

Research Paper

Health and Recreation Perceptions of Adults With Developmental Disabilities

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Abstract

Because of the high rates of obesity among people with developmental disabilities (DD) and our limited knowledge about their perceptions of what it means to live a healthy lifestyle, it is imperative that we conduct research to expand our understanding of their attitudes towards and engagement in active recreation and healthy eating practices. Therefore, the objectives of this study were to explore (a) adults' with DD attitudes toward healthy eating and active recreation; (b) adults' with DD intentions and interests for active recreation; and (c) barriers to active recreation and healthy eating. Eighteen adults with DD (16 of whom were overweight) completed an interview. The analysis of the results was guided by Social Cognitive Theory and revealed that the participants with disabilities require additional education about what foods and activities are healthy. The participants also named several major barriers to participating in active recreation. The findings suggested a need for leisure education to focus on healthy lifestyle choices among people with DD and their social circle, including caretakers and family.

Keywords

Developmental disabilities, health, leisure education, social cognitive theory, therapeutic recreation

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Introduction

Healthy Lifestyles of Adults with Developmental Disabilities

The American Heart Association states that a healthy lifestyle includes (but is not limited to) healthy nutrition, regular physical activity, and other healthy habits, such as stress management, adequate sleep, and avoiding alcohol, cigarettes, or caffeine (Healthy Lifestyle, 2014). The benefits of a healthy lifestyle include increased energy and improved physical health (Heller, Hsieh, & Rimmer, 2008), as well as psychological improvements, including higher self-concept and self-determination (McGuire & McDonnell, 2008). Despite the recognition of the importance of following these health guidelines, many individuals experience barriers to a variety of health practices, particularly individuals with disabilities.

Specifically, adults with developmental disabilities (DD) tend to experience greater numbers of constraints to living healthy lives (Coyne & Fullerton, 2014) than the general population. Adults with DD are particularly susceptible to losing neuromuscular functioning and aerobic capacity as a result of poor physical fitness (Cuesta-Vargas, Paz-Lourido, & Rodriguez, 2011). Additionally, when adults with DD are more active, they report higher self-esteem and being in greater physical shape (Heller et al., 2008). Those who engage in more recreation and social activities also have greater independence in making personal choices (Orsmond, Krauss, & Seltzer, 2004), which allows them to feel more in control of their lives (McGuire & McDonnell, 2008). When adults with DD are physically active, they have more energy throughout the day and experience less physical pain that is often associated with comorbid symptoms related to a variety of disabilities (Heller et al., 2008).

Examining this population further, it is important to note that adults with DD comprise nearly 15% of the American population (Austin & Lee, 2013). They also vary in their engagement in active recreation and healthy eating practices due to many factors including interests, beliefs, and barriers, among others. These factors are important to note because recent research indicates that rates of obesity and overweight among adults with DD are nearly twice that of the general American public (Stancliffe et al., 2011). When considering this difference, questions are raised regarding limitations in social support systems, as well as in services and programs that engage adults with DD in active recreation and healthy eating practices.

Barriers to Active Recreation and Healthy Eating

Hsieh, Rimmer, and Heller (2014) stated that adults (≥ 18 years) with intellectual disabilities have a higher prevalence of obesity (38.3% vs. 28%) and morbid obesity (7.4% vs. 4.2%) than the general population. Factors associated with higher rates of obesity were gender (female), disability diagnosis (Down syndrome), prescribed medications (particularly the ones that cause weight gain), insufficient moderate physical activities, and increased consumption of soda pop. Moreover, individuals with DD were found to consume fast food and high amounts of fat and sugar at a more frequent rate than the general population (Rimmer & Wang, 2005) and do not meet the current health recommendations for fruit and vegetable consumption (Braunschweig et al., 2004; Draheim, Stanish, Williams, & McCubbin, 2007). An effective method of encouraging physical activity and expanding their recreation repertoire has been to expose adults with DD to a variety of active recreation opportunities (Coyne & Ful-

lerton, 2014). Unfortunately, a lack of such recreation exposure could further increase obesity rates and decrease engagement in healthy lifestyle behaviors. As was reported by adults with DD, their recreation repertoire often consists of shopping, eating out, and getting together with friends (Braun, Yeargin-Allsopp, & Lollar, 2006), indicating limited engagement in active recreation.

Several barriers serve as reasons for an unhealthy lifestyle among adults with DD, including cost of the active recreation, lack of a social network that is active, the perceptions of friendliness of the other participants, and lack of doctor's recommendations to be more active (Bergier, Bergier, & Kubinska, 2010). For example, the CDC (2016) stated that adults with disabilities are 82% more likely to be physically active if their doctors recommended physical activities, compared to those without a doctor's recommendation. However, only 44% of adults with disabilities who visited a doctor in the past year received recommendations to be physically active (CDC).

Companionship for active recreation is also limited among adults with DD. Social circles of adults with DD are often limited to parents or group home staff, which has further limited individuals' engagement in active recreation. A study by Heller et al. (2008) stated that many people with DD felt they did not have anyone who could teach them the skills needed to recreate properly. Active participation in recreation with friends or significant others has been linked to a higher quality of life (Duvdevany & Arar, 2004) and increased self-efficacy toward physical activity during recreation time (Peterson et al., 2008).

Another barrier that has limited engagement in active recreation and healthy living pursuits among individuals with DD is a lack of employment and financial freedom. According to a National Core Indicators report, only 14.7% of people with DD were engaged in paid employment activities in the community with most of them earning minimum wages or less (National Core Indicators Report, 2012). In addition to providing financial independency, employment may be a source of companionship and an expanded social circle.

Other factors that negatively impact active recreation opportunities among people with DD are limited leisure education programs, an overly protective attitude among caregivers (Heller et al., 2008), and a lack of activities that are thought to be interesting (Mahy, Shields, Taylor, & Dodd, 2010). While many of these barriers are real issues in lives of people with DD, in some cases, the perception of a barrier can be as serious of a constraint as a real limitation. A deeper examination of cognition is one way to consider the complexities of the health-related behaviors of adults with DD and to provide researchers and practitioners with information needed to address these barriers and health concerns.

Social Cognitive Theory

Bandura (2001) stated, "The capacity to exercise control over the nature and quality of one's life is the essence of humanness" (p. 1). According to this statement, individuals play an active role in their life circumstances and do not just merely react to them (Bandura, 2012). Also important to Social Cognitive Theory (SCT) is the social nature of behavior that is shaped not only by an individual's competency but also environmental influences, namely other individuals, as well. These environmental or external influences include those individuals who are around us whether they are friends, family, neighbors, or co-workers. SCT suggests that through observation

of others' behaviors, a person can gain knowledge that will in turn influence his or her own behaviors (Bandura, 2012). Thus, our behaviors are shaped not only by our understanding of our own behaviors and their consequences, but also our behaviors are influenced by the actions of those around us.

Recognizing this shaping of behavior, Bandura (2012) stated that we must examine human actions in four ways: intentionality, forethought, self-reactiveness, and self-reflection to better understand why people may behave in certain ways and to predict future behaviors. Moreover, according to Bandura, people also can monitor and reflect on their behaviors. Applying SCT to this study, we can consider people's intentions to be more active or eat healthy, as well as their plan to engage in these behaviors in the future. For example, a person could take it upon him- or herself to pack a healthy lunch for work, as well as plan to continue this behavior for the remainder of the week. Then, throughout the week, the individual could keep track of his or her ability to pack the lunch, and at the end of the week reflect on his or her healthy eating behaviors. Through this reflection, the person could examine perceived self-control and successful achievement of the goal, and take steps to correct behavior that is determined to be in need of altering.

Following Bandura's suggestion that behavior could be corrected through the process of monitoring and regulation, people who eat healthy and are involved in active recreation on a regular basis have developed the ability to monitor and regulate these behaviors. Conversely, obesity and other health concerns related to a lack of healthy eating or active recreation is the result of inability to monitor and regulate one's behaviors (Boekaerts, Zeidner, & Pintrich, 1999). In addition to understanding monitoring and regulation processes, engagement in healthy activities requires interest in those activities. Without interest in healthy activities, an individual is not motivated to engage in the behavior correction process. Boekaerts et al. (1999) stated, "When a skill or its outcomes are not perceived as valuable, there is no incentive to self-regulate" (p. 27). Thus, creating or identifying a person's interest in an activity, especially healthy eating and active recreation, is an important first step in encouraging behavior change.

When applying SCT to the population of this study, it appears that individuals with DD are at a disadvantage in the context of eating healthy and being active through recreation. First, individuals with cognitive disabilities, including developmental disabilities, may face challenges when setting goals, controlling their impulses, or adequately assessing their skills and behaviors. Therefore, they may set unrealistic goals for recreation and healthy eating before considering whether they have the ability to accomplish them. Second, this population is also more likely to be overly critical of their abilities and have greater potential of abandoning engagement in health-related activities if success is not immediately acknowledged (Boekaerts et al., 1999). However, previous research on education and behavioral modeling for adults with DD has suggested that goal-setting can lead to greater self-regulation and active pursuit of healthy activities (Boekaerts et al., 1999). Providing opportunities for education and positive behavioral modeling could be done in therapeutic recreation (TR) settings because of the link between goal development and recreation in TR practices. In light of this, we felt it was imperative to conduct research to gather data on the perceptions and knowledge of health behaviors, specifically active recreation and healthy eating practices, among adults with DD. Our research was conducted to inform future health-focused therapeutic recreation programs and services.

Method

Participant Selection

After the project was reviewed and approved by an Institutional Review Board (IRB), the first author reached out to several leisure agencies in rural communities that provide services for adults with disabilities. The two agencies that took part in the study were located in Northeastern United States rural communities with similar population size (approximately 19,000 residents) (U.S. Census Bureau, 2015). The agencies provided services for individuals with intellectual and developmental disabilities by offering opportunities for inclusion and community integration in all aspects of their lives, including leisure, health evaluations, work opportunities, and transportation. Two agency staff dietitians (one at each location) assisted with participant recruitment and were present during the interviews. The participants were identified by the staff members as potential interviewees because they expressed interest in being part of the study during dietetic appointments and could legally self-advocate.

Eighteen participants completed the study (12 at Center A and 6 at Center B). Participants were recruited until the point of saturation was reached (Charmaz, 2010). There were 11 females and 7 males ranging in age from 19 to 60, all of whom indicated their race was Caucasian. The dietitians indicated that all participants had mild to moderate developmental delays. Additionally, 16 participants were overweight, and two did not have any weight concerns, as indicated by dietitian responses to the question “Does this person have a weight problem?” Seventeen participants communicated by spoken language with one individual using written responses during the interviews. All the participants were mobile in their environments, with one individual using the assistance of a wheelchair. The participants lived in group-homes, independent residences, or in a residence with family members. All of the participants received 24-hour on-site support for daily activities. Table 1 summarizes demographic information about each participant.

Assessments and Measures

The qualitative method was chosen to give voice to those who are often silenced or have others speak for them. According to Beail and Williams (2014), conducting research that uses qualitative methods “plays a valuable role in informing us about the experiences and lives of people who have an intellectual disability” (p. 88). Furthermore, Atkinson (2010) indicated that conducting qualitative research with individuals with DD should be more widely accepted since this population is capable of describing their life experiences and the intricacies of these experiences.

The interview script allowed the participants to tell and describe their personal stories about their active recreation and healthy eating interests and perceptions. The interview script was developed then shared with the dietitians for review and comment. The dietitians felt the questions were appropriate for the participants and no changes were made to the original script. The interview script included the following questions: (a) What does it mean to be healthy? Do you believe you are healthy? (b) How do healthy people act? What do they do to stay healthy? (c) Is being healthy fun? Is it difficult? (d) Where can you go to be healthy or learn about recreation activities in your town? (e) Who helps you to be healthy? Do you get to choose what you eat or the recreation activities you want to participate in? (f) What types of recreation activities

do you enjoy? and (g) Would you be interested in learning more about how you can eat healthy or some recreation activities in your town?

Table 1

Participant Profiles

Participant (Pseudonym)	Gender	Age	Living Arrangements	Weight Status	Method of Communication
Christy	Female	29	Independent residence	No weight concern	Spoken
Dinah	Female	19	Lives with parents	Overweight	Spoken
Harold	Male	49	Group home	Overweight	Spoken
Jerry	Male	37	Lives with parents	Overweight	Spoken
Jillina	Female	53	Group home	Overweight	Spoken
Jodi	Female	37	Independent residence	Overweight	Spoken
Luke	Male	40	Lives with parents	No weight concern	Spoken
Marie	Female	51	Group home	Overweight	Spoken
Mark	Male	50	Group home	Overweight	Spoken
Nancy	Female	41	Independent residence	Overweight	Spoken
Ralph	Male	57	Independent residence	Overweight	Spoken
Renee	Female	26	Independent residence	Overweight	Written notes
Robbie	Male	33	Group home	Overweight	Spoken
Stacy	Female	27	Group home	Overweight	Spoken
Teresa	Female	60	Group home	Overweight	Spoken
Toni	Female	38	Group home	Overweight	Spoken
Veronica	Female	52	Independent residence	Overweight	Spoken

The first author conducted 30-minute interviews with participants during a dietetic meeting, after each participant signed the consent form. All participants were given a \$15 Walmart gift card for their participation. The interviews were not recorded because none of the participants felt comfortable with this approach. Therefore, the first author completed detailed notes. After the interviews were completed, the dietitians were asked to make suggestions, changes, or add additional information to the detailed interview notes. In a few cases, the dietitians indicated that some active recreation programs mentioned by the participants were not physically active. For example, bowling for some included playing on an iPad, and swimming included standing or sitting in a pool or hot tub. This quality assurance measure was used to ensure credibility of the data gathered. Additionally, previous research indicates that qualitative data gathered from individuals with DD have greater validation when used to develop themes and understanding of their experiences, rather than when researchers attempt to interpret their thoughts (Beail & Williams, 2014). Thus, we used the data as an opportunity

to have the participants describe their interests and perceptions. We used this as an opportunity to learn from the participants and develop themes from their thoughts, rather than attempting to interpret their stories.

The notes taken during the interviews were typed and analyzed for emergent themes associated with SCT. Pseudonyms were given to each participant to protect their privacy. The methods suggested by Huberman and Miles (1998) were used as a guide to code the notes. One author chose notes from two interview sessions and developed an initial codebook. Another author coded all the transcripts, adding, merging, and refining the themes that emerged from the data. The authors then met to reach agreement on all codes. Notes and themes from the interviews were shared with the dietitians at each agency to gather feedback. The dietitians did not add any additional information to the analyzed data.

Results

Interview data revealed two themes related to the social cognitive theory concepts of intentionality, forethought, self-reactiveness, and self-reflection (Bandura, 2012): (a) defining a healthy lifestyle and (b) barriers to healthy eating and active recreation.

Defining a Healthy Lifestyle

The participants shared a variety of factors that helped them determine what it meant to be healthy. They reported that a person's appearance could show whether or not he or she was healthy. Seventeen participants (one chose not to answer the question) felt that being "skinny" was a key identifier to determining a person's health. As Toni said, "You can tell if people are healthy by looking at them. Healthy people are slim weight or skinny. Their clothes aren't tight. You see these people exercising." Teresa also considered health and its absence to be easily noticeable. She said, "You can tell if a person is healthy by looking at them. [The presence of an] oxygen tank or walker says that they are not healthy. Hearing aids and braces are not healthy. [If they] smell like smoke, [they are] not healthy." Six other participants indicated that being healthy meant the absence of a mobility device such as a walker or wheelchair.

The participants indicated that eating healthy foods, especially fruits and vegetables, was important to being healthy. For example, when talking about what it meant to be healthy, Jodi stated, "eating carrots, strawberries, turkey, and salad." Teresa shared that being healthy meant "eating tomatoes, carrots, asparagus, broccoli, celery, cauliflower, and beans and drinking water for lunch." Christy also shared the following, "Yes, I am healthy. I eat peanut butter and jelly, not a lot of pizza because it is too greasy, sloppy Joe's, spaghetti and it has to have sugar in the sauce because I have digestive issues." The participants also indicated a misunderstanding of the role that food preparation plays in determining whether a food was healthy, as revealed in the quote by Dinah, "Eating certain kinds of foods is healthy, like apples. I recently ate apple donuts at [local apple orchard]." Harold mentioned eating fried mushrooms and cauliflower as he enjoyed eating vegetables. Marie mentioned her plan to purchase "eggplant and cucumbers next week" to aid in her pursuit of a healthy lifestyle, recognizing this was a behavior in which she was not routinely engaged.

The participants also shared their thoughts on recreation activities they participated in, which revealed a limited understanding of what activities were considered beneficial for their health. For example, Mark identified bowling as being one of his ac-

tive recreation activities. However, the dietician reported that Mark referred to an iPad game. Nearly all (17) participants reported walking around house, hospital, or in the aisles of local grocery stores as active recreation that kept them healthy. Toni believed that she was healthy because she had ridden a bike a few years ago and was currently saving money to buy one in the future. Ralph reported that he was healthy because he lifted weights in high school, which was in 1997.

Only one participant, Teresa, mentioned emotional and mental health as a part of being healthy. She said, "Average or normal people could have something wrong in their mind or not be as intellectual," making them unhealthy. Unfortunately, she felt that emotional and mental health were limitations for her, and considered praying and speaking to a higher power to be beneficial for her health. She also believed that healthy people "move fast and have a higher intellect" and because she currently used a wheelchair as a mobility device, she was not healthy either.

Barriers to Healthy Eating and Active Recreation

Being healthy was often described as challenging because it required a great deal of planning, focus, and effort. For example, Veronica explained that a sedentary lifestyle was hard to overcome, "It's hard because you have to force yourself to get up and away from the TV. If you have been unhealthy for so long, it is hard to change." Ralph also described exercise as being difficult rather than enjoyable. He said, "It's hard to be healthy because of exercise. I wish there was technology to let you eat whatever you want and not gain weight." The temptation to eat unhealthy food was also mentioned by Robbie, "Yes, it is hard: when you go shopping, it is tempting to get chips, soda, and candy."

In response to the request to share both their passive and active recreation interests, the participants listed such pursuits as swimming, horseback riding, softball, basketball, playing video games, and watching television. Despite their interests, most of the participants were not regularly participating in active recreation. For example, five participants reported having not engaged in any active recreation in the past year, with ten reporting recreation engagement once or less each week in the past year. Two participants reported engaging in recreation activities more than four times each week. Only one participant recreated at a center or park/trail in their community. For 16 of the participants, active recreation was walking.

While being active in recreation and eating healthy foods were perceived to be challenging, the participants mentioned that their work environments and social circles made behavior changes more difficult. For example, Veronica explained that it was harder for her to stay healthy at work because she could eat whatever she desired while there due to less oversight by caregivers. In other cases, the influences of the participants' family members also limited their ability to be healthy. Robbie shared, "I want to learn about ways to stay away from bacon because my brother eats a lot of this. [My] family is always offering [taunting] me poor foods because this is the way they eat." Veronica agreed with the importance of social support and explained, "Fat people could be healthy if they get help but this will depend on who they live with and if those people want to be healthy too." She also said that her mother and grandmother helped her make healthy choices, while Luke shared that his parents take him to yoga and to the park so he can walk and run. Stacy mentioned that some of the people that live in her group home will go to the local recreation center to swim and play basketball, and

she joined them when she is available. Moreover, participants mentioned that if they had someone to walk or exercise with they would find these activities more appealing.

Six participants indicated having little freedom and control over making choices about their activities and food preparation as a barrier to healthier behavior. When talking with Ralph about how he stays healthy and makes healthy choices, he shared, “I am not allowed to touch the stove. The workers make the food for me.” He went on to share that lack of freedom impacts his active recreation as well because he does not have much control over his day-to-day activities.

The participants named several other barriers to their participation in active recreation and healthy eating habits including costs of recreation (12 out of 18 participants); lack of awareness about where to go to be active (10 out of 18 participants); and lack of transportation to get to and from activities (nine out of 18 participants). The interviewees had limited knowledge of opportunities for active recreation in their communities or were uncertain how to register for programs. As Veronica explained, she would like to acquire a membership to the YMCA but she did not know “how to get the process started to get a deal on the membership.” The participants reported having the skills needed to be active (13 participants) but lacked information they needed to be more engaged.

Limited time was identified as a barrier to active recreation engagement as well, although the participants and the dietitians differed on their perceptions of this barrier. Participants felt that their schedules did not allow them to get involved in recreation because they worked 20 hours each week. For example, Robbie said that there was a fitness center next to his house, but he was too busy to go. Toni reported that it was difficult for her to learn about being healthy because she lived in a rural area with little access to public transportation. However, the dietitians stated that none of the participants were constrained by time and that they would greatly benefit from using their free time to engage in active recreation.

Discussion

Data gathered in this study allowed us to explore how adults with DD define behaviors that are indicative of a healthy lifestyle and to gain more insight into perceived barriers they face to be more engaged in healthy eating and active recreation behaviors. We specifically sought out this population to be more actively involved in research because it has the potential to impact services provided to them. The data from this study also provided us with important information on intentions, knowledge, and interests in healthy living, including healthy eating and active recreation, among people with DD (Bandura, 2012).

By sharing their stories, the participants indicated a need for more education on behaviors in which to engage to lead a healthier lifestyle. While the participants did not state this directly, this need is inferred from their perceptions of healthy lifestyle shared with us. For example, the participants felt that certain foods (e.g., apple doughnuts, fried mushrooms) are healthy because they included a fruit or vegetable in name or as an ingredient. The data also revealed a lack of understanding or knowledge about which recreation programs are active. Participants felt that active recreation included activities that provided an alternative to watching television, despite the level of physical exertion involved (e.g., iPad bowling, sitting in a hot tub). SCT suggests that a

precursor to inciting behavior change is knowledge (Bandura, 2012), and the results of this study suggest that adults with DD do not have sufficient information to guide their eating and activity choices.

The findings of this study provide additional insight into the obesity epidemic that seems to be affecting more adults with DD than the general population (Stancliffe et al., 2011). Previous research indicates that adults with DD are more likely to eat foods that are unhealthy, particularly fast food, and are not meeting the daily recommendations of fruit and vegetable intake (Braunschweig et al., 2004; Draheim et al., 2007). This could be explained by a lack of understanding of the nutritional value variations that exist in various food preparation techniques.

Another key result of this study was the identification of a number of barriers to healthy eating and active recreation and the uniqueness with which these participants experienced them. As shared by the participants, healthy behaviors were difficult to pursue and required a great deal of focus that needed to be constantly monitored. According to SCT, intentionality and forethought are among the main predictors of behavioral change (Bandura, 2012). Intentionality to be active is an important element to a healthy lifestyle. A lack of intention to be healthy could place further limitations on engagement in these types of behaviors in the future.

In addition to intention to make a behavioral change, SCT suggests that an individual must perceive himself or herself to have an ability to make these changes (Bandura, 2012). Participants of this study reported little to no feeling of control over their eating behaviors and recreation activities due to the influence of their social circles (work environment, family members) and dependency on caregivers. Thus, a lack of perceived control further compounded their efforts to be more active and eat healthier foods. In light of this understanding, we see as previous research suggested, adults with DD respond positively to guidance in developing plans to engage in healthier behaviors (Boekaerts et al., 1999). This study expands on previous research by providing a baseline understanding of specific health behaviors, eating practices and active recreation among population with DD. The findings of this study can inform the development of healthy lifestyle plans for adults with DD, and allow us to decrease barriers to healthy eating and active recreation.

Practical Implications

The findings of this study have important implications on the practice of therapeutic recreation and leisure service programs provided for adults with DD. Such practical implications include food preparation programs and materials, opportunities to autonomously engage in recreation services for caregivers and families, and outreach by leisure service agencies to individuals with disabilities. Leisure education programs could provide individuals with DD with health information on which foods (types and method of preparation) and activities (types and intensity) lead to healthy lifestyle. Food preparation programs and materials could include recipes and tips on how to cook food to preserve taste and nutritional value. Such programs could also utilize an assessment as a way to determine the level of knowledge participants have about a healthy lifestyle.

Research has indicated that adults with DD who regularly participate in recreation

feel more independent (McGuire & McDonnell, 2008). Thus, recreation participation could have important implications on perceived control needed to lead healthy lifestyles through the development of achievable goals. According to Anderson and Heyne (2012), focusing on a person's strengths and abilities can improve his or her health and well-being, and ultimately provides the autonomy necessary to be actively involved in healthy practices. The findings of this study suggest that health-related programs should focus on the skills and knowledge a person has, as well as to encourage him or her to build on those skills and knowledge through guided goal development. Moreover, these programs could develop techniques to encourage monitoring and self-evaluation of their engagement in activities associated with healthy lifestyle (Shank & Coyle, 2002).

While the design of recreation programs is very important, people must be aware of the programs before they can reap the benefits. Therefore, more targeted marketing by leisure service providers could expand adults' with DD knowledge, intentionality, and most importantly, engagement in active recreation. Additionally, the information about cost reduction opportunities for participants who are unable to afford the regular fees should be highlighted. If active recreation is perceived as accessible, fun, and valuable for health maintenance, individuals with DD are more likely to participate in it more consistently (Deci & Ryan, 2000).

Due to its social nature, recreation could also broaden the social circles of individuals with DD and increase opportunities for companionship. Recreation professionals may facilitate development of friendships among participants of the programs by using sociometry, circles of friends, and cooperative learning techniques (Anderson & Heyne, 2012). Active recreation is also an avenue to provide opportunities for positive social interactions (Peterson et al., 2008) that may foster a change of attitudes toward healthy eating and active recreation behaviors.

Limitations and Future Research

While the current study provides additional information on the beliefs and attitudes of adults with DD regarding active recreation and healthy eating habits, there were several limitations. First, when working with individuals with DD, it is important to recognize that each person's abilities and cognitive delays vary, which can influence understanding of the interview questions. Moreover, a person's ability to assess his or her beliefs and attitudes may also vary, which can introduce a challenge while providing recommendations for appropriate interventions and programs. Despite some limitations, this research provides voice to individuals who are often silenced and offers a snapshot of their reality. It also has potential to inform therapeutic recreation practice to create leisure education programs and help adults with DD to better assess their beliefs, attitudes, and behaviors, as well as to overcome barriers that prevent them from being healthy. Beail and Williams (2014) suggested, "Qualitative methods have played a role in bringing the unknown about people who have intellectual disability into the known" (p. 93).

A second limitation of this study is interviewer bias. In this study, only one author interviewed the participants, which could have an impact on the way results were interpreted. To ensure accurate representation, the first author closely reviewed all

themes developed from the data and ensured that both authors were in agreement.

A third limitation of this study is related to the development of the interview guide by the authors in consultation with the dietitians at both agencies. This method of instrument development may have accounted for errors or misunderstanding of the stories told by participants due to researcher and dietitian bias. Future research should consider including adults with DD in the instrument development (Beail & Williams, 2014).

In conclusion, it is important to continue research that explores the health habits and active recreation interests of adults with DD by seeking input from these individuals (Atkinson, 2010). It is critical to include the participants to better assess their level of understanding of healthy behaviors and use this information to create more effective interventions. It is also important to objectively measure their actual engagement in healthy behavior and compare it to perceived engagement. Ongoing community-based participatory research could continue to allow practitioners to offer programs that can increase active recreation engagement and ultimately increase healthy lifestyles among those with developmental disabilities.

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