

UNDERSTANDING REASONS FOR PARTICIPATION AND BARRIERS WITHIN
ADAPTIVE SPORTS FOR INDIVIDUALS WITH PHYSICAL DISABILITIES

by

Makenna Brianne Kim, CTRS, B.S.

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Committee Members:

Allie Thomas, Chair

Shelby Sharpe

John Farrell

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ABSTRACT

Research has shown support for engaging in physical activity, exercise, and sports for years, but has not always included individuals with physical disabilities. Adaptive sports have shown a wide variety of benefits for individuals with disabilities, including mental health improvement, physical, and psychosocial aspects. Additionally, individuals with physical disabilities have numerous barriers preventing participation in adaptive sports that have been identified, including financial limitations, physical limitations, and various environmental barriers. Previous research has inquired about the benefits of adaptive sport engagement for individuals with physical disabilities and the barriers they face, but few researchers focus specifically on the perspectives of the participants who engage in adaptive sports. Facilitators of adaptive sports programs must take into consideration the opinions of the participants they serve in order to enhance and maintain engagement. Therefore, the purposes of the current investigation were to explore (1) motivators for individuals with physical disabilities to engage in adaptive sports and (2) barriers to participation in adaptive sports for individuals with physical disabilities. The current investigation employed a retrospective design utilizing an ethnographic qualitative research approach. Reasons for participation in adaptive sports and barriers faced were identified and coded into themes. Results revealed that common reasons for participation in adaptive sports are due to the enjoyment of recreation, the physical and mental health benefits, the positive peer interactions, and other reasons, which align with previous research. Common barriers reported included medical complications, being busy with schedule conflicts, issues surrounding transportation, equipment issues, and other barriers, which also align with previous research. Implications for practice include adaptive sports programs evaluating the efficacy of providing transportation options and increasing the number of programs across more geographic

locations. Furthermore, programs need to consider the cost of adaptive sports equipment, and that individuals may not be able to afford the appropriate equipment. Lastly, the need for standardized assessments regarding the adaptive sports skill level is needed in order to avoid the issue of feeling that sports are too rough, being scared to participate because of a wide skill gap, or not knowing which sport would be the most applicable to participate in. Having a standardized assessment that can funnel an individual into the most applicable and beneficial adaptive sport will vastly increase the benefits of participating in adaptive sports, and may assist in decreasing many of the barriers. Opportunities for future research include developing assessments to determine appropriate sport(s) for individuals based on the facility's goals, and more importantly, the individual's personal goals and ability level. Other opportunities for future research include looking into trends between specific diagnoses and reasons for participation in adaptive sports to better facilitate programs. Intentional programming can then in turn assist in minimizing barriers to participation in adaptive sports for individuals with physical disabilities. Lastly, future research should also explore the difference in benefits between individuals with physical disabilities participating in individual adaptive sports to those participating in team adaptive sports.

I. INTRODUCTION

Adaptive sports are competitive or recreational sports for individuals with disabilities. There are a wide variety of adaptive sports offered in the community and competitive leagues, including, but not limited to archery, baseball, basketball, cycling, goalball, golf, powerlifting, sit volleyball, sled hockey, swimming, tennis, track and field, and rugby (Move United, 2021). There are also a multitude of different individuals that participate in adaptive sports, all with varying disabilities, including visual impairments, traumatic brain injury, limb amputations, cerebral palsy, and spinal cord injury.

Research has shown support for engaging in physical activity, exercise, and sports for years, but has not always included individuals with disabilities until recently (Aho et al., 2022, Ballas et al., 2022). Adaptive sports is one area of physical activity that researchers are beginning to focus on, and have initially shown benefits for individuals with disabilities, including mental health improvement, physical, and psychosocial aspects. Previous research has inquired about the benefits of adaptive sport engagement for individuals with disabilities, but few researchers identify the perspectives of the athletes and participants (Aho et al., 2022; Roberts et al., 2021). In the few studies that exist, there are barriers to participation that participants have identified, such as financial limitations, physical limitations, environmental barriers, and more (Ballas et al., 2022; Cottingham et al., 2016; Marques & Alves, 2021). However, these studies had limited sample sizes, with many of them having less than 25 participants (Aho et al., 2022; Ballas et al., 2022; Cottingham et al., 2016). This current investigation will not only add to the dearth of literature surrounding the perspectives of individuals with physical disabilities and their participation in adaptive sports, but also improves the quality of data by providing a larger sample size (n=104).

There are numerous benefits for understanding individuals with disabilities' experiences during adaptive sports programs and events, such as advanced understanding for practitioners about adaptive sports engagement from the athlete's perspective. Increased understanding about barriers faced when actively participating or wanting to participate in adaptive sports would also be a benefit. Providing evidence to practitioners about adaptive sports experiences and how those experiences affect participation in adaptive sports can be a helpful tool when developing best practices for individuals with disabilities that engage in adaptive sports. Identifying the factors that influence adaptive sport engagement for individuals with physical disabilities is necessary for professions to advance critical understanding of the individuals we serve. The purpose of this research study is to explore (1) motivators for individuals with physical disabilities to engage in adaptive sports and (2) barriers to participation in adaptive sports for individuals with physical disabilities.

Specific Aims

Specific Aim One

From the perspective of individuals with physical disabilities who engage in adaptive sports, what are their reasons for participating?

Hypothesis: Individuals with physical disabilities participate in adaptive sports for physical and mental health benefits, as well as socialization.

Specific Aim Two

From the perspective of individuals with physical disabilities who engage in adaptive sports, what reasons are preventing them from participating?

Hypothesis: Individuals with disabilities who engage in adaptive sports have difficulties participating due to barriers such as financial restrictions, geographic location, medical complications related to their diagnoses, and/or difficulties with scheduling.

II. LITERATURE REVIEW

With many of the leading causes of death in the United States relating to heart disease, cancer, and stroke, the importance of participating in physical activity is widely advocated for (Centers for Disease Control and Prevention [CDC], January 2023). Recommendations and guidelines for physical activity can often be easily acquired with the accessibility of the Internet, books, and talking with a healthcare provider. The benefits of physical activity are widely known, including preventing diseases and cancers, as well as improving mental health and quality of life (CDC, August 2023). Quality of life can include several facets, including overall health, comfort, satisfaction, and happiness regarding an individual's experiences and life (Teoli & Bhardqaj, 2023). However, for individuals with physical disabilities, the need for and the benefits of physical activity can be greater, as a large number of these individuals are overweight and/or have secondary health conditions such as diabetes, chronic pain, fatigue, social isolation, and respiratory difficulties that also impact their health and well-being (Martin, 2013).

Physical disabilities can be classified in three different dimensions: impairment, activity limitation, and participation restrictions (CDC, 2020). Body structure can be defined as the anatomical structures of the body; impairments in an individual's body structure or function can include loss of limb(s), loss of vision, and limited mobility ("Body structure", 2008). Activity limitation refers to difficulties hearing, seeing, or walking and can include having accessibility issues, lack of assistive devices, or needing adaptations in order to participate. These adaptations could include providing wheelchairs or walkers, glasses, hearing aids, or other assistive devices. Participation restrictions generally refer to restrictions in normal daily activities, such as working, engaging in social and recreational activities, and obtaining health care (CDC, 2020). Physical disabilities can be congenital, meaning an individual has had a physical disability since

birth, or acquired, having since sustained an injury that led to permanent disability. Common physical disabilities include spinal cord injury, cerebral palsy, stroke, spina bifida, arthritis, muscular dystrophy, amputations, and visual impairments.

Recently, researchers have begun to look more into the required levels of physical activity for individuals with physical disabilities and the implications of participating in physical activity. At this time, research does not currently provide clear guidelines on required levels of activity for individuals with physical disabilities with much work left before a clearer understanding of the impact of physical activity for this population (Aho et al., 2022; Roberts et al., 2021). The following sections will explore knowledge related to the current understanding of the benefits of physical activity for individuals with physical disabilities, adaptive sports, and the benefits and barriers of participating in adaptive sports for individuals with physical disabilities.

Benefits of Engaging Physical Activity for Individuals with Physical Disabilities

Physical activity can cover a wide range of exercises and activities, including walking, dancing, cycling, swimming, yoga, or any other bodily movement generated by skeletal muscles and requires the use of energy (World Health Organization, 2022). There are several benefits that physical activity can provide for individuals with physical disabilities, including physical, psychosocial, and mental health improvement.

Physical Benefits

Physical activity can have a multitude of long-term benefits for individuals with physical disabilities (CDC, August 2023). Primary long-term benefits of sustained physical activity for individuals with physical disabilities are increased muscular strength and overall fitness, such as power output, body composition, and cardiorespiratory fitness (Malone et al., 2012; Martin, 2013; van der Scheer et al., 2017). Other benefits of physical activity for individuals with

physical disabilities consist of improved cardiovascular health (Malone et al., 2012; van der Scheer et al., 2017), flexibility and mobility (Malone et al., 2012), and stamina (Malone et al., 2012). Decreased pain is another commonly reported effect of physical activity participation for individuals with physical disabilities (Ditor et al., 2003). These benefits can greatly impact the quality of life for individuals with physical disabilities, as it improves their ability to function and perform activities of daily living (ADLs), such as dressing, cooking, shopping, and bathing. Furthermore, an improved feeling of physical health and wellness and a decreased sense of pain can then in turn positively impact an individual's mental health (Philippot et al., 2019).

Mental Health Benefits

Mental health often broadly refers to an individual's psychological and emotional well-being. Across the United States, an estimated 17.4 million adults with disabilities report frequent mental distress, such as anxiety and/or depression (Cree et al., 2020). The prevalence of reported mental distress among those with disabilities, 32.9%, was 4.6 times greater than those without disabilities, 7.2%, (Cree et al., 2020). Engaging in physical activity provides several benefits for individuals with physical disabilities, including increasing positive affect, such as feelings of happiness, joy, and motivation (Martin, 2013). Physical activity also shows decreases in stress (Martin, 2013; Ditor et al., 2003) and depression (Herring et al., 2017; Martin, 2013). Improvements in these areas can decrease suicidal ideations and improve quality of life for individuals with physical disabilities by finding happiness despite one's situation.

Psychosocial Benefits

Psychosocial factors are characteristics that influence an individual either socially or psychologically, which can describe how one's social environment impacts their physical and mental health (Thomas et al., 2020). There are multiple psychosocial benefits to health for

individuals with physical disabilities, such as self-esteem (Hutzter & Bar-Eli, 1993; Martin, 2013) and self-efficacy (Hutzter & Bar-Eli, 1993; Martin, 2013). Self-esteem is related to how an individual values themselves and refers to one's opinions and beliefs about themselves; self-efficacy is an individual's belief in their capacity to execute the behaviors needed to perform a task well (Tesser, 2004; Vancouver et al., 2018). Self-improvement, or the effort to improve one's character, status, or knowledge, is also a benefit of participating in physical activity for individuals with physical disabilities (Hutzter & Bar-Eli, 1993; Swanson et al., 2008). Likewise, social acceptance, or being included in groups and relationships with other people, is another benefit of physical activity (Hutzter & Bar-Eli, 1993).

Adaptive Sports

Participating in adaptive sports is one of the ways that many individuals with disabilities participate in physical activity, as adaptive sports are known to improve self-image, mobility, group integration, and general health and well-being, among other benefits (Eime et al., 2013; Shores et al., 2015; Tudor & Tudor, 2013). Adaptive sports, sometimes known as para sports, are competitive or recreational sports for individuals with physical disabilities. Adaptive sports can often be confused with inclusive sports programs such as Special Olympics or Unified Sports, however, there are important differences between the two; inclusive programs are dedicated towards working with individuals that have intellectual disabilities, such as Autism Spectrum Disorder or Down Syndrome (Special Olympics, 2023). While adaptive sports can encompass individuals with intellectual disabilities, the athletes generally those with a primary diagnosis of one or more physical disabilities. Inclusive sports provide individuals with intellectual disabilities the opportunity to participate alongside their able-bodied peers, while adaptive sports

make modifications to make sports accessible for athletes with disabilities (Disability Sport, 2014; Special Olympics, 2023).

Recreational sports are often those that an individual participates in purely for their enjoyment and occurs during their free time; competitive sports are those that have stricter rules and regulations and often require traveling to larger tournaments to compete for rankings. For some competitive adaptive sports, there is a classification system to group athletes by their functional ability levels (Children's Hemiplegia and Stroke Association, 2015; International Paralympic Committee, n.d.). This classification system groups individuals with similar functional ability levels together in order to allow competition between athletes to be as fair as possible. One example is differentiating between the level of spinal cord injury, which impacts an individual's mobility level. There are a variety of individuals that participate in adaptive sports, all with different disabilities, including visual impairments, traumatic brain injury, limb amputations, cerebral palsy, and spinal cord injury. There are a multitude of adaptive sports offered in the community and in competitive leagues, including, but not limited to archery, basketball, cycling, goalball, sit volleyball, swimming, tennis, and rugby (Move United, 2021).

Individual Sports

Individual sports are those that do not require two or more individuals on the same team in order for the sport to occur. There are many individual sports that individuals with physical disabilities can participate in, which require varying levels of movement and mobility. Sports such as air rifle, archery, boccia, bowling, cycling, fencing, golf, track and field, kayaking, martial arts, skiing, rowing, powerlifting, and swimming are common sports offered by different programs (International Paralympic Committee, n.d.; Move United, 2021). Individuals with physical disabilities can participate in these sports using a wheelchair, power wheelchair,

prosthetics, or other mobility aids. In addition, many of these sports have specific categories and adaptations for those with visual impairments. For example, for running, some individuals may independently race, while others will utilize a sighted guide.

Team Sports

Team sports are those that require two or more individuals on the same team for the sport to occur. Common team sports include badminton, sitting volleyball, table tennis, wheelchair basketball, wheelchair rugby, wheelchair tennis, wheelchair baseball, power soccer, pickleball, and sled hockey (International Paralympic Committee, n.d.; Move United, 2021). Among the different adaptive team sports, there are also a variety of sports that were invented specifically for those with visual impairments, including beep baseball and goalball.

Benefits to Participating in Adaptive Sports

Adaptive sports can provide many of the benefits of physical activity for individuals with disabilities. Improvements in physical, psychosocial, and mental health are all possible benefits for those who participate in adaptive sports.

Physical Benefits

Overall improved health (Jaarsma et al., 2014; Stephens et al., 2012), strength (Bates et al., 2019; Jaarsma et al., 2014; Stephens et al., 2012), stamina (Stephens et al., 2012), management of pain (Stephens et al., 2012), and management of body weight (Stephens et al., 2012) were all benefits associated with participating in adaptive sports. In a survey by the CDC, 12.5 million individuals reported they had chronic pain and a disability (Rikard et al., 2023). Management of body weight and chronic pain can impact daily functioning, as individuals are more likely to be active and participating in recreation when not dealing with mobility issues related to pain or weight; strength and stamina are two factors that can directly relate to pain and

mobility (Tse et al., 2011). More specifically related to physical disabilities, researchers found that participation in adaptive sports plays a large factor in changes in body position, which is a critical factor in managing pain and other complications related to physical disabilities, such as pressure sores and issues with blood circulation (Jaarsma et al., 2014). The previously discussed benefits when participating in adaptive sports can greatly impact the daily functioning and quality of life of individuals with physical disabilities.

Mental Health Benefits

As previously stated, the prevalence of mental distress among those with disabilities is 4.6 times greater than those without disabilities (Cree et al., 2020). Participation in adaptive sports has shown to provide many mental benefits for individuals with physical disabilities and can improve positive affect by providing an emotional outlet (Jaarsma et al., 2014; Stephens et al., 2012) and providing a distraction from daily life (Stephens et al., 2012). Providing opportunities for an emotional outlet and escape from daily life where individuals with disabilities often face many barriers to accessibility, adaptive sports can offer relief that decreases stress and improves quality of life (Isidoro-Cabanas et al., 2023).

Psychosocial Benefits

Benefits in the psychosocial domain can positively impact an individual's mental health as well. Psychosocial benefits from participating in adaptive sports include improved communication skills (Bates et al., 2019), resilience (Bates et al., 2019), self-worth (Stephens et al., 2012), self-identity (Bates et al., 2019) and a sense of belonging or sense of being a part of a community (Bates et al., 2019; Groff et al., 2009; Stephens et al., 2012). Improving communication skills and providing opportunities that offer individuals a space where they can feel a sense of belonging allows for improvements in mental health by allowing formations of

support systems and decreases in social isolation (Bates et al., 2019). Participating in adaptive sports can foster these benefits, as being included on an adaptive sports team can create support systems and feelings of belonging. Adaptive sports can also improve communications skills for individuals with physical disabilities, as adaptive sports often require working with peers on team skills, similar tasks, and conflict resolution. Similarly, playing on an adaptive sports team allows not only the chance to win competitions, but also to lose, and in the safe space of an adaptive sports program, this loss can assist in fostering resilience for individuals with physical disabilities.

Barriers to Participating in Adaptive Sports

While there are numerous benefits to participating in physical activity, and more specifically in adaptive sports, individuals with physical disabilities often face a multitude of barriers. Barriers can be anything that prevents access for an individual, whether that be a physical, perceptual, cultural, language, or interpersonal barrier. Common barriers for individuals with physical disabilities that are reported include fatigue (Jaarsma et al., 2015; Jaarsma et al., 2014), disability-related medical complications (Bates et al., 2019), pain (Jaarsma et al., 2015), and fear of injury (Ascondo et al., 2023). Issues related to pain can significantly prevent individuals with physical disabilities from participating in adaptive sports, as adaptive sports may exacerbate the pain, making it difficult to perform activities of daily living. Similarly, fear of getting injured while participating in adaptive sports can also prevent participation, as individuals with physical disabilities may prioritize being able to work or perform daily tasks over a recreational activity.

Environmental barriers such as lack of transportation (Jaarsma et al., 2015; Jaarsma et al., 2014; Stephens et al., 2012), financial difficulties (Ascondo et al., 2023; Stephens et al., 2012), lack of time (Ascondo et al., 2023; Jaarsma et al., 2015; Stephens et al., 2012), and a lack of adaptive sports programs or a lack of facilities that can host adaptive sports programs (Bates et al., 2019; Jaarsma et al., 2015;

Jaarsma et al., 2014) are many of the other frequently reported barriers for individuals with physical disabilities. A lack of accessible public transportation can be one aspect of this environmental barrier, however, a lack of any public transportation in the area, regardless of accessibility, is another facet of issues with transportation. Financial barriers can refer to either a lack of jobs available for individuals with physical disabilities, or that jobs that are available for individuals with disabilities often have low wages. Financial barriers could even be related to the fact that adaptive sports equipment is often expensive. Lastly, there is a lack of adaptive sports programming across the United States, which can prevent many individuals with physical disabilities from participating. This can be due to a lack of accessible facilities, or a lack of organizations that are willing to plan and facilitate these adaptive sports programs.

III. METHODS

Design of Study

This study is a retrospective design utilizing an ethnographic qualitative research approach. Archival data from Morgan's Wonderland Sports: South Texas Regional Adaptive & Para Sports (STRAPS) program was analyzed about individuals who engage in adaptive sports. This study was approved through the Institutional Review Board (IRB) at Texas State University #9037 on July 2023.

Facility

Morgan's Wonderland is an ultra-accessible™ theme park that was built in 2010. Morgan's Wonderland is based in San Antonio, Texas and is the first and only theme park designed with individuals with disabilities and special needs in mind but is ultra-inclusive for all individuals to participate (Morgan's Wonderland, 2023). Within the organization, there is Morgan's Wonderland Sports: South Texas Regional Adaptive & Para Sports (STRAPS), which organizes and facilitates various adaptive sports specialized for wounded service members, veterans, other adults, children, and adolescents with physical disabilities, but all individuals are able to participate and are not required to have a disability (Morgan's Wonderland Sports, 2021). STRAPS provides a multitude of sports focused classes, recreational programs, competitive sports, and events such as functional fitness, goalball, sitting volleyball, power soccer, wheelchair rugby, wheelchair soccer, wheelchair football, wheelchair basketball, wheelchair softball, boccia, track and field, pickleball, and wheelchair tennis. Some programs are special events held throughout the year, while others are weekly practices.

Sample

All participants reported a physical disability and were enrolled in the STRAPS program at one point between 2015 and when the survey was collected in 2022. There were 329 athletes on the roster to contact, however, 175 individuals did not respond. Among the 154 responses, 34 responses were excluded due to being under the age of 18. Then, an additional 16 were excluded from the analysis after reporting that they had moved to another location, either in state or out of state. For the purpose of this study, 104 responses were analyzed. For ethnographic research, saturation occurs between 10-30 participants (Durdella, 2019). Though the sample was much larger than 30 participants, it was determined necessary to retain a larger sample size for the purpose of gaining the perspectives of all participants at Morgan's Wonderland Sports: STRAPS.

Procedures

Participants were invited to answer the survey through a semi-scripted phone-call interview with STRAPS recreational therapy and occupational therapy student interns. If participants did not answer after two attempts, a Google Survey form was sent out. Data was then recorded in a Microsoft Excel spreadsheet by the STRAPS interns. Questions are the same regardless of the method used to complete the survey. Data were de-identified using pseudonyms before the analyses began.

Questionnaire

The STRAPS program evaluation survey consisted of 16 questions. The purpose of the survey was based on the needs of the facility to receive more validated feedback backed in evidence regarding why individuals with disabilities participate in adaptive sports and what sports they are participating in. A partnership was formed between Texas State University and

STRAPS to research the most appropriate questions; questions were formulated according to a review of the current literature regarding evidence-based practices for adaptive sports programs (Aytur et al., 2018; DiVincenzo, 2013; Lape et al., 2018).

This research study analyzed 3 of the survey questions. The questions selected for analyses were chosen based on the specific aims and hypotheses for this study and a thorough review of the literature. Table 1 provides the survey questions and interview guide. Questions used in this study were open-ended, allowing the participants to more accurately describe their motivations behind participating in adaptive sports and what barriers are preventing their participation.

Table 1

STRAPS Survey and Interview Guide

<i>Thank you for taking my call, we want to know about your experiences with our programs here at Morgan’s Wonderland Sports-STRAPS and check in to see how you are doing? Would you be willing to chat with me today, this should take about 10 minutes?</i>
Question 1: First and Last Name
Question 2: Date of Birth
Question 3: Zip Code
Question 4: Current Military Status
Question 5: Diagnosis (all that apply)
Question 6: If other, please identify what diagnosis or condition(s) you have?
Question 7: On a scale of 1 (being very poor) to 5 (being excellent), how are you doing? If they indicate ‘poor’ or ‘very poor’, please answer Question 8
Question 8: Can you please explain a little more about your response to how you are doing?
Question 9: Are you participating in MWS-STRAPS programs currently? If YES-Question 10a If NO-Question 10b
Question 10a: Let us know <u>why</u> you are participating?
Question 10b: Let us know <u>why</u> you aren’t? What barriers keep you from participating?
Question 11: Has anything changed in your life that makes it difficult to come to programs?
Question 12: What MSW-STRAPS programs are you currently participating in?
Question 13: What other recreation or sport programs would you be interested in MSW-STRAPS offering, can include existing programs or new programs?

Thank the participant for their time and willingness to answer the questions. Mention that you look forward to seeing them in future programs!

Data Collection

This study is a retrospective design utilizing an ethnographic qualitative approach of archival data from the STRAPS program about individuals who engage in adaptive sports. All participants were previously enrolled in the STRAPS program when the survey was collected.

The participants were given the same survey regardless of disability or age. The participants filled out the survey via either a semi-structured scripted phone interview with the STRAPS interns or Google Survey form; data was then recorded in a Microsoft Excel spreadsheet. The questions were the same regardless of the method used to complete the survey. The survey questions were fill-in-the-blank, choose all that apply, open-ended, with one question that used a Likert scale.

To explore these questions, it is important to gain the athletes' perspective of their experiences with adaptive sports. Through an ethnographic qualitative approach, survey-design data was retrospectively analyzed to learn about why individuals with physical disabilities engage in adaptive sports, and what barriers to participation they face.

Data Analysis

Archival data from the STRAPS program was de-identified before looking at themes and trends in the data. Themes were first open-coded to explore similarities and differences between athlete's responses (Creswell & Poth, 2018). After open coding, axial coding was used to restructure the data by making reasonable connections between the categories (Strauss & Corbin, 1990). Lastly, selective coding was used to choose a core category and systematically compare it

to other categories to verify the relationship (Strauss & Corbin, 1990). From the coded categories, themes were chosen through thematic analysis (Creswell & Poth, 2018). Data was synthesized once themes were chosen about athletes’ reasons for participating in adaptive sports and barriers they face. The survey data was provided to the researchers through email and downloaded after being received from the STRAPS recreational therapist through the collaboration partnership that had previously been formed. After de-identifying information, the data was processed and analyzed through Microsoft Excel.

To address the specific aims and hypotheses for this study, the following were addressed.

This study was designed to address the following specific aims and hypotheses:

Specific Aim One

From the perspective of individuals with physical disabilities who engage in adaptive sports, what are their reasons for participating?

Hypothesis 1. Individuals with physical disabilities participate in adaptive sports for physical and mental health benefits, as well as socialization.

Analysis Plan for Aim 1. See Table 2 for an itemized categorization of questions to address Aim 1 and hypothesis.

Table 2

Specific Aim 1 and Hypothesis and STRAPS Questions

Specific Aim 1 and Hypotheses	Variables and Survey Question
<i>Specific Aim 1:</i> From the perspective of individuals with physical disabilities who engage in adaptive sports, what are their reasons for participating?	

<p>Hypothesis 1: Individuals with physical disabilities participate in adaptive sports for physical and mental health benefits, as well as socialization.</p>	<p>Reasons for Participation</p> <ul style="list-style-type: none"> • If you are participating, then let us know why?
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Specific Aim Two

From the perspective of individuals with physical disabilities who engage in adaptive sports, what reasons are preventing them from participating?

Hypothesis 2. Individuals with physical disabilities who engage in adaptive sports have difficulties participating due to barriers such as financial restrictions, geographic location, medical complications related to their diagnoses, and/or difficulties with scheduling.

Analysis Plan for Aim 2. Please see Table 3 for an itemized categorization of survey questions to address Aim 2 and hypothesis.

Table 3

Specific Aim 2 and Hypothesis and STRAPS Questions

Specific Aim 2 and Hypothesis	Variables and Survey Questions
<p>Specific Aim 2: From the perspective of individuals with physical disabilities who engage in adaptive sports, what reasons are preventing them from participating?</p>	
<p>Hypothesis 2: Individuals with physical disabilities who engage in adaptive sports have difficulties participating due to barriers such as financial restrictions, geographic location, medical complications related to their diagnoses, and/or difficulties with scheduling.</p>	<p>Barriers to Participation</p> <ul style="list-style-type: none"> • If you are not participating in MWS-STRAPS programs please let us know why? What barriers keep you from participating? • Has anything changed in your life that makes it difficult to come to the programs?

Trustworthiness

To check for accuracy of coding categories, the committee chair reviewed 100% of the data and one committee member reviewed 20% of the data. The graduate researcher, committee chair, and committee member compared their findings while conferring on the preliminary codes to check for themes and connections between the coding categories. This allowed the graduate researcher to establish trustworthiness within the data.

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Makenna Kim, MSRLS, CTRS
Texas State University
Department of Health and Human Performance

Allie Thomas, Ph.D., CTRS
Texas State University
Department of Health and Human Performance

Shelby Sharpe, Ph.D., CTRS
Texas State University
Department of Health and Human Performance

John Farrell III, Ph.D., CSCS, CPSS
Texas State University
Department of Health and Human Performance

Introduction

Many of the leading causes of death in the United States are related to heart disease, cancer, and stroke, so the importance of participating in physical activity is widely advocated (Centers for Disease Control and Prevention [CDC], January 2023). Recommendations and guidelines for physical activity can often be acquired with the accessibility of the Internet, or through books and talking with a healthcare provider. The benefits of physical activity are widely known, including preventing diseases and cancers, as well as improving mental health and quality of life, including overall health, comfort and happiness regarding and individual's experiences and life (CDC, August 2023; Teoli & Bhardqaj, 2023). However, for individuals with physical disabilities, the need for and benefits of physical activity can be greater, as a large number of these individuals also have secondary health conditions, such as obesity, diabetes, chronic pain, respiratory difficulties, and social isolation that impact their health and well-being (Martin, 2013).

Recently, researchers have begun to look more into the required levels of physical activity for individuals with physical disabilities and the implications of participating in physical activity, further investigation is needed before fully understanding the benefits (Aho et al., 2022; Roberts et al., 2021). Participating in recreational and/or competitive sports is one of the ways that many individuals with disabilities participate in physical activity, as adaptive sports are known to improve self-image, mobility, group integration, and general health and well-being, among other benefits (Eime et al., 2013; Shores et al., 2015; Tudor & Tudor, 2013).

Adaptive sports are competitive or recreational sports for individuals with disabilities; for some competitive adaptive sports, there is a classification system to group athletes by their functional ability levels (Children's Hemiplegia and Stroke Association, 2015; International

Paralympic Committee, n.d.). There are numerous adaptive sports offered in the community and in competitive leagues, including, but not limited to archery, basketball, cycling, goalball, sit volleyball, swimming, tennis, track and field, and rugby (Move United, 2021). There are a variety of individuals that participate in adaptive sports, all with varying diagnoses, such as visual impairments, traumatic brain injury, limb amputations, cerebral palsy, and spinal cord injury, as well as other diagnoses.

Research has shown support for engaging in physical activity, exercise, and sports for years, but has not always included individuals with disabilities. Adaptive sports have shown a multitude of benefits for individuals with disabilities, including mental health improvement, physical, and psychosocial aspects. Previous research has inquired about the benefits of adaptive sport engagement for individuals with disabilities, but few researchers identify the perspectives of the athletes and participants (Aho et al., 2022; Roberts et al., 2021). Additionally, there are barriers to participation that have been identified, such as financial limitations, physical limitations, environmental barriers, and more (Ballas et al., 2022; Cottingham et al., 2016; Marques & Alves, 2021). There are several benefits for understanding individuals with disabilities' experiences during adaptive sports programs and events, for example, advanced understanding for practitioners about adaptive sports engagement from the athlete's perspective and increased understanding about barriers to participation in adaptive sports.

Identifying factors that influence adaptive sport engagement for individuals with disabilities is necessary for professions to advance critical understanding of the individuals we serve. The purpose of this research study is to explore (1) reasons that individuals with disabilities engage in adaptive sports and (2) why individuals with disabilities do not participate in adaptive sports. Specific Aim 1 (SA1): From the perspective of individuals with disabilities

who engage in adaptive sports, what are their reasons for participating (ethnographic)?

Hypothesis: We hypothesize that individuals with disabilities participate in adaptive sports for physical and mental health benefits, as well as socialization. Specific Aim 2 (SA2): From the perspective of individuals with disabilities who engage in adaptive sports, what reasons are preventing them from participating (ethnographic)? Hypothesis: We hypothesize that individuals with disabilities who engage in adaptive sports have difficulties participating due to barriers such as financial, geographic location, physical ability/pain, and/or attitudes of others regarding disabilities.

Methods

Design of Study

This study is a retrospective design utilizing an ethnographic qualitative research approach. Archival data from an adaptive sports program in the southern region of the United States was analyzed regarding individuals who engage in adaptive sports.

Facility

The adaptive sports program organizes and facilitates various adaptive sports specialized for wounded service members, veterans, other adults, children, and adolescents with physical disabilities, but all individuals can participate. They also provide multiple sports focused classes, recreational programs, competitive sports, and events. Some programs include functional fitness, goalball, power soccer, wheelchair basketball, boccia, track and field, and pickleball. Some programs are special events held throughout the year, while others are weekly practices.

Sample

All participants reported a physical disability and were enrolled in the program at one point between 2015 and when the survey was collected in 2022. There were 329 athletes on the roster to contact, however, 175 individuals did not respond. Among the 154 responses, 34 responses were excluded due to being under the age of 18. Then, an additional 16 were excluded from the analysis after reporting that they had moved to another location, either in state or out of state. For the purpose of this study, 104 responses will be analyzed. In ethnographic research, 10-30 participants is determined to have reached saturation (Durdella, 2019). It was determined necessary to retain the larger sample size in order to gain the perspectives of all participants at Morgan's Wonderland Sports: STRAPS.

Procedures

Participants were invited to answer the survey through a semi-scripted phone-call interview with the program's recreational therapy and occupational therapy student interns. If participants did not answer after two attempts, a Google Survey form was sent out. Data was then recorded in a Microsoft Excel spreadsheet by the interns. Questions are the same regardless of the method used to complete the survey. Data was de-identified using pseudonyms before the analyses began.

Questionnaire

The adaptive sports program evaluation survey consisted of 16 questions. The purpose of the survey was based on the needs of the facility to receive more validated feedback backed in evidence regarding why individuals with disabilities participate in adaptive sports and what sports they are participating in. A partnership was formed between a local university and the

adaptive sports facility to research the most appropriate questions; questions were formulated according to a review of the current literature regarding evidence-based practices for adaptive sports programs (Aytur et al., 2018; DiVincenzo, 2013; Lape et al., 2018).

This research study analyzed 3 of the survey questions. The questions selected for analyses were chosen based on the specific aims and hypotheses for this study and a thorough review of the literature. Table 1 provides the survey questions and interview guide. Questions used in this study were open-ended, allowing the participants to more accurately describe their motivations behind participating in adaptive sports and what barriers are preventing their participation.

Table 1

Adaptive Sports Survey and Interview Guide

<i>Thank you for taking my call, we want to know about your experiences with our programs and check in to see how you are doing? Would you be willing to chat with me today, this should take about 10 minutes?</i>
Question 1: First and Last Name
Question 2: Date of Birth
Question 3: Zip Code
Question 4: Current Military Status
Question 5: Diagnosis (all that apply)
Question 6: If other, please identify what diagnosis or condition(s) you have?
Question 7: On a scale of 1 (being very poor) to 5 (being excellent), how are you doing? If they indicate 'poor' or 'very poor', please answer Question 8
Question 8: Can you please explain a little more about your response to how you are doing?
Question 9: Are you participating in [our] programs currently? If YES-Question 10a If NO-Question 10b
Question 10a: Let us know <u>why</u> you are participating?
Question 10b: Let us know <u>why</u> you aren't? What barriers keep you from participating?
Question 11: Has anything changed in your life that makes it difficult to come to programs?
Question 12: What programs are you currently participating in?
Question 13: What other recreation or sport programs would you be interested in [the facility] offering, can include existing programs or new programs?

Thank the participant for their time and willingness to answer the questions. Mention that you look forward to seeing them in future programs!

Data Collection

This study is a retrospective design utilizing an ethnographic qualitative approach of archival data from an adaptive sports program about individuals who engage in adaptive sports. All participants were previously enrolled in the adaptive sports program when the survey was collected. The participants were given the same survey regardless of disability or age. The participants filled out the survey via either a semi-structured scripted phone interview or the Google Survey form; data was then recorded in a Microsoft Excel spreadsheet. The questions were the same regardless of the method used to complete the survey. The survey questions were fill-in-the-blank, choose all that apply, open-ended, with one question that used a Likert scale.

To explore these specific aims, it is important to gain the athletes' perspective of their experiences with adaptive sports. Through an ethnographic qualitative approach, survey-design, data was retrospectively analyzed to learn about why individuals with physical disabilities engage in adaptive sports, and what barriers to participation they face.

Data Analysis

Data was de-identified before looking at themes and trends in the data. Themes were first open-coded to explore similarities and differences between athlete's responses (Creswell & Poth, 2018). After open coding, axial coding was used to restructure the data by making reasonable connections between the categories (Strauss & Corbin, 1990). Lastly, selective coding was used to choose a core category and systematically compare it to other categories to verify the relationship (Strauss & Corbin, 1990). From the coded categories, themes were chosen through

thematic analysis (Creswell & Poth, 2018). Data was synthesized once themes were chosen about athletes’ reasons for participating in adaptive sports and barriers they face. The survey data was provided to the researchers through email and downloaded after being received from the adaptive sports facility’s recreational therapist through the collaboration partnership that had previously been formed. After de-identifying information, the data was processed and analyzed through Microsoft Excel.

To address the specific aims and hypotheses for this study, the following were addressed:

Specific Aim One

From the perspective of individuals with physical disabilities who engage in adaptive sports, what are their reasons for participating?

Hypothesis 1. Individuals with physical disabilities participate in adaptive sports for physical and mental health benefits, as well as socialization.

Analysis Plan for Aim 1. See Table 2 for an itemized categorization of questions to address Aim 1 and hypothesis.

Table 2

Specific Aim 1 and Hypothesis and Adaptive Sports Survey Questions

Specific Aim 1 and Hypotheses	Variables and Survey Question
<i>Specific Aim 1:</i> From the perspective of individuals with physical disabilities who engage in adaptive sports, what are their reasons for participating?	
Hypothesis 1: Individuals with physical disabilities participate in adaptive spots for physical and mental health benefits, as well as socialization.	<p><i>Reasons for Participation</i></p> <ul style="list-style-type: none"> • If you are participating, then let us know why?

Specific Aim Two

From the perspective of individuals with physical disabilities who engage in adaptive sports, what reasons are preventing them from participating?

Hypothesis 2. Individuals with physical disabilities who engage in adaptive sports have difficulties participating due to barriers such as financial restrictions, geographic location, medical complications related to their diagnoses, and/or difficulties with scheduling.

Analysis Plan for Aim 2. Please see Table 3 for an itemized categorization of survey questions to address Aim 2 and hypothesis.

Table 3

Specific Aim 2 and Hypothesis and Adaptive Sports Survey Questions

Specific Aim 2 and Hypothesis	Variables and Survey Questions
<i>Specific Aim 2:</i> From the perspective of individuals with physical disabilities who engage in adaptive sports, what reasons are preventing them from participating?	
Hypothesis 2: Individuals with physical disabilities who engage in adaptive sports have difficulties participating due to barriers such as financial restrictions, geographic location, medical complications related to their diagnoses, and/or difficulties with scheduling.	<i>Barriers to Participation</i> <ul style="list-style-type: none">• If you are not participating in [our] programs please let us know why? What barriers keep you from participating?• Has anything changed in your life that makes it difficult to come to the programs?

Trustworthiness

Two researchers reviewed 100% of the data and another reviewed 20% of the data to check for accuracy of coding categories. The three researchers compared their findings while

conferring on the preliminary codes to check for themes and connections between the coding categories. This allowed trustworthiness to be established within the data.

Results

The adaptive sports program evaluation survey was completed by 154 athletes that were enrolled in the program at any point after 2015. Among the completed surveys, 34 were excluded due to being under the age of 18, and 16 were excluded from the analyses due to reporting that they had moved to another location, either within or out of state. For the purpose of this study, 104 responses were analyzed. Among the 104 responses, 75 participants were male (average age= 41.56) and 29 participants were female (average age= 36.90). Participant's diagnoses included spinal cord injuries, visual impairment, cerebral palsy, traumatic brain injury, spina bifida, amputation(s), other diagnoses, or multiple diagnoses. Of the 104 participants, 50 reported actively participating in a STRAPS program(s), with sport including: wheelchair softball (1), wheelchair basketball (6), wheelchair soccer (2), functional fitness (4), wheelchair rugby (3), pickleball (2), wheelchair tennis (2), power soccer (4), and boccia (2). Many athletes also reported participating in multiple sports: two sports (13), three sports (7), or four sports (4). Details regarding demographics can be found in Table 4 and details regarding participation in sports can be found in Table 5.

Table 4*Demographics of Participants*

	Frequency
Gender	
Male	75
Female	29
Age	
18-22	12
23-27	10
28-32	8
33-37	16
38-42	16
43-47	11
48-52	14
53-57	10
58-62	6
63-67	2
68-72	2
Self-reported diagnosis	
Spinal Cord Injury	31
Visual Impairment	9
Cerebral Palsy	7
Traumatic Brain Injury	4
Spina Bifida	8
Amputee	13
Other	16
Multiple Diagnoses	16

Table 5*Sports Athletes Participating In*

Sport(s) participating in	Currently Participating	No Longer Participating
Basketball	6	13
Softball	1	3
Soccer	2	3
Functional Fitness	4	3
Track & Field	0	3
Rugby	3	1
Pickleball	2	1
Tennis	2	2
Power Soccer	4	4
Boccia	2	1
Sitting Volleyball	0	3
Goalball	0	5
2 sports	13	8
3 sports	7	1
4 sports	4	3
Total	50	54

Reasons for Participating in Adaptive Sports

A variety of motivators were reported among the 104 participants. A total of 94 responses were recorded, as some participants did not answer the question, and others reported several responses to the same question. These reasons for participation can be broken down into four categories, with sub-themes seen within each category. Reasons for participation include benefits to physical and mental health, as well as the psychosocial aspects of the program and staff.

Enjoyment of Recreation

One of the most reported reasons for individuals with physical disabilities participating in adaptive sports was the overall enjoyment of recreation. Ava responded that she “has fun and has

had good experiences” participating in the adaptive sports program. Another athlete, Serenity also stated that she “prioritizes fun”.

Three sub-themes emerged to help gain understanding of the different aspects of recreation individuals enjoy: enjoying the competitive aspect of adaptive sports, having a goal related to adaptive sports, and having a connection to past interests.

Competition. Some participants identified enjoying the competitive aspect of adaptive sports in their lives. Amelia stated that she “feels like she is competing again and that there is more to life”. Naomi also reported that she “enjoys the competitiveness and ‘showing off her muscles.’”

Goals. Other participants reported having various goals related to participating in adaptive sports, such as Liam who stated he “wants to be a Paralympian and thinks [the program’s] coaches can help him achieve that goal.” “Want[ing] to win a championship” is a similar goal that Hazel answered as a reason for participating in adaptive sports.

Connection to Past Interests. Lastly, participants reflected that participating in adaptive sports helped them feel connected to recreation that they had completed before their diagnosis or injury. Elijah was one respondent who stated that participating in adaptive sports “makes him feel like he’s able to do the things he used to be able to do.” Another participant, Zoey, said sports was “something she did prior to diagnosis and she enjoys it.”

Health Benefits

Many participants strongly reported on the positive health benefits that adaptive sports had to offer. Two sub-themes related to health benefits emerged: physical benefits and mental health benefits.

Physical. A major portion of participants reported the diverse physical health benefits that participating in adaptive sports has provided them. Madison said that she “enjoys being able to move, staying healthy, and [being] active.” Along the same lines, Chloe reported that she “loves sports and it helps her maintain her physical health.”

Mental. Likewise, the mental health benefits of participating in adaptive sports were often mentioned in responses. Adaptive sports were described as therapeutic, and Chloe said that it also helps her “maintain her mental health.”

Peer Interaction

Interacting with others is another frequently reported aspect of participating in adaptive sports. Two sub-themes emerged within peer interactions, with participants frequently stressing the importance of interacting with others.

Socialization. Lucas said he “enjoys the game [and] being on a team.” Similarly, Chloe reported that she enjoys “getting out in the community [and] getting involved.” This sub-theme was saturated with various references to having the opportunity to socialize with others.

Acceptance/Inclusive Community. A sense of acceptance in an inclusive community was another frequently reported theme within peer interactions. Ava responded that she “feels like she can be herself and doesn’t have to explain herself, [and] feels fully accepted here.” Scarlett answered similarly, stating that she “enjoys hanging out with athletes that have similar conditions.”

Program/Staff

Positive interaction with STRAPS staff members or the overall program is one theme that was often mentioned among participants. Luca mentioned that STRAPS is an “amazing program.” Likewise, Aaliyah specifically stated that “[staff member] is awesome!”

Other

There were a number of other responses that did not fit any themes, but are worth noting. Daniel mentioned that participating in adaptive sports “keeps him out of trouble,” while Amir said that he “[has] nothing better to do with his time.”

Barriers to Adaptive Sports

A total of 135 different barriers were reported. Some participants did not report any barriers, but others reported multiple barriers preventing their participation in adaptive sports. Types of barriers reported included transportation, medical, and scheduling issues, among others.

Medical

Concerns regarding medical complications were a significant barrier to several participants. Scarlett stated that she “sometimes has health issues.” Similarly, Kinsley stated that she “stopped [participating] in power soccer and boccia when she got pregnant.” Within the theme of medical concerns, three sub-themes emerged.

Surgery. Lainey, among many other participants stated that she was “recovering from surgery.” Noah was another participant, who responded that he “recently had shoulder replacement surgery, so he is trying to lay low for now.”

Pain. Pain related to “back and shoulder problems” was Oliver’s response to what barriers were preventing his participation in adaptive sports. Eleanor was one of many other participants dealing with pain as a barrier, and reported a “pressure sore” when asked about her lack of participation.

Covid. While COVID-19 halted many different programs across the world, including adaptive sports, many participants had not started participating in adaptive sports programs again in 2022. Logan is one such participant, who reported that he “stopped when covid hit.”

Busy

General busyness was another heavily saturated theme among the participants as a barrier to participation in adaptive sports. This can be seen with Jack’s response, who mentioned “changes in his schedule” as a barrier. Within the theme of being busy, four sub-themes emerged.

School & Work. Willow stated that she “started a full-time job, [and is] busy with work. Ella also shared that her “work schedule makes it difficult to come to boccia practice.” Among the sub-themes, being busy with school or work was the most reported barrier.

Family. Samuel stated “just hanging out with family” as a reason for not participating in adaptive sports. Additional family-related busyness impacted Lucy, as she mentioned she had “recently [been] engaged.”

Other Leisure & Volunteering. Other leisure programs or time spent volunteering was another significantly reported response as a barrier to participation in adaptive sports. Being “busy with Special Olympics” was a reason reported by William. Luke also reported volunteering as a reason for not participating in adaptive sports, as his “volunteer work has taken

over.” However, Julian answered that he “found another organization” as to why he was not participating in adaptive sports at the facility.

Timing of Program Conflict. Maverick was one individual that specifically stated that the “time of practice conflicts” as to why he was not participating in adaptive sports. Similarly, Ethan reported he “wish[ed] programs were after 5 pm or on weekends.”

Lost Interest/Motivation

Having a lack of interest or lack of motivation to participate in adaptive sports was one barrier reported by Mila, who answered that she’s “not interested in anything.” Josiah also stated he “lacks motivation” as a reason for not participating in adaptive sports.

Transportation

Issues within transportation was another frequent barrier reported by participants. Carter was one participant, who said that “transportation is difficult.” Elijah also reported transportation as a barrier, and stated that he was “unable to drive.” Public transportation was also a barrier for individuals with physical disabilities, as Levi reported transportation as a barrier due to the fact that the “bus stop changed.”

Distance. Within issues with transportation, James stated that he “lives far” away as a source of a barrier. The “two-hour drive to [the program]” was a similar issue with transportation for Adam. Another participant stated distance as a barrier to participation was Thomas, who said that “[the program] is far from him.”

Financial. Emily, among others, specifically mentioned finances, and responded that she’s “not working right now, so [she] doesn’t want to spend money on gas.”

Equipment

Lack of access to equipment or equipment not fitting properly was a barrier that significantly impacting some participants. Ella stated that

Her chair was damaged during power soccer and [she] has not been able to get a new chair since then. [She's] having difficulty with mobility in the chairs provided at [the program and] and waiting to receive [her] personal sports chair.

Knowledge & Skill Level

Issues within the knowledge of the specific adaptive sport or skill level of the participant was a barrier that many participants voiced concerns about. Ezekiel responded, "sports are too rough." Henry was also concerned about participating in adaptive sports, when he stated that he "gets scared when playing with the men due to the fast pace." Lastly, Ayla reported not participating in the program because she was "not sure what sports would be applicable to her."

Other

Few responses did not fit within the themes that emerged for barriers to participation in adaptive sports. One barrier to participation reported was "sometimes weather keeps her from participating" according to Amelia. Other barriers reported included interpersonal conflicts within the program. This includes Matthew, who said that he "does not feel welcome and thinks there is favoritism." Another interpersonal conflict was reported by Charlotte, who "used to participate in basketball", however, she had money that was stolen by a teammate and decided to stop participating when the situation was not resolved.

Discussion

Limited research has studied the experiences of individuals with disabilities perceptions of their adaptive sport experience (Aho et al., 2022; Ballas et al., 2022; Marques & Alves, 2021; Roberts et al., 2021). To better understand how to meet the needs of individuals with disabilities, it is critical to begin with their perspectives. Therefore, this study aimed to explore the experiences of those with physical disabilities regarding what they perceived as benefits to participating in adaptive sports, as well as what barriers were preventing them from participating. Results of the study revealed a multitude of benefits to participating in adaptive sports, but also various barriers preventing those with physical disabilities from participating.

One of the most impactful benefits from the participants' perspectives was the benefits to their physical and mental health, as well as the opportunity to enjoy recreation. Having access to a program that allowed individuals with physical disabilities the opportunity to participate provided another avenue to participate in physical activity, which in turn also benefits individuals' mental health based on the number of participants that mentioned both physical and mental health benefits as reasons for participating in adaptive sports. This aligns with prior research that details both mental and physical health benefits from participating in adaptive sports, such as increased strength and stamina (Jaarsma et al., 2014) and decreased stress (Isidoro-Cabanas et al., 2023). The positive impact of socializing with others, especially peers with similar diagnoses, is also worth noting, as socialization often positively influences self-worth and self-efficacy, in addition to increasing positive affect (Hutzler & Bar-Eli, 1993; Martin, 2013).

In contrast to the many positive motivators reported by individuals with physical disabilities, there were also significant barriers. The most frequently reported responses related to

being busy. While some specific details were not always given in the responses, many participants reported issues with scheduling, participating in other activities, or being busy with school and/or work. Prior literature has not previously reported issues with the timing of the programs as a barrier from participating in adaptive sports. Another common response regarding barriers related to medical complications. Individuals with physical disabilities often have secondary health complications related to their diagnosis. Surgeries and complaints of pain can often be related to their diagnosis and hinder engagement in adaptive sports (Martin, 2013).

One of the noteworthy barriers to participating in adaptive sports that was recorded included those that dealt with issues regarding knowledge and skill level, however, there is a dearth of literature surrounding this barrier. Multiple responses regarding sports being rough, not knowing what sports to participate in, or being too intimidated to participate were responses that may connect to the issue regarding the lack of standardized assessments associated with adaptive sports and skill levels. While there is a classification system based on functional skill for many competitive adaptive sports, the system often changes. In contrast, there are not many guidelines for recreational sports, which may contribute to the issue of participating in a sport that is not appropriate for an individual's current skill level.

Results of this study suggest what factors are affecting the experiences of individuals with physical disabilities most heavily. Insights from these perceived barriers and benefits may be helpful for adaptive sports programs and those who facilitate adaptive sports when trying to organize and facilitate programs for individuals with physical disabilities. The results of this study also support the outcomes outlined in previous literature regarding benefits and barriers for individuals participating in adaptive sports with physical disabilities and demonstrate the importance of adaptive sports in improving and maintaining both physical and mental health.

Implications for Adaptive Sports Programs and Facilitators

Implications for providers of adaptive sports programs are numerous in this study. First, this study discovered the importance of having the space to enjoy recreation. Programs specifically offering adaptive sports provided an opportunity for individuals with disabilities to participate in physical activity and socialize with peers, which benefit physical, mental, and psychosocial health and provides a sense of belonging. However, the lack of available programs requires some individuals to drive far distances in order to be able to participate. In addition to long distances, if participants move to a new location, they may not have any adaptive sports opportunities at all due to the lack of adaptive sports programs offered, as well as the lack of knowledge about the existing adaptive sports programs available. Practitioners should be knowledgeable about other adaptive sports programming in order to assist participants with a transition plan to continue participation.

The lack of accessible public transportation is a factor that programs need to evaluate. Programs should determine if they can increase participation by offering transportation options for participants. The lack of adaptive equipment for individuals to utilize to participate is another aspect to be evaluated. The cost of adaptive equipment is often expensive, and individuals may not always be able to afford the equipment on their own. However, equipment that is not properly fitted for an athlete may cause more harm to the individual, so there is a need for caution in using equipment that does not properly fit. Increasing knowledge surrounding the proper adjustments and fit for adaptive sports equipment is necessary to prevent pain and injury, as well as promote continued participation. Lastly, the results suggest a need for a standardized assessment of skill level. As a result of an assessment, providers can avoid concerns or fear of sports being too rough; having a standardized assessment that can funnel an individual in to the

most applicable and beneficial adaptive sport will likely vastly increase the benefits of participating in adaptive sports, and may assist in decreasing many of the barriers.

Future Research

The multitude of benefits of adaptive sports for individuals with physical disabilities is beginning to become a topic of research, however, there is still not much known from the individual's direct experiences and opinions regarding the benefits and barriers they face (Aho et al., 2022; Roberts et al., 2021). First, more research is needed to expand this study to include more adaptive sports programs across the United States. Better understanding comparing the difference in benefits between individuals with physical disabilities participating in individual adaptive sports to those participating in team adaptive sports is warranted. Another important need for future research includes developing assessments to determine appropriate sport(s) for individuals based on the facility's goals, and more importantly, the individual's personal goals and ability level.

Limitations

This study increases the knowledge on the benefits of participating in adaptive sports and the barriers that exist for individuals with physical disabilities, however, limitations exist. Because the phone call interviews were not recorded, researchers only had access to the data recorded in the Excel spreadsheet by the adaptive sports program's interns; without the verbatim responses, some open-ended answers were not explicitly clear on their meaning. To the best of their abilities, the researchers attempted to categorize the responses into themes while avoiding bias. Furthermore, this survey was only conducted at one facility; results may vary between facilities due to differences in programs offered, geographic location, public transportation

availability, and/or accessibility of the facility. More research is needed with a sample across a wider geographic area, as it cannot be assumed that the responses may be similar across the United States. Despite this fact, the sample size is robust (n=104). Many adaptive sports programs cater to minors; one limitation of this study is that participants included were only those over the age of 18. Younger participants may report different motivators and barriers towards participation in adaptive sports than adults. Lastly, another limitation is that the survey questions were facility-specific, so they are neither generalizable nor reliable. More research is needed in order to standardize program evaluations for adaptive sports programs and facilities. Lastly, this study relies on the narratives of individuals' with disabilities personal experiences participating in adaptive sports, and the constructs created from those perspective may have been missed by the researchers in the data analysis. However, the researchers mitigated this by using reflexivity practices and member checking.

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