits of participating.

Outdoor recreation provides thrill

Given the fact that outdoor recreation oftentimes takes place in an un-controlled, natural environment, there may be some additional risk or danger involved. While very few recognized this aspect of outdoor recreation, two participants acknowledged that they appreciate some thrill when being involved in outdoor recreation. According to Ryan, “It has to be active. It can't be just I mean, necessarily have to be fast, it just 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

OUTDOOR RECREATION AMONG ADULTS WITH DD

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

Intrapersonal constraints

Six 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 much 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. As Ryan shared:

It can be sensory overwhelming if I'm in nature, um, 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, when I walk up [any incline while hiking], it’s the hard part.”

Interpersonal constraints

All participants engaged in outdoor recreation with friends or family, however, two participants indicated that their core group of friends they spent the most time with did not share their same interest of outdoor recreation. For example, Ryan said, “I've created a network of friends that I've been realizing 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

OUTDOOR RECREATION AMONG ADULTS WITH DD

shared her same interest in outdoor recreation, she indicated that not having previous relationships with individuals in a group make 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

Five 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 I, and probably because of like my own kind of like uh, [...] procrastination that 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—like, 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 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 a little, 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.

OUTDOOR RECREATION AMONG ADULTS WITH DD

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. [...] Yes. I don’t, 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, factors mentioned were at intrapersonal, interpersonal, and structural levels. While intrapersonal and structural facilitators were mentioned by three and four participants, respectively, all seven participants indicated facilitators at an interpersonal level.

Intrapersonal facilitators

There were several personal factors that affected individual’s involvement in outdoor recreation, including being interested, taking initiative, and incorporating it as one’s identity. Josh explained:

Like it is more like uh, basically like interest in this thing, out of curiosity. And that's probably it really, it was just, it was sort of like, I'm interested in this thing. It looks, this thing looks interesting, I'm willing to try it out with you guys.

In addition to having interest, Ryan shared that he was comfortable taking initiative, “As far as motivating each other to go out, [...] I think overall, with the relationship, I tend to take lead a bit more, just because I—I’m comfortable in leadership roles.” Freya said that after being immersed in an environment where outdoor recreation is a popular pastime,

OUTDOOR RECREATION AMONG ADULTS WITH DD

“[...] it becomes an important part of your life and you want to continue doing [...]” As evidenced, being personally curious, motivated, and used to prioritizing outdoor recreation can encourage some individuals to be more involved in outdoor activities.

Interpersonal facilitators

The social aspect of outdoor recreation played a very integral role in helping individuals participate. In fact, all participants indicated that friends, family, and significant others were important to facilitating their involvement in outdoor recreation. For example, talking about participating in outdoor recreation, Lily shared, “My mom helps me. And I like it.” In addition to providing partnership, family members provided a variety of functional support and helped the participants negotiate various concerns, 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, my dad. Yeah.”

Additionally, the opportunity to be with others is a driving motivator for most of the participants’ engagement in outdoor recreation. For example, Ollie said he likes walking “[...] cause I see my friend.” Likewise, Freya said, “So I'd say the biggest, definitely the biggest sort of mode, motivator, or things that helps, that facilitates me into doing outdoor activities, is friends.” As expressed by many, outdoor recreation is an enjoyable way to socialize, connect with others, and be a part of a community.

Structural facilitators

As indicated by four participants, structural aids, such as outdoor recreation/education organizations and good weather could positively impact their

OUTDOOR RECREATION AMONG ADULTS WITH DD

experience in outdoor recreation. Since dealing with logistics can be frustrating and daunting for some, outdoor companies can alleviate that challenge by offering guided trips that are already planned and include gear. For example, Freya shared, “I could definitely see that [outdoor company-run 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:

So once again, I think [the troop leaders] did. I think they helped out the right amount. I think they helped out enough help to make it work. [...] But once again, it's sort of like, 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.

Two participants mentioned that having good weather made a difference in their engagement in outdoor recreation. For example, Andrew shared that it must be summertime for him to be active in some outdoor activities, “[...] I like to do tennis, and I like um, swimming, in the water summertime. Nothing cold [...]” Thus, in addition to weather conditions being appropriate, having the opportunity to participate with an outdoor organization that can provide the gear, logistics, and/or appropriate instruction can facilitate the participation of some individuals with DD in outdoor recreation.

Discussion

The purpose of this qualitative study was to explore the perceived benefits adults with DD experienced from outdoor recreation, and the constraints and facilitators that influence their involvement in outdoor recreation. The participants of this study claimed to experience multiple benefits as a result of participation in outdoor recreation, including

OUTDOOR RECREATION AMONG ADULTS WITH DD

experiencing positive sensory stimulation, happiness, and fun. Outdoor recreation served as a way to de-stress, or disassociate from reality, as well as experience challenge and empowerment. Additionally, outdoor recreation was a way 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 DD experience emotional, social, and physical benefits from participation in outdoor recreation (Armitano et al., 2015; Dorsch et al., 2016; Jakubec et al., 2016; Mutz & Muller, 2016). For example, outdoor recreation has been shown to decrease stress and anxiety in some individuals without DD (Garg et al., 2010; Mutz & Muller, 2016). Similarly, two participants in this study stated that outdoor recreation helped them de-stress and alleviate anxiety they experienced. In addition to the benefits experienced by the general public, the data from this project suggests a unique benefit experienced by some individuals with DD. For example, the participants stated that outdoor recreational activities helped them to decompress and focus on one particular task at hand, and served as a stimming experience for one individual. Stimming is a self-regulatory activity that helps with coping in various environments or 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 ASD to calm their stress and focus on one task at hand (simulating stimming). Thus, this topic needs further investigation.

While participants spoke on many benefits they received, they also listed several constraints they had to negotiate to participate in outdoor recreation. Constraining factors

OUTDOOR RECREATION AMONG ADULTS WITH DD

that affected participants' involvement in outdoor recreation were at intrapersonal, interpersonal, and structural levels. Similar to findings of Ashburner et al., (2008) sensory stimulation of an environment can be overwhelming and prevent some individuals with DD from fully engaging in an activity (outdoor or general recreation). In previous research, individuals with DD reported having limited access to social peer circles when engaging in recreation (Taheri et al., 2016). Similarly, participants of this study indicated that lacking friends or companions with which to participate in outdoor recreation constrained their participation. Similar to the findings of Badia et al. (2011), lack of time also prevented some individuals with DD from participating in both general and outdoor recreation. These findings support previous research related to experiences of this population in community recreation, including the constraints of sensory overload, social support, and time (Ashburner et al., 2008; Badia et al., 2011; Solish et al., 2009). One interesting finding mentioned by a participant with ASD in this study was related to sensory overstimulation from being in certain outdoor spaces that was perceived as a constraint by the individual. This finding is interesting because the 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. Since we cannot make a clear conclusion based on one individual, future research should explore whether individuals with ASD experience an additional constraint of heightened sensory processing in natural environment (Minsheu & Hobson, 2008). Additionally, participants reported that lacking substantial and stable income prevented them from engaging in outdoor recreation as much as they would like,

OUTDOOR RECREATION AMONG ADULTS WITH DD

which is similar to reported financial constraints individuals with DD face regarding participation in general recreation (Shields & Synnot, 2016; Temple & Walkley, 2007).

The participants of the project also shared several facilitators that may help increase their level of participation. Facilitators mentioned were intrapersonal, interpersonal, and structural. For example, being personally interested and taking initiative to seek out outdoor recreation facilitated participation for the individuals in this study. This reflects similar reports by van Shijndel-Speet et al. (2014), that personal interest and knowledge about an activity facilitates the participation of individuals with DD in general recreation. Moreover, social support from family, friends, and significant others facilitated the involvement of this study's participants in outdoor recreation. Previous research have indicated that support and encouragement from friends and family is critical to the participation of individuals with DD in general recreation as well (Alesi & Pepi, 2017; Shields & Synnot, 2016; Temple & Stanish, 2011). Participants also mentioned involvement with an organized group, such as boy scouts and outdoor programs can alleviate the stress and time needed to plan a trip. Likewise, the instruction and guidance of outdoor leaders or professionals can be impactful to the experience an individual with DD has when participating in an outdoor activity.

Limitations

While this study's findings contribute to the existing literature involving individuals with DD and their experiences in outdoor recreation, some limitations exist. First, due to having a qualitative approach and a small number of participants, the findings cannot be generalized to the entire population of people with DD. However, this

OUTDOOR RECREATION AMONG ADULTS WITH DD

project may serve as an exploratory first step that could lead to larger quantitative examination of the topic. Second, in order to participate in the study, individuals with DD needed to be actively or previously engaged in outdoor recreation. While this eliminated potential participants who experienced constraints strong enough to prevent them from participating in outdoor recreation, it allowed for the researcher to ask questions regarding their perceptions of outdoor recreation and what facilitated their participation, which was an intent of the study. Third, while misunderstandings might have occurred during interviews with individuals with DD, this was navigated by the interviewer rephrasing the questions, when appropriate, without changing the meaning. Additionally, in order to minimize any misunderstanding, the researcher triangulated data through the use of dyadic interviews (Caldwell, 2014) with the participants with DD who had a LAR.

Recommendations for Research and Practice

To further our understanding of experiences people with DD have in outdoor recreation, we suggest to conduct a large scale national quantitative study focused on experiences of individuals with a specific disability in outdoor recreation. Comparative studies that explore how these experiences may vary based on the place of residence, type of disability, and other demographic and environmental factors would be also important. Furthermore, we suggest future projects focus on individuals who have not previously participated in outdoor recreation to better understand the constraints they face.

Based on the data from this study, we recommend the professionals in outdoor recreation offer opportunities for fully planned and organized trips at lower fee or no cost. Moreover, since finding a companion and transportation may be a challenge for

OUTDOOR RECREATION AMONG ADULTS WITH DD

those with DD, the outdoor recreation companies could facilitate both. Providing opportunities for social interaction and relationship building, as well as offering trips for “solo-adventurers” could facilitate relationship building among this population.

Moreover, providing transportation or opportunity to arrange a carpool would minimize a serious constraint. Lastly, we suggest that all staff leading outdoor recreation trips be trained on soft skills, such as patience and direct communication, as well as specific ways of adapting activities, in order to be better prepared to serve individuals who have varying needs. This may prepare staff to accommodate unique needs of this population and to provide the most rewarding experience in the outdoors.

CHAPTER V

DISCUSSION AND CONCLUSION

Summary of Findings

The purpose of this qualitative study was to explore the experiences of individuals with DD in outdoor recreation. Based on the data provided by study participants, I can conclude that individuals with DD benefit from participating in outdoor recreation in many ways. However, similar to research reporting on the experiences of individuals with DD in general recreation (Ashburner et al., 2008; Badia et al., 2011; Solish et al., 2010, Taheri et al., 2016), there are constraints faced by these individuals that require navigation. Additionally, there are several factors that facilitate their engagement in outdoor recreation. The results of this study can provide useful information for future research and practitioners who work with individuals with DD. Similarly, the findings from this study can contribute to existing literature related to the constraints and facilitators individuals with DD face in *general recreation* by expanding our understanding of their experiences in *outdoor recreation*.

Benefits of Outdoor Recreation

The findings of this study support previous studies indicating that individuals with and without disabilities experience emotional, social, and physical benefits from participation in outdoor recreation (Armitano et al., 2015; Dorsch et al., 2016; Jakubec et al., 2016; Mutz & Muller, 2016). Benefits of participation in outdoor recreation mentioned by the participants of this project included feelings of happiness, satisfaction, empowerment, growth, excitement, and connection with others. Additionally, outdoor

OUTDOOR RECREATION AMONG ADULTS WITH DD

recreation served as a way to decompress, or disassociate from reality, as well as experience excitement and thrill.

Outdoor recreation has been shown to decrease stress and anxiety in some individuals without DD (Garg et al., 2010; Mutz & Muller, 2016). Similarly, two participants in this study stated that outdoor recreation helped them decompress and dissociate from outside stressors, including anxiety. Additionally, three participants with ASD expressed that outdoor recreation provided respite and peace, and served as a stimulating experience (Kapp et al., 2019) for one of the participants. However, that same participant mentioned that when he was engaging in outdoor recreation, his senses felt amplified, and sometimes he would be overwhelmed and overstimulated. This suggests the complexities of how an outdoor environment may be experienced by individuals with DD. In some cases an outdoor environment may be overstimulating, while in other instances, the outdoor recreation activities may be soothing and serving as stimulating. Thus, more research is needed to better understand how individuals with DD and more specifically those with ASD experiencing overstimulation may use outdoor recreation to cope with anxiety. Additionally, understanding when overstimulation within outdoor recreation has a negative impact on individuals with ASD would be equally beneficial. Better understanding these unique relationships with outdoor spaces and activities could allow outdoor recreation providers to emphasize experiences that may lower overstimulation, as well as eliminate experiences and settings that may prompt overstimulation.

OUTDOOR RECREATION AMONG ADULTS WITH DD

Previous research suggested that outdoor recreation can serve as a modality for individuals with DD to learn technical skills (Cavanaugh & Rademacher, 2014; Sutherland & Stroot, 2009). Participants of this study acknowledged and appreciated learning such skills as how to prepare for hiking, how to put on a harness for ziplining, and how to perform whitewater rescues using rope. Learning new skills could contribute to these individuals' sense of confidence and empowerment. In fact, a few participants pointed out the sense of pride and empowerment they experienced from accomplishing challenging tasks during outdoor recreation. This feeling of self-confidence and empowerment has been similarly expressed by others with and without DD when participating in outdoor recreation activities (Dorsch et al., 2016; Mutz & Muller, 2016).

Multiple studies reported social benefits experienced by individuals with disabilities and/or mental health issues as a result of participation in outdoor recreation (Duvall & Kaplan, 2014; Jakubec et al., 2016; Sutherland & Stroot, 2009). Similarly, participants of this study expressed the value of spending time with others through outdoor recreation. For example, spending time outdoors with others as friends or part of a group allowed participants to have more opportunity to communicate and connect with others. Additionally, one participant noted that participating in outdoor recreation with boy scouts allowed him to grow and be more comfortable engaging and talking with others.

Constraints to Outdoor Recreation

While previous studies have indicated that individuals with DD experience constraints to participating in general recreation (Ashburner et al., 2008; Badia et al.,

OUTDOOR RECREATION AMONG ADULTS WITH DD

2011; Solish et al., 2010, Taheri et al., 2016), little research exists on the constraints faced by these individuals when participating in outdoor recreation. The data from this study revealed several constraints individuals with DD had to negotiate. Constraining factors were intrapersonal, interpersonal, and structural and included getting tired, being sensory overwhelmed, having challenge with knowing others who engage in outdoor recreation, lacking time due to life obligations, and lacking monetary funds.

Adding to the reports from other participants of existing research on facilitators and barriers to physical activity (Shields et al., 2010), two participants with Down syndrome in this study mentioned that feeling tired was a challenge to them going hiking. While the physical demand of more active outdoor activities can be challenging for anyone, this can be a constraint to some individuals with DD, who may have lower cognitive functioning and difficulty comprehending the benefits and importance of exercise (Jobling & Cuskelly, 2006; Mahy et al., 2010). Although only one participant mentioned that sensory stimulation of an environment can be overwhelming and constrained his involvement in outdoor recreation at times, this contributes to existing research that reported sensory stimulation being constraining to others with DD engaged in general recreation (Ashburner et al., 2008). Since only one participant expressed this sentiment, we cannot make a clear conclusion regarding overstimulation in outdoor recreation. However, because this has been noted previously regarding general recreation, future research should explore whether individuals with ASD experience an additional constraint of heightened sensory processing in natural environments (Minshew & Hobson, 2008). Additionally, a few participants reported that experiencing fear and

OUTDOOR RECREATION AMONG ADULTS WITH DD

nervousness prevented them from engaging in certain activities that might seem more anxiety-provoking, such as rock climbing. This finding is unique, as previous studies have only reported the perspective of parents of children with DD who avoided participating in *community* recreation to eliminate negative interactions with members of community (Sharaievska & Burk, 2018). Further investigation should follow to understand whether nervousness and fear is unique to specific outdoor activities, and whether frontloading and/or providing supplemental instruction could mitigate this constraint faced by some individuals with DD.

In previous research, individuals with DD reported having limited access to social peer circles when engaging in recreation (Taheri et al., 2016). Similarly, two participants of this study indicated lacking close friends or companions interested in outdoor recreation, and engaging in other forms of leisure separate from outdoor recreation with those friends instead. Of these two participants, one expressed this as a frustration and constraint to their participation in outdoor activities. While the participants did not explain why it was difficult for them to find friends who would share their passion for outdoor recreation, there are many reasons why this may be. For example, it could be as a result of outdoor recreation being more niche activities that are often viewed as having their own culture and often exclusive social circle that are difficult to join for an outsider (Bogardus, 2012). Similarly, these activities often require specific skills and gear, as a few participants shared that this can be difficult to store and access at an affordable rate. Lastly, geographical location of the participants may limit access to recreation activities

OUTDOOR RECREATION AMONG ADULTS WITH DD

sites and as a result, their access to social circles interested in specific activities could also be limited.

Lack of time also prevented individuals with DD in this study from participating in outdoor recreation. These findings support previous research related to reports from this population that they are limited in available time to spend towards health and recreation (Burk & Sharaievska, 2017). Particularly, participants who were either in college or had a full-time job expressed how time affected their amount of outdoor recreation participation. Having the ability to allot time for outdoor recreation was difficult due to other demands of daily living, such as being at work, completing homework, preparing meals for the week, and allowing time to rest and recuperate from a busy schedule. Additionally, participants reported that having more income would allow them to be involved in outdoor recreation (on their own and with outdoor companies) more than they currently were. This finding is similar to previous research that reported the cost of programs and lack of sufficient funds to allocate towards recreation constrained the participation of individuals with DD in general recreation (Emira & Thompson, 2011; Shields & Synnot, 2016; Temple & Walkley, 2007).

Facilitators to Outdoor Recreation

Study participants also shared several facilitators that could help increase their level of participation in outdoor recreation. Facilitators mentioned were intrapersonal, interpersonal, and structural. Being personally interested and taking initiative to seek out outdoor recreation facilitated participation for the individuals in this study. More specifically, two participants credited their genuine curiosity and interest in outdoor

OUTDOOR RECREATION AMONG ADULTS WITH DD

recreation to facilitating them becoming involved in those activities. Moreover, social support from family, friends, and significant others were mentioned as facilitators to participants participating in outdoor recreation.

Previous research indicates that support and encouragement from friends and family is critical to the participation of individuals with DD in general recreation (Alesi & Pepi, 2017; Shields & Synnot, 2016; Temple & Stanish, 2011). Similarly, several participants with DD who took part in this study reported spending most of their outdoor recreation activities with family members, which reflects previous findings that individuals with DD predominantly relied on family members when participating in general recreation (Mactavish & Schleien, 2004; Solish et al., 2010). This reliance on family members could be a result of having limited access to public transportation or smaller social circles (Burns & Graefe, 2007; Freudenberg & Arlinghaus, 2009; Solish et al., 2010). In either case, since many participants of this study primarily engaged in outdoor recreation with their mother, father, or both, it may be important for professionals to create more intentional opportunities for peer interaction and relationship building. In addition, the provision of family-centered programming could be beneficial, since most participants of this study participated in outdoor recreation with family members. Moreover, it would be valuable to investigate further how parents' involvement in and prioritization of outdoor recreation influences their offspring's with DD perception and connection with outdoor recreation.

The participants stated that their engagement in outdoor recreation could be facilitated by involvement with organized groups, such as Boy Scouts and outdoor

OUTDOOR RECREATION AMONG ADULTS WITH DD

programs that could alleviate the stress and time needed to plan a trip. Moreover, as expressed by two participants, the instruction and guidance of outdoor leaders or professionals can be impactful to the experience of an individual with DD in an outdoor activity. For example, one participant mentioned the amount of attention and skill that can be taught by instructors can significantly influence the level of enjoyment of an activity. This finding aligns with other studies that have reported staff and instructors being influential in facilitating participation of individuals with DD in general recreation (Jones, 2003; Rimmer et al., 2004; Shields & Synnot, 2016).

Furthermore, participating in an outdoor organization-led trip can eliminate the stress and uncertainty that accompanies planning logistics and risk management, and determining supplies needed for an activity. Advertising all-inclusive (instruction, gear, and logistics provided) outdoor activities and providing thorough, supportive, and quality instruction from staff could be a way for outdoor recreation providers to increase their clientele and simultaneously facilitate the participation of individuals with DD in such activities.

Limitations

While this study's findings contribute to the existing literature involving individuals with DD and their experiences in outdoor recreation, some limitations exist. The first limitation is related to the self-selection of the participants. Considering that people might have self-selected to participate in the project because of a specific strong opinion (positive or negative) about constraints or facilitators experienced by people with DD in recreational spaces, the results of the study could be biased to that viewpoint. In

OUTDOOR RECREATION AMONG ADULTS WITH DD

attempts to minimize this possibility, the researcher reached out to multiple organizations to increase a diversity of opinions among the participants.

Secondly, due to interviews being conducted via Zoom and via phone, the participants had to have access to these technologies. This might have caused selection bias towards individuals of middle class background. However, information gathered from participants of this study remains valid and insightful, and contributes to the limited literature that involves individuals with DD and their recreation experiences.

Third, misunderstandings might have occurred during interviews with individuals with DD due to differences in cognitive abilities of the participants, which could have affected overall credibility and accuracy of their answers. In order to minimize any misunderstanding, the researcher triangulated data through the use of dyadic interviews (Caldwell, 2014) with the participants with DD who had a LAR. In addition, following advice of the LAR (when provided), modifications were made (i.e., providing options, instead of asking open-ended questions) to simplify the wording of interview questions without changing the meaning. Moreover, member-checking was used to verify that the information gathered accurately reflected the participants' experiences (Charmaz, 2006). This occurred in two phases during data collection and analysis. First, transcripts were sent to participants in culmination of their interviews with an invitation for them to read through and provide feedback. Two participants replied stating they would look at the documents, however no further communication occurred. Second, after initial findings of themes and categories were written, this document was sent via email to participants along with an invitation for them to read through and provide feedback. One participant

OUTDOOR RECREATION AMONG ADULTS WITH DD

and one support member replied confirming findings and the participant expressed appreciation for their validation of their experiences by other participants in the study.

Fourth, due to the extensive experience of working with individuals with DD, and working as a guide in outdoor recreation, the researcher had her own biases. To limit this insider bias, several practices suggested by Charmaz (2007) and Creswell and Poth (2018) were followed. After developing initial codes and categories, a second researcher reviewed codes, providing feedback and suggestions. Additionally, the second researcher reviewed developed themes and categories reflecting themes, and provided suggestions and collaboration in efforts to provide findings that reflected the participants' data best. Reflexive memos about thoughts, feelings, and ideas regarding the study were written regularly during data analysis. This included tracking any changes made or revelations experienced, and was documented chronologically, which was useful to reference during the data analysis process (Creswell & Poth, 2018). Writing memos was useful to identify thoughts and emotions related to the study. They were reviewed and recognized at later times during the data analysis and served primarily as a way to identify ideas and biases.

Lastly, due to the small sample of participants, while the results of this study are relevant, they are not generalizable. Therefore, to address this limitation, future studies involving larger and more diverse sample of participants would further contribute to this area of research.

Recommendations for Research and Practice

The results of this project may be instrumental to those interested in benefits, constraints and facilitators of outdoor recreation experienced by individuals with DD,

OUTDOOR RECREATION AMONG ADULTS WITH DD

including recreation practitioners, outdoor recreation companies, and families with a member with DD.

Recommendations for Research

To further our understanding of experiences people with DD have in outdoor recreation, we suggest that a large scale national quantitative study focused on experiences of individuals with DD in outdoor recreation be conducted. Such project would allow us to gather generalizable data related to the perceived benefits, constraints, and facilitators faced by individuals with DD that is representative of the diversity (different types of disabilities, race and ethnicity, geographical location, age, etc.) within this group.

Comparative studies, both qualitative and quantitative, exploring how the outdoor recreation experiences vary based on the place of residence, type of disability, and other demographic and environmental factors would be important. As the data from this study suggested, there might be distinct differences between some constraints faced by individuals with Down syndrome compared to those with ASD and Asperger's. Likewise, individuals who have other forms of DDs might have unique experiences within outdoor recreation environments which should be further investigated. However, in order to make more definite conclusions, a larger and more diverse sample is needed.

Lastly, while the participants of this study did identify constraints they faced in outdoor recreation, they were able to navigate these constraints. Additionally, all participants had means to access transportation and modern technology, and could be less impacted/constrained than those without such means. Therefore, we suggest future

OUTDOOR RECREATION AMONG ADULTS WITH DD

projects focus on individuals who have not previously participated in outdoor recreation to better understand the constraints they face. Similarly, future projects should explore the experiences of individuals with different level of engagement and expertise, as well as experiences of those who participate in different types of outdoor recreation activities (organized and independent, one-time event or program, water-based or trail-based, physically intensive or not, etc.).

Recommendations for Practitioners

Based on the benefits, constraints, and facilitators found from this study, we recommend practitioners continue to explore the use of outdoor recreation as a way to improve quality of life (QOL) domains of individuals with DD. First, since some participants mentioned experiencing decreased stress and anxiety during participation in outdoor recreation, the use of outdoor recreation in a therapeutic setting could be used as a tool to teach healthy ways of managing stress experienced by some individuals with DD. Additionally, the social benefits of outdoor recreation mentioned by participants could indicate its usefulness to providing social opportunities and improving social QOL of individuals with DD. Recreational therapists working in outdoor settings should offer group-oriented sessions to support social interaction of individuals with DD.

Additionally, recreational therapists should conduct standardized assessments related to stress, socialization, and QOL to document functional improvements associated with individuals with DD participating in outdoor recreation. Increased evidence supporting the use of outdoor recreation programming for stress management and social connectedness and QOL of individuals with DD could increase its reputability and

OUTDOOR RECREATION AMONG ADULTS WITH DD

acceptability among healthcare providers prescribing treatment. However, perceived improvements may also be a powerful tool to use when it comes to enhancing one's QOL.

Recommendations for Outdoor Recreation Providers

Based on the findings of the participants of this study, we recommend several actions that outdoor recreation providers might make in efforts to improve the provision of services for individuals with DD. First, some participants mentioned experiencing fear or anxiety around participating in certain outdoor activities, such as rock climbing and activities that involved heights. While it could be simply a fear of heights, outdoor industry providers should keep in mind that this fear could be due to slower processing of the safety mechanisms of an activity and information being communicated. Preparing instructors and guides to communicate in simple and direct terms, allowing extra time for the individual to process information and make a decision could be beneficial to their readiness to participate in an activity that evokes more initial fear. Additionally, training instructors to have patience and offer positive encouragement could also be beneficial and facilitate the involvement of some hesitant individuals with DD interested in outdoor activities.

Second, participants indicated that personal factors, such as their stamina level and ability to cope with sensory overstimulation could negatively impact their engagement in outdoor recreation. Based on this finding, we suggest that outdoor recreation providers keep in mind the unique needs of these individuals, when working with them. Due to the variability of physical ability and differences in sensory

OUTDOOR RECREATION AMONG ADULTS WITH DD

processing, it is beneficial for staff and instructors to be aware of these factors and trained in ways to adapt to the needs of individuals with DD who experience such intrapersonal constraints. Offering an in-service training led by a recreational therapist could provide useful and applicable techniques and approaches for working with individuals with DD. This could be beneficial for the instructors and organizational moral, the expanded market, and the enhanced experiences of clientele.

Third, some participants expressed that having more money to do outdoor activities could facilitate their participation. Based on these findings, we suggest that outdoor recreation professionals offer opportunities for fully planned and organized trips at a lower fee or no cost. Moreover, since many participants expressed that friends and/or family members facilitated their participation in outdoor recreation, organizing trips catered to whole families or groups of families who have a member with DD could encourage and increase their participation in activities provided. Additionally, offering fully-equipped and guided trips to these groups could alleviate the stress of logistical arrangements.

Conclusion

Considering the lack of literature involving individuals with DD and outdoor recreation, this study aimed to explore what these individuals experience when participating in outdoor recreation. More specifically, my goal was to understand if individuals with DD face constraints when seeking outdoor recreation activities, and what facilitates their participation. Findings suggest that individuals with DD reap benefits from participating in outdoor recreation. Additionally, the constraints and facilitators that

OUTDOOR RECREATION AMONG ADULTS WITH DD

individuals with DD expressed when participating in outdoor recreation contribute to the limited information that has been published on such a topic. Furthermore, the findings of this study indicate that there are unique differences among individuals with DD and the experiences, constraints, and facilitators they face when pursuing outdoor recreation.

Future research conducted on a larger scale may contribute further to our understanding of the experiences individuals with DD have in outdoor recreation and how industry professionals might best support them in their pursuits of such activities.

APPENDICES

Appendix A

Initial Interview Guide

Interview Script for Participant with DD (Interview 1)

Intro script:

- This interview is meant to understand your experiences participating in outdoor recreation. When I say outdoor recreation, I mean activities in nature or outdoors, but may also happen in a man-made place, like a mountain biking park or rock climbing gym. These activities can be structured, like going to camp or on a rafting trip. They can also be unstructured, like going hiking with a friend.
- You can be honest when you answer my questions—there are no right or wrong answers. I just want to hear from *you*.
- You can skip any question you wish, and you may pause the interview at any time to take a break. You may choose to stop participating in this interview at any time. You will not be punished in any way if you decide to stop taking part in the study. If you choose to stop taking part in this study, the information you have already provided will be used in a private, confidential way.
- I'd like to record this interview so I can look back and make sure I share your story accurately. Is that alright with you?

1. **Basic information:**

- a. Who do you live with?
- b. Could you tell me about what you do on a typical day?
- c. How do you go places?

2. **Recreation & leisure pattern:**

- a. Could you tell me about the things you like to do for fun? [Things that make you happy/ things you enjoy].
 - i. Why is that fun?/ What about that is fun?
 - ii. Who does [insert fun activity] with you?
 - iii. What about that is fun?
 - iv. How much time do you typically spend doing [insert fun activity]?

OUTDOOR RECREATION AMONG ADULTS WITH DD

- v. How often do you participate in [insert fun activity]?
- vi. How did you start participating in [insert fun activity]?

b. What else do you like to do for fun?

- i. Do you like to travel and go on trips?
- ii. Do you like to spend time outside? (Which place is your favorite? Why?)
- iii. Do you like to go to amusement parks?
- iv. Do you like to go to movies? Watch TV at home? Play computer/ phone / tablet games?
- v. Do you like to go to a gym? Play any sport?
- vi. Do you like going out to eat?
- vii. What makes [insert fun activity 2] fun?
- viii. How often do you do that?
- ix. Who do you like to spend your free time with?

3. The pattern of participation in outdoor recreation:

a. Could you tell me about the fun things you like to do outdoors?

- 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?]
- iii. [If yes, what do you like about [insert outdoor activity mentioned above]?
- iv. Who do you usually go with to do things outdoors? Family? Friends? Who do you prefer to go with you?
- v. How often do you do outdoor activities?
- vi. What outdoor recreation activities do you participate in the most?
- vii. How did you learn about these outdoor activities?
- viii. How does this outdoor activity make you feel? What about others?
- ix. Did you learn something new from these outdoor activities?

OUTDOOR RECREATION AMONG ADULTS WITH DD

- 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?
 - i. What exactly happen? Can you tell me step by step?
- d.** How do you usually plan this outdoor recreation [insert activity mentioned] experience? Tell me more about this?
 - i. Who plans it?
 - ii. Who finds information about [outdoor recreation activity]?
 - iii. Do you need equipment for that?
 - iv. How do you get equipment?
 - v. How many people usually go with you?
 - vi. Is there a guide/person that you pay for to lead you on this experience?
 - vii. Is there a place that you go to for this experience? How do you get to that place? How did you learn about that place? Have you been there many times?
 - viii. Is there any particular training that you receive before participating? Do you watch it on TV or does somebody tell/ show you what to do?
 - ix. How often do you do [outdoor recreation activity]?
 - x. Do you always go to the same place? Why or why not?
 - xi. Are these experiences one-day or over-night experiences? Which one do you prefer? Why?

4. The perceptions of outdoor recreation:

- a.** How does participation in outdoor recreation [activities mentioned by participant] make you feel?
- b.** Why do you like/dislike outdoor recreation activities? What exactly do you like/dislike about them?
 - i. Do you enjoy being out in nature?
 - ii. Did you learn anything new?

OUTDOOR RECREATION AMONG ADULTS WITH DD

- iii. Would you do it again?
- iv. Do you like or dislike being with other people in nature?
- v. What do you like/ dislike about spending time with other people outdoors?
- vi. Do you enjoy how these activities make you feel? What about that do you enjoy or dislike?
- vii. What things do you *not* enjoy about being out in nature?
 - 1. [Getting dirty? Being away from home?]
- c. Do your friends / family enjoy outdoor recreation?
 - i. What do they enjoy about it?

5. The constraints to outdoor recreation participation and recommendations for professionals/outdoor industry:

- a. Think about your outdoor experiences. Would you like to spend more time participating in outdoor recreation if you could?
- b. [If no, Why not? skip to 5.d]
- c. If yes, Would you want to try new activity? Or just do more of the same activity?
- d. Is there anything that stops you from participating more in outdoor recreation?
 - i. How/why does that stop you from participating?
 - ii. Is there anything that didn't go well or made your experiences in outdoor recreation less enjoyable in the past?
 - iii. Was there something that other people did that upset you?
 - iv. [If yes] Who were these people? [Other participants? Staff?] How did that upset you?
 - v. Did the equipment feel uncomfortable?
 - vi. Did you not like the place where you participated? Why not?
 - vii. Were you scared to participate? Why was it scary?
 - viii. Was it too difficult? Too easy?

OUTDOOR RECREATION AMONG ADULTS WITH DD

- ix. What would you change about these experiences? What would you like to do differently?
 - x. What would you like other people [people who organize your outdoor activity, like guides OR park rangers OR outdoor companies] to do differently?
 - xi. What would you like other people [family members, support person, friends, other people who participate] to do differently?
 - xii. Is there anything else?
- e. What would you do instead of outdoors activity?

6. **The facilitators to participation in outdoor recreation:**

- a. Think about your previous outdoor recreation experiences. What allows you [makes it easy for you] to participate in outdoor recreation?
- i. Family, friend, support person who participates with you? Did you start participating because of them?
 - ii. Do you live close to the place where you like to do your favorite outdoor activities?
 - iii. Did you already have access to equipment before you started?
 - iv. Does your community offer some special programs for outdoor recreation? What did you enjoy about these experiences?
 - v. Do you enjoy learning new things about your favorite outdoor activity?
 - vi. What else allows you to participate?

7. **Support Person:**

- a. Do you have a person you rely on the most for outdoor recreation?
- i. Who is this person?
 - ii. How exactly do they help you?
 - 1. Do they find out information for you? [Place, schedule, cost, etc.]

OUTDOOR RECREATION AMONG ADULTS WITH DD

2. Does this person train you in [insert outdoor recreation activities]? Do they show you new skills? Teach you things about this activity?
 3. Does this person go with you to participate?
 4. Does this person drive you to the place where you participate?
 5. Do they share their equipment with you?
- iii. Is that the only person you go with?
- b.** Who would be the person who helps you do outdoor recreation that I could meet and talk with?

Appendix B

Support Interview Guide

Interview Script for Support Person (Interview 2)

Intro script:

- This interview is meant to understand [Participant with DD]’s experiences participating in outdoor recreation. When I say outdoor recreation, I mean activities in nature or outdoors, but may also happen in a man-made place, like a mountain biking park or rock climbing gym. These activities can be structured, like going to camp or on a rafting trip. They can also be unstructured, like going hiking with a friend.
- Please be honest when you answer my questions—there are no right or wrong answers. I want to hear from you about *[Participant with DD]’s experiences*.
- You can skip any question you wish, you may choose to stop participating in this interview at any time. You will not be punished in any way if you decide to stop taking part in the study. If you choose to stop taking part in this study, the information you have already provided will be used in a private, confidential way.
- I’d like to record this interview so I can share your story accurately. Is that alright with you?

1. Basic information:

- a. Tell me about [Participant with DD]
- b. Tell me about your relationship with [Participant with DD].
- c. How long have you known [Participant with DD]?
- d. What kind of transportation does [Participant with DD] use on an every-day basis?

2. Recreation & leisure pattern:

- a. On average, how much free time does [Participant with DD] typically have in a week?
- b. What does [Participant with DD] like to do for fun?
 - i. Does [Participant with DD] like to travel and go on trips?

OUTDOOR RECREATION AMONG ADULTS WITH DD

- ii. Does [Participant with DD] like to go to amusement parks? to movies? Watch TV at home? Play computer/ phone / tablet games?
 - iii. Does [Participant with DD] like to go to a gym? Play any sport?
 - iv. Does [Participant with DD] like going out to eat?
 - v. Does [Participant with DD] like to spend time outside?
3. The **pattern** of participation in outdoor recreation among individuals with developmental disabilities:
- e. Tell me about the typical experience of outdoor recreation participation by the [Person with DD].
 - i. What types of outdoor recreation does [Person with DD] usually participate in?
 - ii. Who does [Person with DD] usually go with to participate?
 - iii. Where does [Person with DD] typically go to participate in outdoor recreation?
 - iv. How often does [Person with DD] participate in an outdoor recreation activity?
 - v. What outdoor recreation activities does [Person with DD] participate in most?
 - vi. What other outdoor recreation activities does [Person with DD] participate in?
 - f. Who typically helps [Person with DD] to participate in outdoor recreation?
 - i. How specifically do they help [Person with DD]?
 - 1. Organizing and planning?
 - 2. Providing transportation and/or equipment?
 - 3. Providing instructions and technical support?
 - 4. Providing companionship and emotional support?
4. The **perceptions** of outdoor recreation among individuals with DD:
- a. How does [Person with DD] feel about outdoor recreation?
 - i. What does [Person with DD] like/dislike about it?

OUTDOOR RECREATION AMONG ADULTS WITH DD

1. Spending time with friends?
 2. Going to new places?
 3. Trying new activities?
 4. Learning new things?
 5. Relaxation in nature?
 6. Getting dirty?
 7. Not being home?
- ii. How does [Person with DD] feel about it? Why do you think that is?
 1. [Because it is fun? Scary? Difficult?]
5. The **constraints** to outdoor recreation participation experienced by individuals with DD and their families and **recommendations** for professionals/outdoor industry:
- a. Do you think the [Person with DD] would like to spend more time participating in outdoor recreation?
 - b. Do you think the [Person with DD] would like to participate in more types of outdoor activities? In new and different activities?
 - c. What stops [Person with DD] from participating more in outdoor recreation? In what way?
 - i. [Place? Timing? Other people? Long drive? Food? Equipment? Fear? Etc.]
 - d. Thinking about typical experience of [Person with DD] in outdoor recreation, what recommendations would you provide to: [recreation guide OR parks service OR outdoor recreation company]? What would you like them to do differently?
 - i. Is there something that went well during [Person with DD]'s experience? What does [Person with DD] enjoy about these experiences?
 - ii. Is there something that did not go well? What was not enjoyable?

OUTDOOR RECREATION AMONG ADULTS WITH DD

- iii. What could have gone better?
 - iv. What specific recommendations would you provide to [recreation guide OR parks service OR outdoor recreation company] to provide better experience for [Person with DD]?
6. The **facilitators** to participation in outdoor recreation among individuals with developmental disabilities:
- a. How did [Person with DD] get interested in outdoor recreation?
 - i. When did [Person with DD] start participating in outdoor recreation?
 - ii. Can you tell me more about that first experience?
 - b. Are there any specific or unique things that make it easier for [Person with DD] to participate in outdoor recreation?
 - i. [Family, friend, support person? Residence close to green spaces? Access to equipment and transportation? Special programming in the community?]
7. **Tips** and Techniques:
- a. Are there any topics I could/should bring up to facilitate [Person with DD]'s interview?
 - b. Are there any techniques I could use to help [Person with DD] recall certain events during the [insert any issues that came up in first interview]?
interview?
 - c. Is there anything else that would be helpful for me to know about [Person with DD] before my last interview with them?

Demographic Characteristics:

1. How old are you?
2. What is your race and ethnicity?
3. What is your gender?
4. What's your occupation?
5. What is your highest level of education?
6. How would you describe your SES? (Working class, Middle class, Upper class)
7. What is your relationship to the participant?

Appendix C

Follow-up Interview Guide

Interview Script for Participant with DD (Interview 3 – Follow-up)

(The questions in this interview will be personalized based on the results of the interview 1 and 2.)

8. Recreation & leisure pattern:

- a. During our first interview, you talked about doing ____ for fun. Can you tell me more about that?

9. The pattern of participation in outdoor recreation:

- g. During our first interview, you spoke about doing ____ for fun in outdoor recreation. Could you tell me more about that?

10. The perceptions of outdoor recreation:

- a. In our first interview, you described outdoor recreation as ____ and that you enjoy/don't enjoy ____ about it. Can you tell me any more about that?

11. The constraints to outdoor recreation participation:

- a. In our first interview, you said ____ stops you from doing more outdoor recreation activities. Can you tell me more about that?

12. The facilitators to participation in outdoor recreation:

- a. In our first interview, you said ____ makes it easier for you to participate more in outdoor recreation activities. Can you tell me more about that?

13. The changes for future outdoor recreation experiences:

- a. Apart from what you've told me previously, have you gone on any (other) outdoor trip/ experience? What did you like/ dislike about it?

14. Support Person Suggestion

- a. Last time you mentioned the person ____ as your support person. How important is this person in your participation?
- b. Your support person _____ mentioned ____ experience. Could you tell me more about that?

REFERENCES

OUTDOOR RECREATION AMONG ADULTS WITH DD

References

- Alesi, M., & Pepi, A. (2017). Physical activity engagement in young people with down syndrome: investigating parental beliefs. *Journal of Applied Research in Intellectual Disabilities, 30*, 71-83.
- Americans With Disabilities Act of 1990, Pub. L. No. 101-336, 104 Stat. 328 (1990).
- Aras, D & Ewert, A. (2016). The effects of eight weeks sport rock climbing training on anxiety. *Acta Medica Mediterranea, 32*, 223-230.
- Armitano, C. N., Lamont, L. S., Clapham, E. D., & Audette, J. G. (2015). Benefits of surfing for children with disabilities: A pilot study. *Palaestra, 29*(3), 31-34.
- Ashburner, J., Ziviani, J., & Rodger, S. (2008). Sensory processing and classroom emotional, behavioral, and educational outcomes in children with autism spectrum disorder. *American Journal of Occupational Therapy, 62*, 564-573.
- Aquatic and community recreation. (2020). Retrieved from <https://nationalindustryinsights.aisc.net.au/industries/sport-fitness-and-recreation/aquatic-and-community-recreation>
- Badia, M., Orgaz, B. M., Verdugo, M. A., Ullan, A. M., & Martinez, M. M. (2011). Personal factors and perceived barriers to participation in leisure activities for young and adults with developmental disabilities. *Developmental Disabilities, 32*, 2055-2063.
- Bandura, A. (1997). *Self-efficacy: the exercise of control*. New York: W.H. Freeman and Company.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Bar-Mor, G., Bar-Tal, Y., Krulik, T., & Zeevi, B. (2000). Self-efficacy and physical activity in adolescents with trivial, mild, or moderate congenital cardiac malformations. *Cardiology in the Young*, 10(6), 561-566
- Barr, M., & Shields, N. (2011). Identifying the barriers and facilitators to participation in physical activity for children with Down syndrome. *Journal of Intellectual Disability Research*, 55, 1020–1033.
- Bascom, G. W. & Christensen, K. M. (2017). The impacts of limited transportation access on persons with disabilities' social participation. *Journal of Transport & Health*, 227-234. DOI: 10.1016/j.jth.2017.10.002
- Bedini, L. A. (2000). Just sit down so we can talk: Perceived stigma and the pursuit of community recreation for people with disabilities. *Therapeutic Recreation Journal*, 34, 55-68.
- Bogardus, L. M. (2012). The bolt wars: A social worlds perspective on rock climbing and intragroup conflict. *Journal of Contemporary Ethnography*, 41(3), 283-308.
- Brown, L.C. (2013). Stigma: an enigma demystified. In Davis, L.J. (Eds.), *The disability studies reader*, (4th ed). (pp. 147-160). Routledge.
- Bull, M. J., & Committee on Genetics. (2011). Clinical report - health supervision for children with down syndrome. *American Academy of Pediatrics*, 128(2), 393-406.
- Bureau of Economic Analysis. (2017). How will Outdoor Recreation be defined?
Retrieved from <https://www.bea.gov/help/faq/1194>

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Bureau of Labor Statistics U.S. Department of Labor. (2020). *Persons with a disability: Labor force characteristics - 2019*.
- Burk, B. N., & Sharaievska, I. (2017). Health and recreation perceptions of adults with developmental disabilities. *Therapeutic Recreation Journal, 11*(3), 179-192.
- Burns, R. C., & Graefe, A. R. (2007). Constraints to outdoor recreation: Exploring the effects of disabilities on perceptions and participation. *Journal of Leisure Research, 39*(1), 156-181.
- Butterworth, J., Smith, F. A., Hall, A.C., Migliore, A., Winsor, J., & Domin, D. (2014). *StateData: The national report on employment services and outcomes*. Institute for Community Inclusion.
- Carlson, L. (2003). Rethinking normalcy, normalization, and cognitive disability. In Harding, S. & Figueroa, R. (Eds.), *Science and other cultures: Issues in philosophies of science and technology*. (pp. 154-171). Routledge.
- Caldwell, K. (2014). Dyadic interviewing: A technique valuing interdependence in interviews with individuals with intellectual disabilities. *Qualitative Research, 14*(4), 488-507.
- Carmeli, E., Ariav, C., Car-Yossef, T., Levy, R., & Imam, B. (2012). Movement skills of younger versus older adults with and without down syndrome. *Research in Developmental Disabilities, 33*, 165-171. DOI: 10.1016/j.ridd.2011.09.008
- Carter, M. J., & Van Andel, G. E. (Eds.). (2020). *Therapeutic recreation: A practical approach* (5th ed.). Long Grove, IL: Waveland Press, Inc.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Casey, N., O'Broin, D., & Collins, B. (2009). Research article: The meaning of the experience of kayaking for persons with spinal cord injury. *The Irish Journal of Occupational Therapy*, 37(2), 29-36.
- Caton, S., Chadwick, D., Chapman, M., Turnbull, S., Mitchell, D., & Stansfield, J. (2012). Healthy lifestyles for adults with intellectual disability: Knowledge, barriers, and facilitators. *Journal of Intellectual & Developmental Disability*, 37(3), 248-259.
- Cavanaugh, L. K., & Rademacher, S. B. (2014). How a SURFing social skills curriculum can impact children with autism spectrum disorders. *The Journal of the International Association of Special Education*, 15(1), 27-35.
- Center for Disease Control and Prevention. (2019). Developmental disabilities. Retrieved from <https://www.cdc.gov/ncbddd/developmentaldisabilities/features/increase-in-developmental-disabilities.html>
- Charmaz, K. (2008). *Introducing Qualitative Methods: Constructing Grounded Theory : A Practical Guide Through Qualitative Analysis*.
- Charmaz, K. (2006). *Constructing grounded theory: a practical guide through qualitative analysis*.
- Christensen, M. S., Jensen, T., Voigt, C. B., Nielsen, J. B., & Lorentzen, J. (2017). To be active through indoor-climbing: An exploratory feasibility study in a group of children with cerebral palsy and typically developing children. *BMC Neurology*, 17(112), 1-20.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Clapham, E. D., Lamont, L. S., Shim, M., Lateef, S., & Armitano, C. N. (2020). Effectiveness of surf therapy for children with disabilities. *Disability and Health Journal, 13*(1), 1-6.
- Cooper, S., McLean, G., Guthrie, B., McConnachie, A., Mercer, S., Sullivan, F., & Morrison, J. (2015). Multiple physical and mental health comorbidity in adults with intellectual disabilities: Population-based cross-sectional analysis. *BMC Family Practice, 16*(110), 1-11.
- Crane, L., Goddard, L., & Pring, L. (2009). Sensory processing in adults with autism spectrum disorders. *Autism, 13*(3), 215-228.
- Crawford, D. W., Jackson, E. L., & Godbey, G. (1991). A hierarchical model of leisure constraints. *Leisure Sciences, 13*, 309-320.
- Creswell, J.W. & Poth, C.N. (2018). Qualitative inquiry & research design: choosing among five approaches.
- Crotty, M. (1998). The foundations of social research: Meaning and perspective in the research process. London: Sage Publication Inc.
- Davis, L. (2013). Stigma: an enigma demystified. In Davis, L.J. (Eds.), *The disability studies reader*, (4th ed). (pp. 15-16). Routledge.
- Dekker, M. C., Koot, H. M., van der Ende, J., & Verhulst, F. C. (2002). Emotional and behavioral problems in children and adolescents with and without intellectual disability. *Journal of Child Psychology and Psychiatry, 43*(8), 1087-1098.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Devine, M.A. (2004). "Being a 'doer' instead of a 'viewer': the role of inclusive leisure contexts in determining social acceptance for people with disabilities. *Journal of Leisure Research*, 36(2), 137-159.
- Devine, M. A., & Lashua, B. (2002). Constructing social acceptance in inclusive leisure contexts: The role of individuals with disabilities. *Therapeutic Recreation Journal*, 36(1), 65-83.
- Dorsch, T. E., Richards, K. A. R., Swain, J., & Maxey, M. (2016). The effect of an outdoor recreation program on individuals with disabilities and their family members: A case study. *Therapeutic Recreation Journal*, 50(2), 155.
- Duvall, J., & Kaplan, R. (2014). Enhancing the well-being of veterans using extended group-based nature recreation experiences. *Jrrd*, 51(5), 685-696.
- Edginton, C. R., Lankford, S. L., Dieser, R. B., & Kowalski, C. L. (2017). Community parks & recreation an introduction. Urbana, IL: Sagamore-Venture Publishing.
- Emira, M., & Thompson, D. (2011). In the quest for their trust: the perceptions of families on accessing leisure services for disabled children. *Leisure Studies*, 30(1), 33-48.
- Esposito, P.E., MacDonald, M., Hornyak, J. E., Ulrich, D.A. (2012). Physical activity patterns of youth with Down Syndrome. *Intellectual and Developmental Disabilities*, 50(2), 109-119.
- Freudenberg, P., & Arlinghaus, R. (2009). Benefits and constraints of outdoor recreation for people with physical disabilities: Inferences from recreational fishing. *Leisure Sciences*, 32(1), 55-71.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Fruhauf, A., Niedermeier, M., Elliott, L.R., Ledochowski, L., Marksteiner, J., & Kopp, M. (2016). Acute effects of outdoor physical activity on affect and psychological well-being in depressed patients—A preliminary study. *Mental Health and Physical Activity, 10*, 4-9.
- Garg, R., Couture, R. T., Ogryzlo, T., & Schinke, R. (2010). Perceived psychosocial benefits associated with perceived restorative potential of wilderness river-rafting trips. *Psychological Reports, 107*(1), 213-226.
- Godbey, G., Crawford, D.W., & Shen, X.S. (2010). Assessing hierarchical leisure constraints theory after two decades. *Journal of Leisure Research, 42*(1), 111-134.
- Hartig, T., Evans, G. W., Jamner, L. D., Davis, D. S., & Garling, T. (2003). Tracking restoration in natural and urban field settings. *Journal of Environmental Psychology, 23*(2), 109-123.
- Hartig, T., Mang, M., & Evans, G.W. (1991). Restorative effects of natural environment experiences. *Environment and Behavior, 23*(1), 3-26.
- Heller, T., Hsieh, K., & Rimmer, J. (2003). Barriers and supports for exercise participation among adults with down syndrome. *Journal of Gerontological Social Work, 38*(1/2), 161-178.
- Hitti, A & Killen, M. (2015). Expectations about ethnic peer group inclusivity: the role of shared interests, group norms, and stereotypes. *Child Development, 86*(5), 1522-1537.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Jakubec, S. L., Hoed, D. C. D., Ray, H., & Krishnamurthy, A. (2016). Mental well-being and quality-of-life benefits of inclusion in nature for adults with disabilities and their caregivers. *Landscape Research, 41*(6), 616-627.
- Jo, S., Huh, C., Kosciulek, J. F., & Holecek, D. F. (2014). Comparison of travel patterns of families with and without a member with a disability. *Journal of Rehabilitation, 70*(4), 38-45.
- Jobling, A. & Cuskelly, M. (2006). Young people with down syndrome: A preliminary investigation of health knowledge and associated behaviours. *Journal of Intellectual & Developmental Disability, 31*(4), 210-218.
- Jones, D. B. (2003). "Denied from a lot of places" barriers to participation in community recreation programs encountered by children with disabilities in Maine: Perspectives of parents. *Leisure/Loisir, 28*, 49-69.
- Kapp, S. K., Steward, R., Crane, L., Elliott, D., Elphick, C., Pellicano, E., & Russell, G. (2019). 'People should be allowed to do what they like': Autistic adults' views and experiences of stimming. *Autism, 23*(7), 1782-1792. DOI: 10.1177/1362361319829628
- Link, B.G. & Phelan, J.C. (2010). Labeling and stigma. In Scheid, T.L. & Brown, T.N. (Eds.), *A handbook for the study of mental health*, (2nd Ed.). (pp.571-587). Cambridge University Press.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Mactavish, J. B., & Schleien, S. J. (2004). Re-injecting spontaneity and balance in family life: Parents' perspectives on recreation in families that include children with developmental disability. *Journal of Intellectual Disability Research, 48*(2), 123-141.
- Mahy, J., Shields, N., Taylor, N. F., & Dodd, K. J. (2010). Identifying facilitators and barriers to physical activity for adults with down syndrome. *Journal of Intellectual Disability, 54*(9), 795-805. DOI: 10.1111/j.1365-2788.2010.01308.x
- Maxwell, J. A. (2013). *Qualitative research design: An interactive approach* (3rd ed.). Thousand Oaks, California: Sage Publications, Inc.
- McAvoy, L., Smith, J. G., & Rynders, J. E. (2006). Outdoor adventure programming for individuals with cognitive disabilities who present serious accommodation challenges. *Therapeutic Recreation Journal, 40*(3), 182-199.
- McDonald, K.E., Kidney, C.A., Patka, M. (2013). ‘You need to let your voice be heard’: Research participants’ views on research. *Journal of Intellectual Disability Research, 57*(3), 216-225. DOI: 10.1111/j.1365-2788.2011.01527.x
- Mendonca, G. V., Pereira, F. D., & Fernhall, B. (2010). Reduced exercise capacity in persons with down syndrome: Cause, effect, and management. *Therapeutics and Clinical Risk Management, 6*, 601-610.
- Miller, K., Schleien, S., & Bowens, F. (2010). Support staff as an essential component of inclusive recreation services. *Therapeutic Recreation Journal, 44*(1), 35-49.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Minschew, N. J. & Hobson, J. A. (2008). Sensory sensitivities and performance on sensory perceptual tasks in high-functioning individuals with autism. *Journal of Autism and Developmental Disorders, 38*, 1485-1498. DOI: 10.1007/s10803-007-0528-4.
- Mutz, M., & Muller, J. (2016). Mental health benefits of outdoor adventures: Results from two pilot studies. *Journal of Adolescence, 49*, 105-114.
- National Institutes of Health U.S. National Library of Medicine. (2020). Prader-Willi syndrome. Retrieved from <https://ghr.nlm.nih.gov/condition/prader-willi-syndrome#>
- Phillips, K.L., Schieve, L.A., Visser, S., Boulet, S., Sharma, A.J., Kogan, M.D., Boyle, C.A., & Yeargin-Allsopp, M. (2017). Prevalence and impact of unhealthy weight in a national sample of U.S. adolescents with autism and other learning and behavioral disabilities. *Maternal and Child Health Journal, 18*(8), 1964-1975.
- Phipps, M. L. (1991). Definitions of outdoor recreation and other associated terminology. Paper presented at the National Conference for Outdoor Leaders, Public, Commercial, and Non-Profit Partnerships, 1990.
- Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of Counseling Psychology, 52*(2), 126-136.
- Raymore, L.A. (2002). Facilitators to leisure. *Journal of Leisure Research, 34*(1), 37-51.
- Rimmer, J.H., Riley, B., Wang, E., Rauworth, A., & Jurkowski, J. (2004). Physical activity participation among persons with disabilities. *American Journal of Preventive Medicine, 26*(5), 419-425.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Rimmer, J. H., Yamaki, K., Lowry, B. M. D., Wang, E., & Vogel, L. C. (2010). Obesity and obesity-related secondary conditions in adolescents with intellectual/developmental disabilities. *Journal of Intellectual Disability Research, 54*(9), 787-794.
- Rose, J., & Johnson, C. W. (2020). Contextualizing reliability and validity in qualitative research: Toward more rigorous and trustworthy qualitative social science in leisure research. *Journal of Leisure Research, 1*-21.
- Scholl, K. G., McAvoy, L. H., Rynders, J. E., & Smith, J. G. (2003). The influence of an inclusive outdoor recreation experience on families that have a child with a disability. *Therapeutic Recreation Journal, 37*(1), 38-57.
- Scholl, K. G., Glanz, A., & Davison, A. (2006). Importance-performance analysis of supportive recreation inclusion services: Community agency perspective. *Journal of Park and Recreation Administration, 24*(2), 102-124.
- Segal, M., Eliasziw, M., Phillips, S., Bandini, L., Curtin, C., Kral, T., Sherwood, N.E., Sikich, L., Stanish, H., & Must, A. (2016). Intellectual disability is associated with increased risk for obesity in a nationally representative sample of U.S. children. *Disability Health Journal, 9*(3), 392-398.
- Sharaievska, I., & Burk, B. (2018). Recreation in Families with Children with Developmental Disabilities: Caregivers' Use of Online and Offline Support Groups. *Therapeutic Recreation Journal, 52*(1).

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Shields, N., & Synnot, A. J. (2014). An exploratory study of how sports and recreation industry personnel perceive the barriers and facilitators of physical activity in children with disability. *Disability and Rehabilitation, 36*(24), 2080-2084.
- Shields, N., & Synnot, A. (2016). Perceived barriers and facilitators to participation in physical activity for children with disability: A qualitative study. *BMC Pediatrics, 16*(9), 1-10.
- van Shijndel-Speet, M., Evenhuis, H., van Wijck, R., van Empelen, P., & Echteld, M. (2014). Facilitators and barriers to physical activity as perceived by older adults with intellectual disability. *Intellectual and Developmental Disabilities, 52*(3), 175-186.
- Skokauskas, N., Sweeny, E., Meehan, J., & Gallagher, L. (2012). Mental health problems in children with prader-willi syndrome. *Journal of the Canadian Academy of Child Adolescent Psychiatry, 21*(3), 194-203.
- Solish, A., Perry, A., & Minnes, P. (2010). Participation of children with and without disabilities in social, recreational and leisure activities. *Journal of Applied Research in Intellectual Disabilities, 23*, 226-236.
- Stancliffe, R. J., Lakin, K. C., Larson, S., Engler, J., Bershadsky, J., Taub, S., . . . Ticha, R. (2011). Overweight and obesity among adults with intellectual disabilities who use intellectual disability/developmental disability services in 20 U.S. states. *American Association on Intellectual and Developmental Disabilities, 116*(6), 401-418.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Stuckey, H. L. (2013). Three types of interviews: Qualitative research methods in social health. *Journal of Social Health and Diabetes, 1*(2), 56-59.
- Sutherland, S., & Stroot, S. A. (2009). Brad's story: Exploration of an inclusive adventure education experience. *Therapeutic Recreation Journal, 43*(3), 27-39.
- Taheri, A., Perry, A., & Minnes, P. (2016). Examining the social participation of children and adolescents with intellectual disabilities and autism spectrum disorder in relation to peers. *Journal of Intellectual Disability Research, 60*(5), 435-443.
- Temple, V., & Stanish, H. (2011). The feasibility of using a peer-guided model to enhance participation in community-based physical activity for youth with intellectual disability. *Journal of Intellectual Disabilities, 15*, 209–217.
- Temple, V. A., & Walkley, J. W. (2007). Perspectives of constraining and enabling factors for health-promoting physical activity by adults with intellectual disability. *Journal of Intellectual & Developmental Disability, 32*(1), 28-38.
- The National Institute of Mental Health. (2018). Autism spectrum disorder. Retrieved from <https://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd/index.shtml>
- U.S. Department of Health and Human Services. (2018). *Physical activity guidelines for Americans, 2nd edition*. https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf#page=46.
- Vella, E., Milligan, B., & Bennet, J. (2013). Participation in outdoor recreation program predicts improved psychosocial well-being among veterans with post-traumatic stress disorder: a pilot study. *Military Medicine, 178*, 254-260.

OUTDOOR RECREATION AMONG ADULTS WITH DD

- Widmer, M.A., Duerden, M.D. & Taniguchi, S.T. (2014). Increasing and generalizaing self-efficacy. *Journal of Leisure Research*, 46(2), 165-183.
- Wilson, J. & Christensen, K. (2012). The relationship between outdoor recreation and depression among individuals with disabilities. *Journal of Leisure Research*, 44(4), 486-506.
- Woodcock, K., Oliver, C., & Humphreys, G. Associations between repetitive questioning, resistance to change, temper outbursts and anxiety in prader-willi and fragile-X syndromes. *Journal of Intellectual Disability Research*, 53, 265-278.
- Zablotsky, B., Black, L., & Blumberg, S., (2017). Estimated prevalence of children with diagnosed developmental disabilities in the United States, 2014-2016. *Centers for Disease Control and Preventions*.
- Zablotsky, B., Black, L.I., Maenner, M.J., Schieve, L.A., Danielson, M.L., Bitsko, R.H., Blumberg, S.J., Kogan, M.D., & Boyle, C.B. (2019). Prevalence and trends of developmental disabilities among children in the United States: 2009-2017. *Pediatrics*, 144(4), 1-11.
- Zachor, D. A., Vardi, S., Baron-Eitan, S., Brodal-Meir, I., Ginossar, N., & Ben-Itzhak, E. (2017). The effectiveness of an outdoor adventure programme for young children with autism spectrum disorder: A controlled study. *Developmental Medicine & Child Neurology*, 59, 550-556.