

EXPLORING FACTORS RELATED TO PHYSICAL ACTIVITY AND ADAPTIVE
RECREATION FOR YOUTH WITH PHYSICAL DISABILITIES

A Thesis

by

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ABSTRACT

The purpose of this study is to present a critical summary and evaluation of contemporary research on physical activity and adaptive recreation programs for youth with physical disabilities. The research questions that were asked include: 1) what are the potential benefits of and barriers to physical activity for youth with physical disabilities; 2) did the “Able, Active, Adaptive” conference increase participant awareness, knowledge, and interest of physical activity for people of all abilities; 3) what are the benefits of and barriers to physical activity for a family with a child that has a physical disability?

The purpose of these studies was to use a mixed-methods approach to look at the benefits of and barriers to physical activity for youth with physical disabilities. The findings from the systematic literature review identified several benefits of physical activity 1) health benefits, 2) social benefits, 3) identity formation. There were seven barriers to participation identified 1) health, 2) lack of opportunities, 3) social environments/interactions, 4) knowledgeable coaches and staff, 5) identity formation, 6) investment.

The findings from the “Able, Active, Adaptive” conference evaluation study found that community events can be effective methods of improving the awareness of community regarding adaptive recreation. However, this study was limited and was unable to determine causality. Awareness efforts alone are only the first step in health promote, events must seek changes in behaviors, responsiveness, and engagement. This study highlights the effects of community health promotion events while also emphasizes the need for future research and practice.

The single case-study was conducted to identify the benefits of and barriers to physical activity for a child with a physical disability as understood from a parental perspective. The Positive Youth Development Five C's framework was used for thematic analysis. Many of the benefits and barriers to physical activity closely aligned with the literature review.

The studies were all limited in their approach but provided beneficial information that could be used for future research directions as well as for practitioners. The information can be used to make beneficial efforts in improving the physical activity opportunities for youth with physical disabilities.

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CHAPTER I

INTRODUCTION AND LITERATURE REVIEW

Introduction

Physical activity is essential for all individuals to maintain or improve overall health and quality of life. Physical activity and a healthy diet promote physical and mental health and lower the risk of chronic diseases (Department of Health and Human Services, 2008; Healthy People 2020). Regular participation in physical activity improves body composition, muscle strength, skeletal health, and supports the prevention or delay of chronic disease (Shields, Synnot & Barr, 2012; Johnson, 2009).

In addition to the physical benefits, participation in physical activity has shown other psychological, emotional, social, etc. benefits. Physical activity is particularly important for youth with disabilities, as it can positively impact their development, quality of life, and future health and life outcomes (Shields, Synnot & Barr, 2012). Participation in physical activity for people with disabilities has also shown to increase self-efficacy and optimism (Fasczewski, Gill, & Rothberger, 2017). Johnson (2009), has found individuals with disabilities of all ages benefit physically, psychologically, and emotionally from physical activity.

Despite ample evidence that confirms the positive outcomes of regular physical activity, there is still a lack of regular participation that poses serious health concerns for all Americans, but even more so for the estimated 52 million Americans with disabilities (Rimmer, 2005). Consequences and health concerns for physical inactivity, both for people with and without disabilities, are at higher risk of cardiovascular disease, type 2 diabetes, high blood pressure, poor circulation, obesity, and osteoporosis (Johnson, 2009). Additional serious consequences, specifically for youth with disabilities, include decreased independence and poor self-concept

(Johnson, 2009), both key facets of positive youth development. People with disabilities that have a sedentary lifestyle increase the risk of increasing the severity of their disability, secondary impairments, and erosion of involvement in community activities (Johnson, 2009; Rimmer, 2005). These secondary impairments may be by the nature of their disabilities, and may have more negative effects than the disabilities themselves (e.g. osteoporosis, osteoarthritis, decreased balance, strength, endurance, fitness, flexibility, obesity, and depression; Johnson, 2009).

There are considerable discrepancies between people with and without disabilities in the level of participation in physical activity. People with disabilities, both physical and cognitive, remain one of the most physically inactive groups in society (Rimmer, 2005). Including youth, this segment of the population is reported to be less active than their peers without disabilities peers and have less variety in their recreation and leisure activities (Rimmer, Riley, Wang, Rauworth & Jukowski, 2004; Shields, Synnot, & Barr, 2012; Johnson, 2009). The National Recreation and Park Association's Parks for Inclusion Conference states that

Half of all adults with disability get no aerobic physical activity. Obesity rates for adults with disability are 58 percent higher for people with disability than those without, and 38 percent higher for children with disability than those without. Adults with disabilities are three times more likely to have a serious chronic disease. Physical activity is four time lower for children and youth with disability than their peers without disability. (Acquino, 2017)

The lack of participation in physical activity among people with disabilities is a serious public health issue that needs to be addressed. In order to address this issue and increase participation, it is imperative to understand the reasons why people with disabilities do not participate at the same level as their peers and identify what factors that may enable or prevent their participation (Shields, Synnot & Barr, 2012). Numerous complex reasons exist for these disparities in physical activity participation between individuals with and without disabilities.

These explanations are thought to include social, cultural, and environmental factors that act as barriers to participation (Shields, Synnot & Barr, 2012). Some of these barriers or inhibitors to physical activity among people with disabilities may be caused by lack of access, lack of information on appropriate activities, lack of community support, and the nature of the individual's disability (Johnson, 2009).

Understanding the potential factors that either restrict or assist participation is imperative for parents, teachers, and health professionals, as well as those working in the health, recreation, and leisure fields who are involved in the design, organization and delivery of effective exercise opportunities (Shields, Synnot & Barr, 2012). This information is important for not only clinical intervention programs that promote physical activity, active recreation, active leisure, and exercise for people with disabilities, but for educational programs (Shields, Synnot & Barr, 2012).

Interventions play a considerable role in improving knowledge about health concerns for individuals and communities. Health promotion interventions like health fairs and community health events have shown to be effective community health outreach functions (Burton, 2009). These intervention approaches can increase health awareness and health literacy, while also promoting community participation and responsiveness to health concerns (Burton, 2009).

Improving knowledge about the benefits of physical activity for youth with disabilities is just the first step in making change. Improving awareness and knowledge on this issue can be used to improve existing or create better programs for youth with disabilities. These improvements programs could be both in- and out-of-school time facilities and promote inclusion.

Physical Activity and School

Schools can be effective settings to engage youth with disabilities in physical activity and promote a healthy life-style. There have been many legislative regulations to the school system that have sought to reduce forms of discrimination for youth with disabilities. Youth spend a majority of their time during the day and year in school, and this can be an effective setting to promote a healthy and active life style.

States and schools are legally required to provide equal opportunity to participate in physical education and extracurricular athletics by youth with and without disabilities (U.S. Department of Education, 2011).

Individuals with Disabilities Education Act (IDEA) require schools to provide a “free appropriate public education” in “least restrictive environment”. The definition of “special education” in section 602(29) of the IDEA includes instruction in physical education. Therefore, for some students with disabilities instruction in physical education may be a part of the special education services prescribed in their individualized education program (IEP). Section 504 of the Rehabilitation Act (Section 504) and Title II of the Americans with Disabilities Act (Title II) are federal civil rights laws that prohibit disability discrimination, including in public schools. Under Section 504, schools that receive Federal financial assistance must ensure that children and youth with disabilities have an equal opportunity to participate in the program or activity of the school, including extracurricular activities. Under Title II, public entities, including public schools, may not discriminate on the basis of disability in providing their services, programs, and activities (U.S. Department of Education, 2011).

Despite legislation obligating states and schools to provide equal access, opportunities for physical activity are limited for children and youth with disabilities (U.S. Department of Education, 2011). Individuals with disabilities remain one of the most physically inactive groups in society (Rimmer, 2005). Youth with disabilities are reported to engage in very little school-based physical activity, less healthy after-school activity, and more sedentary leisure activities (Rimmer & Rowland, 2007).

In spite of awareness of the risks of inactivity and obesity, there is limited research on evidence of effective practices and approaches to increase physical activity and maintain health among youth with disabilities (U.S. Department of Education, 2011). The few available research findings have not been adequately translated for application to physical education activities in schools and community settings. Therefore, states, schools, and educators often have the additional challenge of developing and implementing practices to increase participation for youth with disabilities in physical education, with a lack of research-based evidence (U.S. Department of Education, 2011)

Reducing or eliminating common barriers to participation are essential for states and school districts to increase opportunities to participate. Accessibility, equipment, professional preparation, teaching style, behavior management, program options, and curriculum are areas of concern for potential barriers to participation for youth with disabilities (U.S. Department of Education, 2011).

Legislation has made wonderful improvements in making physical education more inclusive. However, schools still face many issue in creating inclusive environments and activities that are appropriate for all students. Creating more inclusive physical education programs can promote a healthy and active life style for youth with disabilities may increase participation in other settings outside of the school.

Out-of-School Time

When youth are not in school they may participate in physical activities in other places in the community. Out-of-school time (OST) activities are supervised programs that youth regularly attend when school is not in session (Centers for Disease Control and Prevention, 2017). These programs can include before- and after- school programs such as academic programs, specialty

programs (i.e. sports teams and art enrichment), and multipurpose programs that provide an array of activities (i.e. 21st Century Community Learning Centers, Boys & Girls Clubs, YMCAs). OST programs provide youth a safe and supervised environment, support student academic achievement, and may influence the reduction of health disparities (Centers for Disease Control and Prevention, 2017).

Participation in physical activities in both in- and out-of-school programs can have incredible benefits in the overall health and wellbeing of all youth, especially those with disabilities. Physical activity can foster youth to have healthy, active, and social lives and be a context for their overall development.

Positive Youth Development

Optimal youth development enables individuals to lead healthy, satisfying, and productive life as youth, and later as adults, gain the competence to earn a living, to engage in civic activities, to nurture others, and to participate in social relations and cultural activities (Fraser-Thomas, Cote & Deakin, 2005). Youth development have been outlined in four main areas: physical, intellectual, psychological/emotional, and social (The National Research Council and Institute of Medicine, 2002).

Positive youth development (PYD) is a framework that outlines the supports all youth to be successful (Family and Youth Services Bureau, 2012). PYD programs are supportive, have high expectations, and provide youth a setting to develop positive relationships and connections (Family and Youth Services Bureau, 2012). Using youth development as a framework for physical activities is an approach that can increase youth resiliency and promote the development of critical internal and external assets (Madsen, Hicks, Thompson, 2011). Physical activity is essential for optimal youth development, as it facilitates normal growth and development

(Fraser-Thomas, Cote & Deakin, 2005). Benefits of physical activity have been shown to improve emotional wellbeing, and protect against obesity and cardiovascular disease; simultaneously, it can create natural opportunities for social interaction that strengthen resiliency (Madsen, Hicks, Thompson, 2011).

Purpose of The Study

The purpose of this study is to examine 1) the factors that influence physical activity for youth with physical disabilities, and 2) how the 2018 “Able, Active, Adaptive” conference brought community awareness of adaptive recreation for people with disabilities. The research questions for these studies are:

Study 1

1. *What are the potential benefits of and barriers to physical activity for youth with physical disabilities?*

Study 2

1. *Did the “Able, Active, Adaptive” conference increase participant awareness, knowledge, and interest of physical activity for people of all abilities?*
2. *What are the benefits of and barriers to physical activity for a family with a child that has a physical disability?*

Significance of the Study

The study will provide information on the benefits of, and consequences for lack of, physical activity as well as the barriers to participation for people with disabilities. First, the study will examine the existing literature of the factors associated with physical activity for youth with physical disabilities. Second, the study will look at how effective the Able, Active,

Adaptive conference was in increasing participant awareness of adaptive recreation. Third, the study will examine some of the benefits of and barriers to physical activity from a parental perspective for a family that has a child with a physical disability. The findings from this study will contribute to the existing literature regarding factors associated with physical activity for youth with physical disabilities and provide valuable information to address issue faced by this population.

Definitions

Disability: a person who has a physical or mental impairment that substantially limits one or more major life activity (Americans With Disabilities Act of 1990, 1990).

Physical disability: acquired or congenital and/or motor impairment such as cerebral palsy, spina bifida, muscular dystrophy, arthritis, developmental coordination disorder, amputations, genetic disorders, etc. The disability may interfere with the development or function of the bones, muscles, joints and central nervous system. The physical characteristics may include: paralysis; altered muscle tone; an unsteady gait; loss of, or inability to use, one or more limbs; difficulty with gross-motor skills such as walking or running; and/or difficulty with fine-motor skills such as buttoning clothing or printing/writing (Education and Early Childhood Development, 2018)

Physical activity: any bodily movement produced by skeletal muscles that result in energy expenditure. Physical activity in daily life can be categorized into occupational, sports, conditioning, household, or other activities. Exercise is a subset of physical activity that is planned, structured, and repetitive and has a final or an intermediate objective the improvement or maintenance of physical fitness (Caspersen, Powell, & Christenson, 1985).

Adaptive recreation and sports: any modification of a given sport or recreation activities to accommodate the varying ability levels of an individual with a disability (Lundberg, Taniguchi, McCormick, & Tibbs, 2011).

Overview of Thesis

Chapter I provides an introduction of the study and includes the study purpose, research questions, significance of the study, definitions, and organization of the thesis. In the first study, question one will be answered with a systematic literature review as presented in Chapter II. In the second study, presented in chapter III, question one will be answered through the evaluations that were administered to participants concluding the “Able, Active, Adaptive” conference. Chapter IV will answer question two in a single case study interview with a family that has a child with a disability who participates in adaptive recreation. Chapter V will be a discussion of the overall thesis and provide overall recommendations.

CHAPTER II

STUDY 1

BENEFITS OF AND BARRIERS TO PHYSICAL ACTIVITY FOR YOUTH WITH PHYSICAL DISABILITIES: SYSTEMATIC LITERATURE REVIEW

Physical activity has significant benefits for individuals with and without disabilities. Physical activity is essential for maintenance and improving overall health and quality of life. Regular participation in physical activity promotes physical and mental health (i.e. improving body composition, muscle strength, skeletal health, emotional and psychological health), while also preventing or delaying chronic diseases (Department of Health and Human Services, 2008; Fasczewski, Gill, & Rothberger, 2017; Healthy People 2020; Johnson, 2009; Shields, Synnot & Barr, 2012).

Research supports the importance of physical activity, but also recognizes the considerable differences participation between youth with and without physical disabilities (Rimmer, 2005). These disparities in physical activity are serious public health issue that needs to be addressed. Understanding the reasons why youth with physical disabilities are not as physically active as their peers and identify what factors that may enable or prevent their participation is imperative (Shields, Synnot & Barr, 2012).

In order to effectively eliminate health disparities between the youth with and without physical disabilities, efforts must be made to address issues, needs, and barriers unique to people with disabilities (Rimmer, 2005). The *Healthy People 2020* chapter “Disability and Secondary Conditions” states that higher rates of inactivity among people with disabilities may be related to environmental barriers, organizational policies and practices, discrimination, and social attitudes (Rimmer, 2005). Despite the extensive research on the benefits of physical activity, a lack of

research regarding physical activity among individuals with disabilities and the associated barriers (Boddy et al. 2015; Frey, Stanish, & Temple, 2008; Rimmer et al, 2004). These attitudinal, structural and institutional barriers must be critically examined if the goal of promoting health among people of all abilities is to be taken seriously.

Participation in physical activity can have a positive impact on development, quality of life, as well as future health and life outcomes of all individuals (Shields, Synnot & Barr, 2012). Research suggests that individuals with disabilities have lower participation levels in physical activity than their typically developing peers, less variety in recreation activities, and spend more time in sedentary recreation activities in slower tempo skills-based activities and sports. (Shields, Synnot, & Barr, 2012; Frey, Stanish, & Temple, 2008; Rimmer et al. 2004; Johnson, 2009).

The benefits of regular physical activity have been well researched. Physical activities for youth are important for children's growth and development as it has both physical and psychological benefits, such as improvements in fitness, motor coordination, overall health, self-esteem, and quality of life, while also promoting inclusion and social integration (Ahmed et al., 2018). Recreational activity like sports are one popular means for people, in particular youth, to stay physically active. Sports have been said to be an important component of U.S. culture, and can have positive health outcomes later in life for adolescents with physical disabilities. However, research shows that sport engagement is not often experienced by youth with physical disabilities. Unique obstacles related to physical disability make healthy development through sport even more difficult for this population (Piatt, Bell, Rothwell, & Wells, 2014).

Youth with physical disabilities do not have the same opportunities to engage in physical activity, like organized sports, as their peers without disabilities (Piatt, Bell, Rothwell, & Wells, 2014). Recently, more organizations are providing increases opportunities for youth with

physical disabilities to engage in sports; however, a great demand for programs within urban and rural communities still exist.

Youth with physical disabilities engage in and experience sports differently than their peers without disabilities therefore, appropriate opportunities should exist to teach skills to address sedentary lifestyles (Piatt, Bell, Rothwell & Wells, 2014). Youth with physical disabilities are twice as likely to choose sedentary activities compared to peers without disabilities and consequently, experience lower muscular endurance and cardiorespiratory fitness, increased levels of pain, depression, anxiety, and social isolation (Piatt, Bell, Rothwell & Wells, 2014; Shapiro & Martin, 2010; Murphy et al., 2008; Rimmer & Rowland, 2008).

Low physical activity levels for youth with disabilities can be attributed to the lack of awareness that sports are an option, lack of adapted equipment, high cost of programs, lack of trained activity/sport professionals, difficulty finding appropriate sport programs for functional and/or skill level, and lack of nearby facilities or programs (Piatt, Bell, Rothwell, & Wells, 2014; Taub & Greer, 2000; Gossett & Tingstom, 2017). In the United States, there are only a few communities and public schools that provide adapted sports programs and on average, most youth with physical disabilities have to drive one to two hours from home to play in an adapted sport league (Piatt, Bell, Rothwell & Wells, 2014). The deficiency of local sport programs for youth with physical disabilities in schools and communities during childhood years can lead to higher likelihood of unhealthy habits. These habits may follow individuals with disabilities into adulthood (Piatt, Bell, Rothwell, & Wells, 2014; Murphy, et al., 2008).

Lower physical activity levels among youth with physical disabilities can also have negative social implications. The lack of opportunities for adapted sports in the school system, may also reinforce the peer perspective (among peers involved in high school sports) that

adolescents with physical disabilities are not athletes. Lack of local access may also reinforce the notion that playing in an adapted sports league is a special occasion, rather than a daily experience (Piatt, Bell, Rothwell & Wells, 2014). Youth with physical disabilities are frequently excluded and are often discouraged from participating in physical activities with their peers without disabilities. Therefore, youth with physical disabilities experience not only physical barriers social barriers as well. Youth with physical disabilities have fewer opportunities to enhance physical and social skills with their peers than their peers without disabilities (Taub & Greer, 2000). Research indicates that physical activity can be a normalizing experience for youth with physical disabilities because it facilitates opportunities to enhance perceptions of their social identity and provides a setting where social networks with peers are enhanced (Taub & Greer, 2000). For youth with physical disabilities, peers may play a pivotal role in sport experiences such as by providing motivation, constructive criticism, and/or psychosocial support (Orr, Tammined, Tomasone, Sweet & Arbour-Nicitopoulos, 2018).

The purpose of this study is to present a critical summary and evaluation of contemporary research on physical activity and adaptive recreation programs for youth with physical disabilities. Special attention is directed towards examining the benefits of participation as well as the barriers and facilitators to participation. Doing so will provide a critical view of what the research on physical activity for youth with physical disabilities has done well and identify gaps in the literature for future research. The research question that this systematic literature review seeks to answer are *What are the potential benefits of and barriers to physical activity for youth with physical disabilities?*

Methods

In order to guide the methods used, report the results and maximize the transparency of this review, the PRISMA guidelines and flowchart by Liberati et al. (2009) were utilized to determine eligible article to be used in the final analysis. The flowchart assists in depicting the number of articles identified during the systematic review and indicates the number of included and excluded articles and the reasons for exclusion. In addition, this review was conducted in order to identify key areas for the advancement of research on physical activity and adaptive recreation for youth with physical disabilities.

Database Search

Studies for the systematic review were identified by examining four electronic databases (MEDLINE Ovid, CINAHL (Ebsco), SportDiscus (Ebsco), ERIC (Ebsco)) and purloining the references from each study to ensure the inclusion of articles that may have been missed in the initial database search. A wide expanse of search terms (See Appendix A for a complete list of terms used) were used to search articles relating to youth with physical disabilities and benefits of or barriers to physical activity. A review of the literature and TAMU librarians were asked to provide advice and support regarding the search strategy to ensure a thorough search. A select overview of search terms is provided in **Table 1**.

Table 1. Select database search strategy

Age Group Terms
child
adolescent
young adults
student
teen*
Disability Terms
disabled persons
physical n2 disabilit*
disabled
Activity Terms
exercise
sports
physical activity
physical adj1 activity*
adaptive
inclusive

Inclusion and Exclusion Criteria

The screening process involves two rounds that includes predetermined inclusion/exclusion criteria. Articles were included if they followed the following criteria: 1) youth were the main group (above the age of 3 and no greater than early to mid-20's), 2) focused on participants with a physical disability, 3) appropriate focus on physical activity (sports, exercise, recreation, adaptive sports, etc.), 4) benefits of physical activity or consequences for inactivity, 5) focus on associated barriers to participation, and 6) published between 2000 and 2018. Articles were excluded if: 1) they were not in English, 2) not publish in a peer reviewed journal, 3) the scope was outside the parameters of this study, 4) benefits of or barriers to participation were not addressed, and 5) published before 2000.

Review Process

The review process included two rounds of screening articles from the initial database search. The initial search yielded a total of n=1,535 studies. Of these studies, a total of n=497

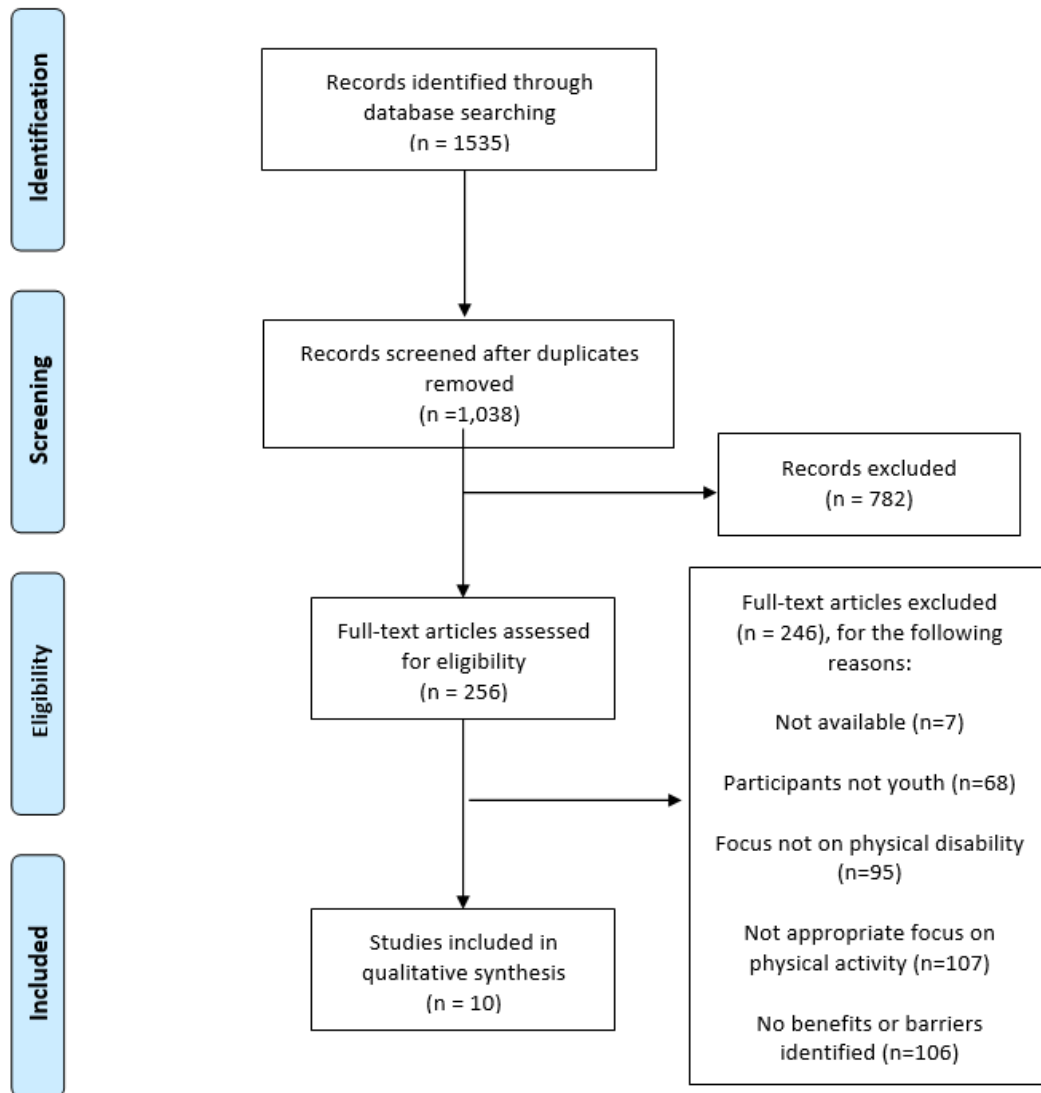
articles were removed due to duplication. A total of n=1,038 articles were included in the title and abstract screening. The same inclusionary and exclusionary criteria were all used in both screening rounds. In the title and abstract screening round, n=782 articles were removed from this study, leaving n=256 for further review in the full text screening process.

For the full text screening round, the same inclusion criteria were applied and each of these articles were full text screened. After the full text screening, n=246 were removed. Removal from final sample included but not limited to: *no benefits or barriers identified, not focused on physical activity, not youth focused or not able to be accessed*. The final screening yielded a sample size of n=10. The PRISMA flow chart in **Figure 1** provides greater detail on the screening process.

Data Extraction

For the final sample of n=10, data was extracted from each article regarding the participants, sample size, location of the study, measures used, findings, theory, and study design. These components were kept in a Google Form (Foster, personal communication, April 18, 2018) and Google Sheet (Foster, personal communication, April 18, 2018) to be used for further analysis.

Figure. 1 PRISMA Flowchart



Results

Characteristics of Included Studies

Publication of articles in this study span a period of 18 years, with the oldest article published in 2000 and the most recent published in 2018 (Taub & Greer, 2000; Orr, Tamminen, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018; Ahmed et al., 2018). Publication of articles encompassed many different journals such as *Disability and Rehabilitation*, *Park and Recreation Administration*, *BMC Neurology*, *Disability & Society*, *Adapted Physical Activity Quarterly*, *Therapeutic Recreation Journal*, *Journal of Sports and Social Issues*, *BMC Sports, Science, Medicine*, and *Rehabilitation*. The age range of studies in this review crossed the childhood to adolescent to emerging adulthood span with participants as young as 4 to 24 years old. See Table 2 for characteristics of included studies.

How were the studies designed to examine the benefits of and barriers to physical activity for youth with physical disabilities?

Only one study utilized a quantitative design (Zwinkels et al., 2015) approach. The majority of the studies were qualitative and conducted utilizing in-depth interviews with youth participants. Two studies were mixed methods utilizing interviews focus groups and observations (Carter et al., 2014) while another was mixed methods with a focus on interviews and questionnaires (Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015). Only three studies explicitly identified a theoretical framework for their study: Theory of Planned Behavior (Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015), Self-Determination Theory (Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018), and Social Justice (Anderson, Bedini, Morel & Leslie, 2005). Many studies used data collected outside of the United States

n=6 (60%), namely the Netherlands n=3 (30%) and Canada n=3 (30%). Only South Carolina n=1 (10%), Georgia n=1 (10%) and Illinois n=1 (10%) have recently conducted research within the United States.

What physical disabilities were addressed in the studies?

The systematic review was limited to only studies that focused solely on physical disabilities. This meant that any studies that focused on physical disabilities in combination with other disabilities (i.e., intellectual) were not included. Of the Studies in this review, (n=6) included cerebral palsy as the primary physical disability. Other physical disabilities include spina bifida (n=6), paraplegia (n=3), arthrogyrosis (n=2), osteogenesis imperfecta (n=2), and more limited physical disabilities.

Table 2. Characteristics of included studies

LEAD AUTHOR, YEAR	SAMPLE CHARACTERISTICS	PHYSICAL DISABILITY	ACTIVITY /SETTING	STUDY DESIGN	LOCATION	THEORY	BENEFITS	BARRIERS
AHMED, 2018	n=11; ages 6-14 years	limb absence	sports out of school	Qualitative using interviews	Canada	-	health, social	health, opportunities, social, personnel, identity, investment, devices
ANDERSON, 2005	n=14 girls; ages 10-16 years	spina bifida n=5, cerebral palsy n=6, osteogenesis imperfecta (brittle bone disease) n=2	organized recreation programs	Qualitative using interviews	South Carolina	Social Justice	health, social, identity	opportunities, identity
BLOEMEN, 2015	n=44; ages 4-18; parents n=44	spina bifida	physical activity settings	Qualitative using interviews and focus groups	Netherlands	-		health, opportunities, devices
CARTER, 2014	n=63; children n=37, parents n=10, stakeholders n=14, siblings n=2	no specified	inclusive wheelchair sport clubs	Mixed qualitative methods using focus groups, interviews, and observations	England	-	health, social, identity	opportunities
GOODWIN, 2004	n=14; ages 14-24 years	cerebral palsy n=3, spina bifida n=3, paraplegia n=5, quadriplegia (n = 2), arthrogryposis (n =1)	physical activity settings	Qualitative using interviews	Canada	-	social, identity	social

Table 2. Continued								
LEAD AUTHOR, YEAR	SAMPLE CHARACTERISTICS	PHYSICAL DISABILITY	ACTIVITY /SETTING	STUDY DESIGN	LOCATION	THEORY	BENEFITS	BARRIERS
GROFF, 2001	n=11; ages 15 to 21 years	cerebral palsy n=5, Spina bifida n=4, oxigenesis imperfectus n=1, incephalepatis and paraplegia from traumatic brain injury n=1	adapted sports programs	Qualitative using interviews	Georgia	-	social, identity	opportunities, social, identity
JAARSMA , 2015	n=30; ages 8-20 years, mean age 14	67% of children had cerebral palsy and 55% used assistive devices	sports in and out of school	Mixed methods: quantitative using questionnaires and qualitative using interviews	Netherlands	Theory of planned behavior	health, social, identity	health, opportunities, social, personnel, investment
ORR, 2018	n=8; ages 13-18 years	cerebral palsy n=3, hip growth plate damage n=1, developmental coordination disorder n=2, arthrogryposis n=1	recreational-level sport n=6 and wheelchair basketball programs n=4	Qualitative using interviews	Canada	Self-determinati on theory	social	social, personnel, opportunities

Table 2. Continued

LEAD AUTHOR, YEAR	SAMPLE CHARACTERISTICS	PHYSICAL DISABILITY	ACTIVITY/SETTING	STUDY DESIGN	LOCATION	THEORY	BENEFITS	BARRIERS
TAUB, 2000	n=21; ages 10-17 years	cerebral palsy n=10, muscular dystrophy n=1, spina bifida n=3, paraplegia n=1, head injury and weakness on left side of the body n=1, degenerative bone disease n=1, congenital motor coordination impairment n=2, cerebral hypoventilation syndrome n=1, and congenital muscular weakness on left side of the body n=1	physical activity settings	Qualitative using interviews	Illinois	-	health, social	opportunities, social
ZWINKEL S, 2015	n=74; ages 6-19 years	not specified	physical fitness training program	Quantitative using clinical controlled trial	Netherlands	-	health	

Benefits

Three important areas of benefits associated with physical activity included 1) health benefits, 2) social environments and stigma, and 3) identity formation.

What health benefits from participation in physical activities were identified?

Six studies in this review identified health benefits related to physical activity participation for youth with physical disabilities (Ahmed et al., 2018; Anderson, Bedini, Morel & Leslie, 2005; Carter et al., 2014; Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015; Taub & Greer, 2000; Zwinkel et al., 2015). Youth with a chronic disease or physical disability have lower fitness levels compared to their peers without disabilities. Low physical fitness has been shown to be highly associated with reduced physical activity, increased cardiovascular disease, and overall mortality (Zwinkels et al., 2015). For youth with physical disabilities, participating in physical activities is associated with increased aerobic fitness, strength in different and targeted areas of the body, flexibility, improvement in body mass index (measurement of body fat based on height and weight), decrease in secondary conditions, frequency and intensity of participating in other daily physical activities, cognitive functioning, and psychosocial functioning (Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015; Zwinkels et al., 2015).

Physical activity is essential for improving overall health and development for all, especially for youth with physical disabilities. Participation in physical and sporting activities is important for growth and development as it allows for both physical and psychological benefits, such as improvements in fitness, motor coordination, overall health self-esteem, personal autonomy, and quality of life, while also promoting inclusion and social integration (Ahmed et al., 2018; Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015). Participating in these types of

settings have been shown to decrease health risks like obesity and high blood pressure, while also shown an increase in physical and mental health (Anderson, Bedini, Morel & Leslie, 2005).

Participation in adaptive sports programs provide an avenue for youth with physical disabilities a way to develop an overall sense of competence and skills (Carter et al., 2014). Sporting activities that are blended with elements of skills training, specifically wheelchair skills training, have been shown to be effective methods of promoting wheelchair skills, reducing shoulder pain, and enhancing independence (Carter et al, 2014).

Some of the perceived benefits of physical activity for youth with physical disabilities are feelings of pride, happiness, having a sense of accomplishment, satisfaction, confidence, and fulfillment when participating in physical activity (Ahmed et al., 2018). Sports can be perceived as an enjoyable, entertaining, fun, and an energetic opportunity to learn a new skill.

Participating in physical activity can improve strength and muscularity as well as movement capabilities which improve physical competence. Children with physical disabilities are often limited in opportunities to move their bodies in a variety of ways, and physical activity may provide a context for these youth to expand perceptions of their range of motion (Taub & Greer, 2000).

What social benefits of participation were identified?

In this study, n=8 of the included studies identified social benefits of engagement in physical activity for youth with disabilities (Ahmed et al., 2018; Anderson, Bedini, Morel, & Leslie, 2005; Carter et al., 2014; Goodwin, Thurmeier & Gustafson, 2004; Groff & Kleiber, 2001; Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015; Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018; Taub & Greer, 2000). Physical activity for youth with physical disabilities not only provides opportunities to improve overall physical health and acquire

physical skills but has been shown to enhance social capabilities (Taub & Greer, 2000). These activities provide participants opportunities for strengthening social ties by meeting new people, socializing, staying connected, and being a part of a team (Ahmed et al., 2018; Taub & Greer, 2000). Physical activity settings can provide an environment in which youth with disabilities can engage in common and expected childhood experiences with other peers (Taub & Greer, 2000).

Children with physical disabilities are often encouraged to observe physical activity instead of actively participating which limits their access to their peers without disabilities and increased parallel feelings of exclusion (Taub & Greer, 2000). Physical activity settings can be beneficial contexts for typical childhood interaction for children with and without disabilities. Physical activity can also provide youth a way of relieving stress through socialization with others (Anderson, Bedini, Morel, & Leslie, 2005).

Societal stereotypes have a significant impact on the competence and abilities of individuals with physical disabilities being questioned (Taub & Greer, 2000). Physical activity settings can be a context for youth with physical disabilities to exhibit their physical abilities and be seen outside of the stereotypic societal views of weakness and dependency (Goodwin, Thurmeier & Gustafson, 2004; Taub & Greer, 2000). People who are physically active are often perceived as healthy, vibrant, and able individuals. When youth with disabilities are observed within physical activity contexts, some felt like those qualities transferred to them as well (Goodwin, Thurmeier & Gustafson, 2004). Participating in these activities allows youth with disabilities to challenge others' perceptions about their physical abilities (Taub & Greer, 2000).

Physical activity for children with physical disabilities has been shown to increase perceptions of competence, facilitate social identity, and also enhance beliefs of self-efficacy by expanding participants awareness of potential (Taub & Greer, 2000). Inclusive physical activity

settings where able-bodied peers participate in adaptive activities can be a beneficial way to foster empathy as well as fellowship. These inclusive physical activities can be normalizing experiences that are fun and engaging ways to level the playing field and develop a sense of relatedness and bonding (Carter et al., 2014; Taub & Greer, 2000). These normalizing physical activity interactions for children with physical disabilities facilitated their perceptions of being socially competent and valued as children (Carter et al., 2014; Taub & Greer, 2000).

Informal, child-directed, physical activity can foster skills such as cooperation, goal setting, sociability, and forming alliances, where structured sports provide youth opportunities to learn and value qualities like teamwork, role specialization, self-sacrifice, and professionalism (Taub & Greer, 2000). Participating in inclusive physical activity settings, children with physical disabilities believe they are more similar to their peers than they previously thought while also giving them a context to build their identity (Taub & Greer, 2000).

What benefits to identity formation were identified?

Five of the included studies identified identity formation benefits of physical activity engagement for youth with physical disabilities (Anderson, Bedini, Morel, & Leslie, 2005; Carter et al., 2014; Goodwin, Thurmeier & Gustafson, 2004; Groff & Kleiber, 2001; Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015). Physical activity settings like sports provide a potentially valuable context for youth with physical disabilities for identity exploration and development due to the identity images available in participation, the required physical action, direct performance feedback from peers, social nature of sport, and opportunities to embrace socially valued roles (Carter et al., 2014; Groff & Kleiber, 2001). Most sports have discrete set of identity images that can be used to portray the individual who engages in that activity (e.g., strong, health conscious, adventurous, independent, etc.), engaging in sports individuals may

discover that he or she identifies with other people who participate in that activity, and thus may consider the degree to which she or he possesses similar or dissimilar characteristics. If these images are incorporated into one sense of self they facilitate identity definition by reinforcing self-perception (Carter et al., 2014). Direct feedback received on one's performance, both positive or negative, can be used to develop one's sense of self. Participants may also have opportunities to identify with a special group due to the social nature of sport, as well as exploring various roles within the activity itself (Carter et al., 2014).

Individuals with disabilities that participate in sports often report that this context to express emotions allowing them to be social, active, aggressive, proud, accomplished, show-off, and not be bored (Goodwin, Thurmeier & Gustafson, 2004; Groff & Kleiber, 2001).

Participating in sports with other individuals with disabilities provides opportunities to “be themselves” and gain a sense of connectedness and equality (Groff & Kleiber, 2001). For some, sports can be a disability minimizing setting where they experience a sense of comfort or freedom (Anderson, Bedini, Morel, & Leslie, 2005). Adapted sports programs can provide individuals with disabilities opportunities to explore and express their identity. This type of environment may create a comfortable setting where youth with disabilities can be surrounded by similar peers that may reduce awareness of the disability (Groff & Kleiber, 2001).

Barriers

Three benefits to physical activity were discussed: health, social, and identity formation. Barriers to participation also exist, six main themes discussed below include health, lack of opportunities, social environments/interactions, knowledgeable coaches and staff, identity formation, and investment.

What were the health-related barriers identified?

In this study, three of the included studies identified health as a potential barrier to physical activity for youth with physical disabilities (Ahmed et al., 2018; Bloemen et al., 2015; Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015). Though there are many reported physical benefits of physical activity for youth with disabilities, the health or disability itself can hinder participation (Bloemen et al., 2015). Barriers related to physical disabilities are frequently by the affected youth, parents, practitioners, and health professionals (Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015). Medical problems, bowel and bladder care, injuries and pain, deterioration and deformities can all be additional barriers youth with physical disabilities face that impact their participation rates (Bloemen et al., 2015). Some of the personal reasons for low participation rates may be due to difficulties in performing certain activities, as well as secondary health problems associated with the individuals' disability (Ahmed et al., 2018).

What were the opportunity barriers identified?

Eight of the studies mentioned youth with physical disabilities encounter opportunity barriers for physical activity (Ahmed et al., 2018; Anderson, Bedini, Morel, & Leslie, 2005; Bloemen et al., 2015; Carter et al., 2014; Groff & Kleiber, 2001; Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015; Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018; Taub & Greer, 2000). In this study, one of the main barriers identified for youth with physical disabilities is lack of programs and leaders (Anderson, Bedini, Morel, & Leslie, 2005; Bloemen et al., 2015; Carter et al., 2014; Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015). Due to the complex organizations constraints, inequitable structures, and interpersonal and intrapersonal barriers, children with disabilities have few opportunities to be included in sport and physical

activity, have lower levels of physical activity than their peers, and experience low performance expectations (Ahmed et al., 2018; Carter et al., 2014; Groff & Kleiber, 2001). Environments that not appropriately designed for youth with disabilities may be insufficiently accessible or not safe for participation (Bloemen et al., 2015).

The disparities in the number of physical activity opportunities between youth with and without disabilities have been a problem that has had some serious attention over the past few years. There has been a large movement of adapted sport programs within the United States, however, there are only a few communities and public school that provide adapted sport activities. School districts often do not have the funds to provide adapted sport opportunities required for a small percentage of potential athletes, thus continuing the lack of local access (Piatt, Bell, Rothwell, & Wells, 2014).

What were the social barriers identified?

There were six studies that social barriers for youth with physical disabilities (Ahmed et al., 2018; Goodwin, Thurmeier, & Gustafson, 2004; Groff & Kleiber, 2001; Jaarsma, Dijkstra, Blecourt, Geertsen, & Dekker, 2015; Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018; Taub & Greer, 2000). Physical activity may provide youth with and without disabilities a setting to improve social interactions and break down negative stereotypes and perceptions; however, this is not always the case for some. Youth with disabilities still experience exclusion from their peers in physical activity, especially during team selection and physical education classes (Taub & Greer, 2000). Youth with physical disabilities often describe negative social experiences in sport settings with peers. It is common for these youth to feel disconnected, like outsiders, and treated as “others” because of their disability (Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018). When youth with disabilities experience these interactions they

often withdraw from these environments, ask not to participate, or do not enroll in further physical education (PE) classes when there is no longer a requirement.

Overcoming the stigma of a physical disability and navigating social environments is a commonly reported barrier to physical activity for youth. Many participants describe lack of acceptance and experience bullying and teasing by their peers for the disability, assistive devices, and while participating in physical activity (Ahmed et al., 2018; Groff & Kleiber, 2001; Jaarsma, Dijkstra, Blecourt, Geertsen, & Dekker, 2015). Lack of opportunities for adapted sports within the school system, reinforce negative societal stereotypes, among peers that adolescents with physical disabilities are not athletes or are viewed as not able to participate at the same level (Goodwin, Thurmeier, & Gustafson, 2004; Piatt, Bell, Rothwell, & Wells, 2014; Taub & Greer, 2000). Barriers to local access also reinforce the notion that playing in an adapted sports league is a special occasion, rather than a daily experience (Piatt, Bell, Rothwell, & Wells, 2014).

Negative interactions and social environments can hinder competence in athletic ability, willingness to pursue other physical activity opportunities, and sense of relatedness to peers (Ahmed et al., 2018; Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018). The social context of sports, specifically the influence of peers may have a significant impact on the basic psychological needs and motivational states of youth with physical disabilities (Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018).

Youth with disabilities often report that their first contact with sports are typically from external motivations, like parental suggestions and peer motivations (Ahmed et al., 2018; Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018). However, over time, with personal experience and positive/supportive peer interaction, youth often develop more internal forms of motivation for physical activity like sport (Orr, Tammined, Tomasone, Sweet, &

Arbour-Nicitopoulos, 2018). Fostering an inclusive and supportive peer climate in a sport program and/or team contribute to more internal motivation and relatedness hopefully combating exclusion (Jaarsma, Dijkstra, Blecourt, Geertsen, & Dekker, 2015; Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018).

What were the barriers related to program personnel identified?

Three studies mentioned barriers related to program personnel for youth with physical disabilities (Ahmed et al., 2018; Jaarsma, Dijkstra, Blecourt, Geertsen, & Dekker, 2015; Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018). When coaches provide youth autonomy-supportive environments, they enable youth to share opinions and to collaborate on adapting the activities while also supporting their competence and comfort with trying new activities (Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018). Consequently, inappropriate curriculum and personnel can hinder a child with a physical disability autonomy and competence in a sport setting.

Lack of knowledge and experience adapting or modifying physical activity often translates to a lack of available programs for youth with physical disabilities (Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018). Youth with physical disability report limited opportunities to participate in sport of their choice due to the perceived inappropriateness or complete lack of adaptations provided within some sport programs, thus hindering their autonomy (Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018).

In some cases, even when youth felt competent in playing sport during PE, they were prevented from playing with classmates due to administrators' safety concerns for other students and perhaps their own lack of knowledge and/or experience adapting PE curriculum (Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018). Coaches who did not understand

due to lack of exposure or education on the physical disability often imposed their own limits rather than understanding the child capabilities (Ahmed et al., 2018). However, when coaches or other appropriate personnel are properly aware, educated, and experienced with working with youth with disabilities they may act as vital facilitators to participation (Jaarsma, Dijkstra, Blecourt, Geertsen, & Dekker, 2015).

What were the identity formation barriers identified?

Barriers associated to identity formation for youth with physical disabilities were found in three of the included studies (Ahmed et al., 2018; Anderson, Bedini, Morel, & Leslie, 2005; Groff & Kleiber, 2001). Youth with disabilities may experience constraints to identity formation due to limited opportunities to explore identity alternatives in various domains. A challenge youth with a disability often face in identity development is constructing an identity based on an aspect of the self, their disability, that is “assigned” (Groff & Kleiber, 2001). Individuals with physical disabilities are prone to developing negative self-perceptions regarding their bodies due to negative physical appearance feedback from others (Groff & Kleiber, 2001).

An important aspect of forming an identity in physical activity is understanding one’s capabilities and limitations. This includes both the child’s perceptions of his/herself, as well as the parents, coaches, and friends understanding of their capabilities (Ahmed et al., 2018). Participating in different and strenuous physical activity settings is where youth with disabilities may cultivate their identity by understanding and/or challenge their strengths, abilities, and self-perceptions. Due to lack of opportunities, youth with disabilities often have a difficult time knowing their own capabilities and therefore, lack self-motivation in activities.

It had been reported that coaches understanding the child’s capabilities with regard to the physical disability were facilitators in modifying the sport, routine, and equipment as needed to

promote success. Encouragement from parents, coaches, and friends were also great motivators that enhanced their perceptions of their own capabilities (Ahmed et al., 2018). Therefore, coaches, peers, and parents all have a significant impact on not only motivations for participation in physical activity but in the formation of an identity for youth with physical disabilities. Youth with a physical disability understanding their own capabilities and building self-confidence and -efficacy can be influential facilitators to participation in physical activity (Bloemen et al., 2015).

What were the investment barriers identified?

Two of the studies indicated investment as a barrier to physical activity for youth with physical disabilities (Ahmed et al., 2018; Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015). There is serious investment involved in physical activity for youth with physical disabilities and their families. Money, time, and effort are all logistical investments that are commonly reported constraints youth with disabilities (Ahmed et al., 2018; Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015).

Though there has been a large movement of adapted sport programs within the United States, there are only a few communities and public school that provide adapted sport activities. Adolescents with physical disabilities report on average, the travel time from home to adapted sport leagues is one to two hours (Piatta, Bell, Rothwell & Wells, 2014). Therefore, youth with physical disabilities and their families have to invest in time traveling to attend these activities with the associated cost of travel, food, and lodging when necessary. Adaptive equipment and sufficient information on how to use equipment can be another financial and time constraint for families and/or athletic coaches/staff to consider (Jaarsma, Dijkstra, Blecourt, Geertsen, & Dekker, 2015).

What were the assistive devices/mobility and care aids related barriers?

This study had two of the included studies mention devices/mobility and care aids as potential barriers to physical activity for youth with physical disabilities (Ahmed et al., 2018; Bloemen et al., 2015). Assistive devices or technologies can be a significant facilitator in ability to participate in various physical activity settings for youth with physical disabilities. Prosthetics and attachments for example, have been reported to be facilitators in participation. Some youth have reported perceived benefits of prosthetics as having an increase in posture, strength, stability, balance, weight distribution, preventing overuse of their sound limb, emotional comfort, and an improvement in the quality of their participation (Ahmed et al., 2018).

However, though assistive devices/ mobility aids have been reported as facilitators for some, others describe them as a hindrance to their ability to engage in sports (Ahmed et al., 2018; Bloemen et al., 2015). Some of the reported perceived hindrances associated with using prosthetics were the weight, limited range of motion, lack of comfort and fit, and the appearance (Ahmed et al. 2018). The financial cost of these devices may also hinder participation rate for families, since some of the activity-specific devices, such as prosthetics, are not always covered by insurance. Youth often grow out of their prosthetics and other mobility devices rather quickly therefore parents must be aware and plan for the scheduling and monetary cost associated with replacements (Ahmed et al. 2018).

Certain programs may have certain requirements or restrictions about prosthetics and attachments, so parents often have to educate themselves on these guidelines, explore options, and order specific products prior to starting the program (Ahmed et al., 2018). Another factor many parents face with a child that uses prosthetics is that children can be quick to outgrow their prosthetics. Parents much anticipate those changes and make appropriate appointments with

specialists, hopefully in a time frame that will not impede the child's participation in the sport or activity.

Other financial investments youth with physical disabilities and their families have to consider for participating in physical activities is the cost of assistive devices or mobility aids (Bloemen et al., 2015; Ahmed et al., 2018). These devices are often expensive and are not always covered under insurance (Ahmed et al. 2018). Devices and aids are just one of the many potential barriers youth with physical disabilities have to overcome to engage in physical activities.

Seven contributing factors associated with barriers were discussed. These hinderances included health, lack of opportunities, social environments/interactions, knowledgeable coaches and staff, identity formation, and investment.

Discussion

The purpose of this review was to present a critical summary and evaluation of contemporary physical activity research on youth with physical disabilities. Using a systematic approach, n=10 articles were identified and examined. There are several points to note on the findings of this review.

1. **Lack of Research.** This review gives a broad summary of the benefits of and barriers to physical activity for youth with physical disabilities. The findings suggest that there is a lack of research regarding physical activity among youth with disabilities, especially those with high levels of scientific rigor (Boddy et al. 2015; Frey, Stanish, & Temple, 2008; Rimmer et al, 2004). This lack of research could be related to the lower levels of participation in physical activities among individuals with disabilities. Findings from this study suggest that youth with

physical disabilities engage in physical activities less often than their peers without disabilities, and are reported to have fewer opportunities and variety in their physical activities (Johnson, 2009; Frey, Stanish, & Temple, 2008; Piatt, Bell, Rothwell, & Wells, 2014; Rimmer et al. 2004; Shields, Synnot, & Barr, 2012).

2. **Identification of Known Benefits and Barriers.** Though the findings from this study suggest that there is a lack of research on physical activity for this specific segment of the population there were many benefits and barriers identified. In some of the studies, there were many reported social benefits reported from engagement in physical activities. These social benefits were found in both inclusive and exclusive activities (Ahmed et al., 2018; Carter et al., 2014; Groff & Kleiber, 2001; Taub & Greer, 2000). Findings from this review suggest that engagement in physical activities, for youth with physical disabilities, have been shown to improve social capabilities, strengthen social ties, break down negative social stereotypes, and foster a sense of empathy for peers without disabilities (Carter et al., 2014; Goodwin, Thurmeire & Gustafson, 2004; Taub & Greer, 2000). Engagement in physical activities not only impact youth with physical disabilities but may also have a positive impact on their peers without disabilities. However, not all of these interactions are reported in a positive light.
3. **Negative Interactions Still High.** The findings from this study also report many of the negative social interactions youth with physical disabilities face while engaging in physical activities. Six of the studies mentioned that youth with physical disabilities have experiences negative social interactions with their peers without disabilities such as bullying and teasing, exclusion, and/or treated as

outsiders (Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018; Taub & Greer, 2000). Findings from this study suggest that many of these negative social interactions may be influenced by negative societal stereotypes and preconceived notions about youth with physical disabilities (Anderson, Bedini, Morel, & Leslie, 2005; Ahmed et al., 2018; Goodwin, Thurmeier, & Gustafson, 2004; Jaarsma, Dijkstra, Blecourt, Geertsen, & Dekker, 2015; Taub & Greer, 2000).

4. **Access Still an Issue.** The findings from this study also note that the lack of access to opportunities for physical activity for youth with physical disabilities is a significant barrier (Piatt, Bell, Rothwell & Wells, 2014; Taub & Greer, 2000). Lack of access to these physical activity settings have been reported to be caused by many different and complex reasons and were mentioned in eight of the studies. Youth with physical disabilities have been found to have difficulty finding activities and programs that are appropriate for their functional and/or skill level and report experiencing low performance expectations (Ahmed et al., 2018; Carter et al., 2014; Piatt, Bell, Rothwell & Wells, 2014). This lack of access was also suggested to be influenced by inappropriate curriculum and personnel, lack of or cost of adapted equipment or assistive/ mobility devices, lack of local adapted programs (Ahmed et al., 2018; Orr, Tammined, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018; Piatt, Bell, Rothwell, & Wells, 2014; Taub & Greer, 2000; Gossett & Tingstom, 2017).

The findings from this study did emphasize the many benefits of and barriers to engagement in physical activity experienced by youth with physical disabilities, but also

mentioned the lack of research on this particular subject. The need for more empirical evidence is needed in order to properly address some of these commonly reported issues.

Limitations and Strengths

This review is not without its limitations. One limitation of this study was that it is a contemporary review that only examined studies conducted within the last 18 years, thus decreasing the pool of eligible studies. Studies published before this time were not included due to the limited time available but also due to the availability of more comprehensive reviews being available on physical activity among youth in general. The study's scope was also a limiting factor, only looking at youth and physical disabilities. There may have been additional benefits and barriers identified for broadening the type of disability. Expanding the scope of the review may also provide opportunities for comparative analysis between the disability groups.

Potentially resourceful information about the benefits of and barriers to physical activity for youth with disabilities could have been identified if the scope of disability was more inclusive. Many of the eliminated articles mentioned benefits and barriers but focused on the Special Olympics which is a physical activity program for people with intellectual disabilities. Including literature on youth with intellectual disabilities could have potentially allowed for a comparative analysis of the benefits and barriers to the two different types of disabilities.

The scope of this review may also be considered a strength. Limiting the study to include only youth and physical disabilities may emphasize the lack of research and gaps in literature. Therefore, stressing the need for further analysis.

Implications for Practice

This review may be helpful in several different fields. This review exposes some of gaps in the literature and stresses the need for additional empirical evidence in the field. The findings

from this review did identify some of the benefits and barriers related to engagement in physical activity for youth with physical disabilities. Additional research in this area may provide other benefits and barriers that have not been mentioned or serve as supportive evidence to the existing identified benefits and barriers. Supplementary research can be used to influence and/or provide practical recommendations for practitioners and program curriculum.

Benefits and barriers that are consistently reported in empirical research on physical activity for youth with physical disabilities may have significant influence on youth development practitioners and program curriculum. Understanding of the barriers and benefits of physical activity for youth with physical disabilities is essential in order to design effective programs. As practitioners are made aware of common barriers encountered by youth with physical disabilities, they may be able to make appropriate changes to existing and/or create new curricula, adapt facilities, and train staff members adequately in order to have holistic development for all youth. Fostering a more inclusive environment and experiences for youth with physical disabilities may help alleviate some of the discrepancies in their access to available and appropriate physical opportunities, both in and out-of-school.

Findings from this study may also provide valuable information for health promotion efforts throughout communities (i.e., health fairs). Community health fairs and events may be effective outreach initiatives that can promote community awareness and enhance community participation and responsiveness (Burton, 2009; Hamilton et al., 2017) to combat the negative stereotypes and preconceived notions that result in the negative social interactions felt by youth with disabilities and serve as barriers to their participation. Community health fairs have been shown to be effective methods of addressing issues related to underserved or vulnerable populations, like youth with physical disabilities (Ezeonwu & Berowitz, 2014). Furthermore,

with increased understanding at the community level can lead to the community playing an advocate role at the public policy level to ensuring the allocation of resources (i.e., funding for a handicap accessible local park) to maximize participation and inclusion at the community level.

Conclusion

This study, though limited, still provides supplementary information regarding the benefits and barriers to physical activity for youth with physical disabilities. The findings from this study address the gaps in literature and the need for further empirical studies, as well practical implications for future practitioners and community events. Physical activity can be an effective setting to incorporate PYD and enhance the quality of life and future outcomes for youth with physical disabilities. Therefore, understanding the factors that influence their participation is essential in creating programs designed for youth to flourish.

CHAPTER III

STUDY 2

ABLE, ACTIVE, ADAPTIVE CONFERENCE EVALUATION: EXAMINING THE EFFECTIVENESS OF COMMUNITY EVENTS TO RAISE ADAPTIVE RECREATION AWARENESS

Community events

Physical activity is four times lower for youth with disabilities and are twice as likely to choose sedentary activities when compared to their peers without disabilities (Acquino, 2017; Piatt, Bell, Rothwell & Wells, 2014; Rimmer & Rowland, 2008). The consequences for physical inactivity among youth with disabilities are lower muscular cardiorespiratory fitness; increased levels of pain, depressions, anxiety; and social isolation (Piatt, Bell, Rothwell & Wells, 2014; Shapiro & Martin, 2010; Murphy et al., 2008; Rimmer & Rowland, 2008). Physical inactivity and the negative associated health risks are serious public health issues that need to be addressed. Health promotion events can be effective community interventions that promote participant awareness on health problems, health disparities, related risk factors, and provide supportive resources (Burton, 2009; Dillon & Sternas, 1997; Hamilton et al., 2017).

Health promotion events, such as health fairs, are voluntary, cost-effective, community intervention strategies in improving knowledge about health concerns, as well as the promotion and maintenance of health at the individual-, family-, and community-level (Burton, 2009). These community intervention approaches are effective outreach functions that can not only provide accurate information on specific health problems, but identify specific health actions and/or behavior changes (Ezeonwu & Berowitz, 2014).

These community health interventions promote community participation and enhance responsiveness to public health priorities (Burton, 2009). Community health fairs are effective methods of addressing the needs of underserved populations, giving vulnerable populations access to utilize health services, resources, and education (Ezeonwu & Berowitz, 2014). There have been three levels of effects documented on communitywide health promotion interventions: 1) effects related to the knowledge, attitudes, and behaviors of individuals; 2) effects related to social support, contacts with resources, and referrals to services provided through social networks; and 3) effects upon the availability and accessibility of services through organizational policies (Eng & Parker, 1994).

Community health promotion programs, that encompass goals and values of empowerment, can assist in improving participants' competence in enhancing political efficacy, social justice, and control over the quality of community life (Eng & Parker, 1994). Collaboration between local residence, community leaders, stakeholders, community agencies, and health service providers is critical in assessing community needs, raising awareness, and increasing motivation towards individual and community health (Burton, 2009). These partnerships and networks have the added benefits of enhancing resources and sharing data sources (Burton, 2009).

The goal of community awareness is to increase the community's knowledge of the available programs and services offered, which can be accomplished through community networking (Project HELP, 2013). "Awareness" seems to mean sending a message, getting attention, and getting people to talk about the issue, at the very least on social media (Beck, 2015). Activism through initiatives, challenges, or awareness days/weeks/months (i.e. 'Make your picture blue' for Autism Speaks, ALS ice-bucket challenge, Autism Awareness Month, etc.)

are ways for people to participate and feel like they're part of something bigger than themselves, it creates a sense of community (Beck, 2015).

Awareness-raising can have positive influences on fundraisers, petitions, and general knowledge about health issues. However, awareness alone is not enough and must be followed up with something else (Beck, 2015). There are various, and complex, environmental, societal, and economic forces that influence a person's and a population's health—things that cannot be fixed with knowledge alone (Beck, 2015). A more effective awareness-raising strategy would be to spread information about the prevalence of a condition and its risk factors, as well as policy changes that could lessen disparities or help people living with the condition. Awareness can be the first step to positively address the policies that impact a population's health (Beck, 2015).

Though there is much evidence to support community health fairs as effective health outreach functions, there are considerable discrepancies in the amount of research regarding health fairs designed specifically for people with disabilities. Community health initiatives often do not provide enough supports for people with disabilities in order to fully participate in healthy, active living opportunities (Eisenberg, Rimmer, Mehta & Fox, 2015). There are many community-level issues that can act as barriers and/or facilitators to participation in healthy living initiatives by adults and children with disabilities (Eisenberg, Rimmer, Mehta & Fox, 2015). Individuals with disabilities can benefit from preventative and care services similarly to their peers without disabilities. However, individuals with disabilities experience many significant barriers to these public health and care activities, events, programs, etc. (Centers for Disease Control and Prevention, 2013). In order to identify and close reducible gaps between the health of individuals with and without disabilities, there needs to be a shift in primary focus of public health, from prevention of disability to health promotion (Centers for Disease Control and Prevention, 2013).

Therefore, research on the effects of community events with a primarily focus on health promotion for people with disabilities, could be valuable for communities, health care providers, practitioners, and individuals with disabilities

Purpose

The purpose of this study is to evaluate the inaugural “Able, Active, Adaptive” diversity conference by Texas A&M University’s Department of Health and Kinesiology Climate & Diversity Committee. The focus of the conference was to educate the university and community about the adaptive processes, activities, products, services, and organizations necessary for a healthy and optimal quality of life for people of all ages and abilities. The research question that this study seeks to answer is *1) Did the “Able, Active, Adaptive” conference increase participant awareness of physical activity for people of all abilities?*

Describing the Conference

The “Able, Active, Adaptive” conference was held on April 20th - 21st, 2018, on Texas A&M University’s campus in the Physical Education Activity Program (PEAP) Building in College Station, Texas. Keynote addresses were held on Friday, April 20th, and Saturday, April 21st. Friday was structured like a traditional conference and included workshops, symposia, demonstrations, and experiences. Saturday was a community activity festival with various vendors, demonstrations, and experiences.

Texas A&M University is located in College Station, Texas. Texas A&M had an enrollment of 68,625 students for the Fall 2017 semester (Randall, 2017). There were a total of 2,034 students registered with Disability Services at Texas A&M (Department of Disability Services, 2018). According to the United Census Bureau, the 2016 estimated population is 112,141 and 4.5% of the population had a disability, under the age of 65 years.

Overview of Purpose/Objectives of the Conference

Texas A&M University's Health and Kinesiology (HLKN) Climate and Diversity Committee served as the primary sponsor and founder of this inaugural conference. This committee seeks to promote the inclusion of and support for individuals with disabilities. The conference theme for 2018 was "Able, Active, Adaptive: Healthy Living Across the Lifespan", with a focus on educating the community about adaptive processes, activities, products, services and organizations for a healthy lifestyle and optimal quality of life.

The conference sought academic and practical presentations and exhibits that met the current interests and needs of individuals and groups with physical disabilities. The overall goals of this diversity and inclusion conference were to 1) promote physical activity for people of all ages and abilities; 2) engage the community in demonstrations and experiences; 3) launch community involvement by introducing participants to program coaches; 4) discuss how to create and adapt programs for people with disabilities; and 5) connect academics, practitioners, organizations, and students for research and service opportunities.

Leadership/Management of the Conference

Texas A&M HLKN Diversity Committee were the chairs and final decision makers of the conference. They served as the primary contacts to the overall plans and budget decisions. The committee decided that the conference would be a student-led project as a Sport Management Practicum course with appointed committee member, Dr. Sloane Milstein, as the primary professor (16 Texas A&M students were enrolled). Students were recruited in the Fall 2017 semester through a campus-wide course information email. The students served as the primary design team over the entire conference. Tasks and job titles included: internship,

marketing, press release, programming, logistics, budget/ sponsorships, external operations, World Fitwalk coordinator, and evaluation.

These student managers also served as leaders of the students in the Sport Management (SPMT) 225 undergraduate sport management course. The course provides students practical skills needed for sport professionals. The conference led professor, Dr. Sloane Milstein, is the instructor of record for this course as well and decided to use the Able, Active, Adaptive conference as the context for practical skill development. The students in the course were divided into five groups: Friday Conference, Fitwalk, Friday Social, Saturday Activities, and Saturday Organizations. Each group was led by a corresponding student manager and given roles for each section such as: administration or team leader, marketing, programming, logistics, and press release.

Methods

Setting

The Able, Active, Adaptive conference was held in College Station, Texas on Texas A&M University's campus. The conference was originally set to be a two-day conference on April 20 and 21, 2018 but was shorted to a one-day conference on the 20th to accommodate the on-campus funeral of First Lady, Barbara Bush. The conference was held at the Physical Education Activity Program (PEAP) building.

The event was a no-cost community event to engage the university and local community members and organizations and promote a healthy life style for people of all ages and abilities. The event had speakers to present topics on physical activity for people with physical disabilities, booths for local organization and resources, and adapted sport activities for participants to engage in with athletes that have physical disabilities.

Participants

Conference participants and presenters were recruited by campus wide emails, social media posts, and through personal/professional connections. The target populations were students, faculty, and staff at Texas A&M University and local community members that are interested in adaptive recreation or working with individuals with disabilities. The student managers tried to recruit participants that would be interested in adaptive recreation, so the majority of emails and posts were geared toward groups that were interested in sport management and kinesiology, special education, park and recreation, and other groups that are interested in adaptive recreation or working with people that have disabilities. However, this was not an exclusive conference and encouraged participation from all who were interested.

There was a total of 426 individuals registered to attend the conference on Eventbrite, of which, 330 participants checked-in at the event (77.46%). There were 159 individuals registered as volunteers. However, the group was unable to capture the number of volunteers who actually attended the event. The numbers could have been thwarted by unanticipated events (later discussed in the limitations section). The numbers for attendees and volunteers may not include all of the student managers, students in the SPMT 225 course, and other members who were involved in the conference planning process.

The final sample comprised n=6 participants (5.26%) who identified as having a disability as defined by the Americans with Disabilities Act, n=105 participants (92.11%) who did not identify as having a disability, and n=3 participants (2.63%) who did not respond.

Participants represented five distinct racial/ethnic groups, White/Caucasian n=83 (72.81%), Black/African American n=5 (4.39%), Hispanic/Latino(a) n=19 (16.67%), Asian/Pacific Islander n=8 (7.02%), American Indian/Alaska Native n=4 (3.51%), n=1 (0.88%)

participant selected prefer not to answer, and n=3 (2.63%) participants did not report their race. The total percentages will not equal 100 percent because participants could select more than one answer.

Only 94 participants reported their age, which ranged from 18 to 73 years old ($M = 25$, $SD = \pm 10.36$). The participants were also separated into seven types of participant groups. A student at Texas A&M University n=90 (75.95%); staff member at Texas A&M University n=5 (4.39%); faculty at Texas A&M University n=9 (7.89%); a family member of an individual with a disability n=13 (11.40%); a caregiver that is not a family member of an individual with a disability n=1 (0.88%); an employee at and organization, non-profit, agency, etc. that serves people with disabilities n=9 (7.89%); other n=3 (2.63%); or no response n=3 (2.63%). The total percentages will not equal 100 percent because participants could select more than one answer.

Dependent/Independent variables layout

Inclusion and exclusion criteria for this study were applied to the completed overall evaluation surveys collected from the study. Only participants who completed the awareness section of the survey were included (n=114 out of 122 surveys) for a completion rate of 24.95%.

Measures

This study on the effects of awareness from attending the “Able, Active, Adaptive” conference was approved by the university Institutional Review Board {IRB protocol # IRB2018-0466} prior to data collection. The questionnaire was administered to persons who attended the conference. The intentions of the conference were to bring awareness of the adaptive process and create a more inclusive environment for people with and without disabilities. Therefore, the intention of the surveys was to capture responses from participants with and without disabilities.

The Able, Active, Adaptive Overall questionnaire that was administered to the conference participants included measures of satisfaction with conference elements, reasons for attending future events, and awareness, knowledge, and interest of adaptive recreation. This study focuses specifically on the relationship between attending the conference and the effect it had on participants' awareness of adaptive recreation. The primary focuses of this study were on the participants' responses to the demographics, awareness, and retrospective questions. Therefore, these measures will be under the primary measures section. The other measures on the questionnaires area also presents but and will be described in the secondary measures section.

A link to the survey was distributed via email to all checked-in conference participants and volunteers who registered. The link to the survey was also posted on the conference's social media pages (Twitter, Facebook, Instagram) in efforts to increase completion rate. The survey was launched on April 21, 2018 and remained open until May 5, 2018. The emails of participants and any other potentially identifiable information were not included on the survey and were not used when analysis was conducted. Survey completion was estimated to take 10 minutes or less for most participants, and no follow-up obligations were required. The survey was administered through Qualtrics.com (2018) with a total of 45 items presented to all participants. Survey areas included: demographics, satisfaction, conference goals and objectives, conference logistics, and awareness. Refer to Appendix B for full list of questions.

All questions

Secondary Study Measures

Conference event satisfaction included three items that were used to assess participants' satisfaction 1) Friday's conference; 2) Friday's evening social; and 3) Fitwalk. The potential

responses were on a five-point Likert scale from -2 (*extremely dissatisfied*) to 2 (*extremely satisfied*).

Execution of conference goals and objectives included seven questions with Likert response from 0 (*not met at all*) to 2 (*met completely*). The seven questions: 1) provided an appropriate learning environment; 2) Provided with appropriate accommodations, if needed; 3) Provided information and resources that promote physical activity for people of all ages and abilities; 4) Engaged the community in demonstrations and experiences; 5) Connected academics, practitioners, organizations, and students for research and service opportunities; 6. Discussed how to create and adapt programs for people with disabilities; and 7) Discussed how to create and adapt programs for people with disabilities.

There were nine satisfaction questions on conference organization: 1) conference location, 2) conference room and learning environment, 3) travel/parking, 4) hotel lodging, 5) ease of online registration, 6) organization and setting of events, 7) assistance of the conference staff, 8) conference meals, 9) communication prior to conference. Responses were on a Likert scale from -1 (*dissatisfied*) to 1 (*satisfied*).

Six questions were based on participants satisfaction with conference elements 1) workshop presentations overall, 2) community event, 3) adaptive sporting events, 4) value relative to the cost of attending, 5) staff, 6) conference meals. Responses were on a Likert scale from -1 (*dissatisfied*) to 1 (*satisfied*). There were five questions regarding conference logistics aimed at examining 1) how participants heard about the conference, 2) what factors contributed to their decision to attend, 3) maximum amount participants would be willing to pay for similar events, 4) if they would attend the conference again, and 5) what training topics and/or exhibitors' participants would like to see at next year's event. There were two overall, open-

response, final questions regarding 1) key takeaways from the event, and 2) additional comments.

Primary Study Measures

Demographics included four questions that covered disability, age, racial and ethnic background and participant type. Participants were asked if they have a disability as defined by The Americans with Disabilities Act: a person who has a physical or mental impairment that substantially limits one or more major life activity (Americans with Disabilities Act of 1990, 1990).

The awareness section was divided into two parts. The first section had five awareness questions examining participants' awareness after attending the conference: 1) This conference increased my awareness of the need for physical activity for people of all ages and abilities, 2) I am now aware of how to adapt an activity for an individual with a disability, 3) I know individuals in my community that can help me or someone with a disability adapt activities, 4) know of non-profits or agencies in my community that can help me or someone with a disability to adapt activities, 5) I know of government entities in my community that can help me or someone with a disability to adapt activities. Responses were set on a five-point Likert scale from -2 (*disagree*) to 2 (*agree*).

The second section had three retrospective questions regarding awareness, knowledge, and interest of adapted physical activities. The responses were on a five-point Likert scale from -2 (*none at all*) to 2 (*expert*). These three questions were the main study variables for this study.

Statistical Analysis

Descriptives for demographic and main study variables were calculated with means and standard deviations-for continuous items and frequencies for categorical items. A dependent samples *t*-test was conducted for each of the retrospective questions. All statistical analysis was performed with Excel 2016.

Results

Descriptive Statistics

Descriptive information for all of the study variables are reported in **Table 3**.

Table 3. AAA Questionnaire means

Sections	Items	Responses	Mean(SD)
CONFERENCE EVENTS			
Please rate your level of satisfaction for each event.	1. Friday's conference	a) extremely dissatisfied (-2), b) somewhat dissatisfied (-1), c) neither satisfied nor dissatisfied (0), d) somewhat satisfied (1), e) extremely satisfied (2)	1.45 (0.76)
	2. Friday's evening social		1.04 (0.92)
	3. Fitwalk		0.92 (0.96)
EXECUTION OF GOALS & OBJECTIVES			
Based on your conference experience, were the following goals & objectives met?	1. Provided an appropriate learning environment	a) n/a, b) not met at all (0), c) somewhat met (1), d) met completely (2)	1.71 (0.49)
	2. Provided with appropriate accommodations, if needed		1.73 (0.48)
	3. Provided information and resources that promote physical activity for people of all ages and abilities		1.72 (0.45)
	4. Engaged the community in demonstrations and experiences		1.74 (0.44)

Table 3. Continued

Sections	Items	Responses	Means (SD)
	5. Connected academics, practitioners, organizations, and students for research and service opportunities		1.72 (0.48)
	6. Discussed how to create and adapt programs for people with disabilities		1.68 (0.47)
	7. Discussed how to create and adapt programs for people with disabilities		1.62 (0.54)
CONFERENCE ORGANIZATION			
Please rate your level of satisfaction with the organization of the conference	1. Conference location	a) n/a, b) dissatisfied (-1), c) neither satisfied nor dissatisfied (0), d) satisfied (1)	0.88 (0.40)
	2. Conference room and learning environment		0.89 (0.37)
	3. Travel/parking		0.74 (0.53)
	4. Hotel lodging		0.78 (0.46)
	5. Ease of online registration		0.86 (0.44)
	6. Organization and setting of events		0.92 (0.33)
	7. Assistance of conference staff		0.87 (0.43)
	8. Conference materials		0.83 (0.48)
	9. Communication prior to conference		0.87 (0.45)
CONFERENCE ELEMENTS			
Please rate your level of satisfaction with the following conference elements.	1. Workshop presentations overall	a) n/a, b) dissatisfied (-1), c) neither satisfied nor dissatisfied (0), d) satisfied (1)	0.93 (0.30)
	2. Community event		0.91 (0.29)
	3. Adaptive sporting experiences		0.85 (0.44)
	4. Value relative to the cost of attending		0.94 (0.23)
	5. Staff		0.88 (0.40)
	6. Conference meals		0.85 (0.41)
LOGISTICS			
	1. How did you hear about this conference? (select all that apply)	a) word of mouth, b) website, c) email distribution, d) flyer, e) social media (e.g. Facebook, Twitter, Instagram), f) other	word of mouth (n=48), website (n=46), email distribution (47), flyer (16), social media(n=26), other (n=32)

Table 3. Continued

Sections	Items	Responses	Means (SD)
	2. What factors contributed to your decision to attend this conference? (please check all that apply)	a) location, b) agenda/topics, c) conference presenters, d) cost, e) other	location (n=49), agenda/topics (n=97), conference presenters (n=43), cost (n=19), other (n=16)
	3. If a similar conference was offered like this in the future, what would be the maximum you would be willing to pay to attend?	a) less than \$50, b) \$50, c) \$100, d) \$150, e) \$200	less than \$50 (n=119), \$50 (n=16), \$100 (n=8), \$150 (n=0), \$200 (n=0)
	4. Would you attend this conference again?	a) yes, b) no (please state why), c) not sure (what would help you make this decision?)	yes (n=98), no (n=5), not sure (n=4)
	5. What training topics and/or exhibitors would you like to see at next year's conference?	please write suggestion(s) below	
AWARENESS			
Retrospective: Please rate the following	1. Retrospective	a) none at all, b) less than others, c) about the same as others, d) more than others, e) expert	
	a. BEFORE attending the event, my level of awareness about adapted physical activities was		1.99 (0.92)
	b. AFTER attending the event, my level of awareness about adapted physical activities is		2.96 (0.45)
	2. Retrospective		
	a. BEFORE attending the event, my level of knowledge of adapted physical activity was		1.90 (0.88)
	b. AFTER attending the event, my level of knowledge of adapted physical activity is		2.88 (0.51)
	3. Retrospective		
	a. BEFORE attending the event, my level of interest on adapted physical activity was		1.98 (0.92)
	b. AFTER attending the event, my level of interest in adapted physical activity is		2.91 (0.54)

Table 3. Continued

Sections	Items	Responses	Means (SD)
Awareness	4. This conference increased my awareness of the need for physical activity for people of all ages and abilities	a) disagree, b) somewhat disagree, c) neither disagree nor agree, d) somewhat agree, e) agree	1.65 (0.59)
	5. I am now aware of how to adapt an activity for an individual with a disability		1.30 (0.83)
	6. I know individuals in my community that can help me or someone with a disability adapt activities		1.30 (0.88)
	7. I know of non-profits or agencies in my community that can help me or someone with a disability to adapt activities		1.17 (0.99)
	8. I know of government entities in my community that can help me or someone with a disability to adapt activities		1.00 (1.05)
DEMOGRAPHICS			
	1. Do you have a disability as defined by The Americans with Disabilities Act	a) yes, b) no, c) no response	yes (n=6), no (105), no response (n=3)
	2. Participant information (select all that apply)	a) I am a family member of an individual with a disability, b) I am a caregiver that is not a family member of an individual with a disability, c) I am an employee at an agency, organization, or a nonprofit that serves people with disabilities, d) I am a student at Texas A&M University, e) I am a faculty member at Texas A&M University, f) I am a staff member at Texas A&M University, g) other	I am a family member of an individual with a disability (n=13); I am a caregiver that is not a family member of an individual with a disability (n=1); I am an employee at an agency, organization, or a nonprofit that serves people with disabilities (n=9); I am a student at Texas A&M University (n=90); I am a faculty member at Texas A&M University (n=9); I am a staff member at Texas A&M University (n=1); other (n=3)
	3. What is your age (please input your age in years)		25.12 (10.36)

Table 3. Continued			
Sections	Items	Responses	Means (SD)
	4. How would you describe yourself? (select all that apply)	a) American Indian or Alaska Native, b) Asian/Pacific Islander, c) Black or African American, d) Hispanic or Latino(a), e) White or Caucasian, f) Prefer not to answer	American Indian or Alaska Native (n=4), Asian/Pacific Islander (n=8), Black or African American (n=5), Hispanic or Latino(a) (n=19), White or Caucasian (n=83), prefer not to answer (n=1)
OVERALL			
	1. What were your key takeaways from this event?	open response	
	2. Additional comments	open response	

In this study there were five question questions regarding participants' awareness after attending the "Able, Active, Adaptive" conference. The results of these questions are as followed: $M = 1.65$, $SD = \pm .59$; $M = 1.30$, $SD = \pm .83$; $M = 1.30$, $SD = \pm .89$; $M = 1.17$, $SD = \pm .99$; $M = 1.00$, $SD = \pm 1.05$. This information is reported for descriptive purposes only (i.e., these variables are not the main study variables). Refer to **Table 4** for list of questions their means and standard deviations. Items stems, means, and standard deviations.

Table 4. Awareness Questions

Awareness Questions	Mean	SD
<i>This conference increased my awareness of the need for physical activity for people of all ages and abilities</i>	1.65	0.59
<i>I am now aware of how to adapt an activity for an individual with a disability</i>	1.3	0.83
<i>I know individuals in my community that can help me or someone with a disability adapt activities</i>	1.3	0.88
<i>I know of non-profits or agencies in my community that can help me or someone with a disability to adapt activities</i>	1.17	0.99
<i>I know of government entities in my community that can help me or someone with a disability to adapt activities</i>	1	1.05

In this study, there were three retrospective questions that assessed participants’ awareness before and after attending the conference (see **Table 3**).

Correlations

Correlations coefficients were calculated for three sets of questions and are reported in **Table 5**. The correlations were in the expected direction and were strong.

Table 5. Correlation results

	N	M	SD	1	2	3	4	5	6	7
1 age awareness	114	25.12	10.36	1						
2 before awareness	114	1.99	0.92	-0.008	1					
3 after knowledge	114	2.96	0.45	0.26*	0.24	1				
4 before	114	1.9	0.88	0.13	0.84	0.2	1			

Table 5. Continued

	knowledge						0.6			
5	after	114	2.88	0.51	-0.13	0.29	6	0.46	1	
	interest						0.2			
6	before	114	1.98	0.92	-0.02	0.73	9	0.75	0.42	1
							0.5			
7	interest after	114	2.91	0.54	-0.11	0.18	2	0.29	0.59	0.36 1

Note: *p<0.10
** p<.05

T-test. The main question in this study was whether there was a change in individuals' awareness, knowledge, and interest in adapted physical activity after attending the "Able, Active, Adaptive" conference. The null hypothesis was that participants' awareness, knowledge, and interest in adapted physical activity would be the same before and after attending the conference. A depended samples *t*-test was conducted for each variable (i.e., awareness, knowledge, and interest) and statistical significance was set at $\alpha=.05$.

The results of the *t*-tests showed that participants reported a statistically significant increase in awareness, interest, and knowledge after attending the conference: awareness (before M = 1.99, SD = \pm .92, after M = 2.96, SD = \pm .45; $t(114) = -11.19, p < 0.001$), knowledge (before M = 1.90, SD = \pm .88; after M = 2.88, SD = \pm .51; $t(114) = -13.33, p < 0.001$), and interest (before M = 1.98, SD = \pm .92, after M = 2.90, SD = \pm .54; $t(114) = -11.29, p < 0.001$).

Discussion

The findings from this study showed there were significant differences between participants' level of awareness, knowledge, and interest and after attending the "Able, Active, Adaptive" conference. When looking at the correlation results this study shed some light on the research question: what effects the conference has on level of participant awareness. These

findings are a step in the direction in terms of understanding the effect conferences and other informative events have on participants. However, this study was unable to provide comparative analysis between conference participant due to the low variability between conference participants.

These findings support the literature regarding community events as effective outreach functions in promoting community awareness and addressing underserved and vulnerable populations (Burton, 2009; Ezeonwu & Berowitz, 2014). This study results suggest that community events like the “Able, Active, Adaptive” conference could potentially be effective outreach functions in promoting awareness of health-related areas of concern, such as low physical activity levels for people with physical disabilities, and advocate for responsiveness.

Though the findings from the “Able, Active, Adaptive conference suggest significant impact on level of awareness of adapted physical activity causality cannot be inferred. Research indicates that awareness-raising can have positive influences on fundraisers, petitions, and general knowledge about health issues. However, awareness alone is not enough for change in responsiveness (Beck, 2015). There are also various, and complex, environmental, societal, and economic forces that influence health— and these things that cannot be fixed with knowledge alone (Beck, 2015). The findings from the conference did show a significant difference in participants’ level of awareness after attending the event, but there were no follow-up actions from conference personnel to address participants’ responsiveness or change in behavior.

Limitations

This study should be viewed in light of few limitations.

1. Causality: Though the results of this study found significant differences in participants’ awareness, knowledge, and interest of adaptive physical activity

causality cannot be inferred. There is no causality inferred because the data is cross-sectional and only mean comparisons were run. Testing for causality is not possible for this study design. There are three things that need to occur to show causality: 1) the effect has to occur after the cause in time (temporal precedence); 2) all other possible explanations have to be parsed out; and 3) the cause and effect have to be correlated. The reason this study cannot determine causality is because of point number 2 – the study used a cross-sectional design and cannot rule out other possible explanations. To rule out other possible explanations, you would need a comparison group. In order to determine causality, a study design would have to have multiple time points (to show that the cause and effect occurred at different times) and with comparison groups (to test for causality).

2. Sample: the sample of this study was limited. There was not enough variability between the participants and therefore, the study was unable to compare result between participants (i.e. identified as having a disability or not, race/ethnicity, participant type). This lack of variability, specifically between people with and without disabilities, limited comparative analysis that would have potentially brought insightful information regarding differences in participant awareness, knowledge, and interest of adapted physical activities.
3. Response rate: The response rate was only at 24.95%. This rate allowed analysis of only a small percentage of responses of conference participants. Results of study may have been different if the completion rate was higher. The method of data collection in the study relied on participants who actually attended the

conference. There was a last-minute change to the schedule of the conference to accommodate the First Lady, Barbara Bush's funeral on campus. The conference, originally a two-day conference was shorted to one-day conference three days before the event. The conference schedule was rearranged to squeeze all presentations and activities into Friday's itinerary. This could have affected the participants willingness and availability to attend the conference, therefore also decreasing the pool of potential participants to complete the survey.

4. Survey administration: There was a mix up in the survey distribution that also may have affected participant response rate. The original and intended survey in Qualtrics was copied and placed into a google form without the awareness questions for the next group to use it for the 2019 conference. On Saturday after the event the Qualtrics survey was sent out and on Sunday the google form was sent out. Once the mistake was identified the awareness questions were immediately added to the google form as well. Therefore, completed evaluations from the google form after the awareness questions were added to the overall data collected from Qualtrics. At the time the survey was closed, a total of 64 responses from the google form (only 37 used for analysis) and 77 responses from the Qualtrics survey were combined for a total of 114 surveys.

Implications for Research and Practice

Research. There is limited research on the effects of conferences/events on participants that are specifically designed for people with disabilities. The next steps in adaptive recreation research and the effects events/conferences like the Able, Active, Adaptive conference have on

increasing participant awareness should consider the findings from this study. More research is needed to expand the research on the effect of events and conferences on increasing the level of awareness of the special needs and disparities in recreation opportunities for people with physical disabilities. It would also be beneficial to examine research on these events that have more variability in participants for more comparative analysis.

Additional research regarding the effects of community events, specifically tied to people with disabilities, can alleviate some of the gaps in the literature. Such information could be potentially valuable not only for researchers but for communities, practitioner, and individuals with disabilities.

Practice. Finding from this study may also provide resourceful information for individuals or groups who are trying to promote community awareness of adapted physical activities. Communities may use information regarding the potentially beneficial effects of these events and use them to engage and educate community members and provide local resources.

Community health promotion programs may also provide participants a context to influence larger societal and political dynamics. These programs have the responsibility to assist people to improve political efficacy, social justice, and control over the quality of community life (Eng & Parker, 1994).

This study may also provide valuable information to practitioners, regarding the effects of community events. Practitioners may use these intervention approaches to increase community awareness of health problems, disparities, associated risks, and effective solutions for underserved and vulnerable populations, like individuals with physical disabilities (Ezeonwu & Berowitz, 2014). Program practitioners may also use findings from this study and related

literature to promote change for the larger society regarding public policy, political efficacy, and social justice.

Conclusion

Lack of community awareness and support have been identified as barriers to physical activity for people with physical disabilities (Johnson, 2009; Anderson, Bedini, & Moreland, 2005). Community events and other health awareness intervention approaches can be effective outreach functions in promoting community awareness, participation, and responsiveness to health concerns (Burton, 2009). Results from this study have shown that conferences like the “Able, Active, Adaptive” conference are valuable in potentially educating participants on specific topics like adaptive recreation. However, awareness efforts alone are not enough for meaningful change in behavior or action (Beck, 2015). Increasing awareness can be the first steps for health promotion events but if events seek changes in behaviors, responsiveness, and engagement awareness efforts alone will not be sufficient.

Findings from this study highlight the need for more research and empirical evidence regarding effects of community events, more specifically, events that are designed around issues people with disabilities experience. Research in this area may provide beneficial information and support constructive recommendations for society, communities, practitioners, and individuals with disabilities and their family members.

CHAPTER IV

STUDY 3

ROLE OF ADAPTIVE RECREATION: A PARENTAL PERSPECTIVE

Introduction

Research indicate the two most important factors for predicting positive youth development are: 1) what kind of assets a family has (including household income, parent accessibility, and collective activity, such as eating dinner together); and 2) how youth spend their out-of-school time (OST) (such as participating in organized extracurricular activities, watching TV, or doing homework) (Zarrett & Lerner, 2008). OST activities include time spent in youth development programs, such as 4-H, after-school clubs, team and individual sports, performing arts, religious activities, and service activities (Zarrett & Lerner, 2008). Participation in several OST activities are thought to promote positive development through providing youth a fuller range of growth-related opportunities, contexts to build supportive relationships with adults and peers, and opportunities to contribute to the well-being of the community (Zarrett & Lerner, 2008).

According to developmental scientists, positive youth development encompasses psychological, behavioral, and social characteristics that are most often reflected in the “Five Cs”: *competence, confidence, connection, character, and caring/compassion* and youth that develop these Five Cs are considered to be thriving (Zarrett & Lerner, 2008). Lerner, Fisher and Weinberg (2000) introduced five key characteristics that were viewed as the building blocks of Positive Youth Development. They were called the 5 Cs of PYD: *Competence, Confidence, Connection, Character and Caring, with a sixth C of Contribution* when all 5 of the other Cs are present in a young person. Contribution is viewed as completing the cycle of development and at

this point a youth can begin to “give back” to society and begin to contribute to the positive development of the next generation (Lerner et al, 2000). was added later. An overview of each is as follows:

Competence is defined as having a positive outlook on one’s own actions in explicit areas such as social, cognitive, and physical developmental areas. *Confidence* refers to a youth being able to exhibit a positive sense of self-worth, mastery and a belief in one’s capacity to succeed. *Connection* is a feeling of safety, structure and belonging; displayed through constructive and encouraging relationships with people and social institutions such as school, family, and peers. *Character* refers to a respect for rules, taking responsibility; sense of independence and individuality, and a sense of right and wrong; and connection to values and principles. *Caring* is defined as having sympathy and empathy for other people; commitment to social justice. Finally, *Contribution* is the active participation of leadership in a variety of settings; making a difference to family, school, community, social institutions and to society at large.

A benefit of this framework is that the Five Cs model acknowledges that it takes all types of assets (i.e., protective factors, developmental resources) for optimal development. Also, both cross-sectional and longitudinal studies over the past few decades have provided evidence for Lerner’s “5 Cs” model of development and for contribution, school engagement, intentional self-regulation, and hope. Extensive research validating this work has been conducted in youth development programs over the past decades. It has been reported that youth demonstrating lower levels of the Five Cs have shown higher levels of risks in the areas personal, social and risk/behavioral problems (Lerner et al., 2008). These risk behaviors include depression, delinquency, and substance abuse (Lerner et al., 2010).

Guided by the tenets of positive youth development, specifically Lerner's 5 C's, the purpose of this study was to develop an in-depth understanding of how an adaptive recreation experience provides supports and barriers to positive youth development for a physically disabled youth. This study was added to compensate for the lack of in depth analysis from Study 2 at the "Able, Active, Adaptive" conference that may have been caused by the significant changes in the schedule. A parental perspective was sought in order to garner in-depth information about what specific benefits and barriers they and their child have experienced.

Methods

Design

Cresswell (2003) defines qualitative research as a fundamentally holistic, interpretive approach to inquiry where the researcher constructs knowledge to make claims using strategies such as case studies or phenomenology. Open-ended, emerging data is collected from participants with the sole intent on creating themes from the data in order to develop theory or to describe in detail social phenomena. Qualitative methods are multiple, interactive and humanistic, and take place in the natural setting of the participants.

The focus of the study was to examine the role of physical activity/adaptive recreation for a child that has a physical disability, explained through the experiences and perceptions of the parents of the child. As such, a case study methodology was chosen for this study. Case study methodology is used when researchers ask "how" or "why" questions about complex social phenomena. As Yin (2003, p.13) suggest, a case study is an empirical study that "investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident..."

The use of case study methodology was appropriate for this study given that the phenomenon under investigation is a research area with few studies of inquiry. The case of interest in this study was adaptive recreation for youth with physical disabilities. The aim was to develop an in-depth understanding of how the adaptive recreation experience provides supports and barriers for positive youth development through the exploration of Lerner's 5 C's as it relates to the parental experience of having a child with a physical disability. Given this, this study is viewed as an interpretive case study that focuses on interpreting the outcomes guided by the tenets of positive youth development.

Interview Guide

Data was collected by conducting semi-structured interviews. The interview structure was developed to be used with guiding questions to encourage conversation. The general guide outlines a set of issues delineated from the research questions and the literature (see Appendix B). Interviews began by exploring the family's experiences in adaptive recreation activities with a specific focus on their initial experience and evolving into discussions of particular memories and experiences on the benefits of participation to the youth, barriers to participation for the youth, significance of having community or social networks, and importance of disability and adaptive recreation awareness. These open-ended questions were used to allow participants to express their experiences, feelings and opinions in their own words, where clarification could be provided when necessary.

Participants

For this study, data were collected and analyzed for a single interview with the parents of a child with a physical disability. The participants were the adoptive mother and father of a 13-year-old female with spina bifida who participates in physical activities and adaptive recreation.

Participants were identified and selected based on the inclusion criteria of 1) parent(s) of a child with a physical disability; 2) who has participated or currently participates in physical activities, such as adaptive recreation. The following section presents an overview of the participants in study. In efforts to conceal participants identity, the parents and mentioned family members were all given a pseudonym and any other potentially identifiable shared information was changed (i.e. geographical location, team names, school names, etc.).

The Oliver Family

The Oliver Family lives in a suburban area in a Southwestern state in the United States of America. Patricia (Mom), is a field director at a local branch of an international nonprofit organization; Tom (Dad), a former photojournalist, is now a full-time photographer. The children, Danny (Son), fifteen-year-old sophomore in high school and Kim (Daughter), thirteen-year-old 8th grader are both loved by their parents very much.

The family adopted Kim from an orphanage outside of the U.S. when she was nine-years-old. Kim was born with spina bifida and has little to no control of the lower half of her body and uses a wheelchair for movement. Around the time of her adoption Kim showed interest in playing sports and being challenged physically. Before adopting Kim, the family had very limited experience around people with disabilities and had no experience with adaptive recreation or adaptive sport activities.

Since joining adaptive recreation leagues four years ago, Kim's favorite activity is wheelchair basketball. She plays on a league in a large metropolitan city located about an hour and a half away from her home. Kim is now running track at her middle school with her classmates and is the only person in the district that uses a wheelchair. The Oliver family enjoys participating in family activities. When asked how they would best explain their life to others,

they identified with the challenges and experiences of the family that is depicted in the television documentary series “Speechless” and find it to be a comedic way to relate to others.

Procedure

Permission from the Institutional Review Board for Human Subjects at Texas A&M University was obtained for this study. The interview was conducted in May of 2018 in College Station, Texas, at a neutral location for the comfort and convenience of the participants. The interview was completed in just under an hour. While research questions were required for semi-structured interviews by the IRB, during the interview the questions were used as a thematic outline to guide conversations with participants.

The interview was audio recorded with consent from the participants and to reduce participant anxiety about being recorded, the audio recorder was hidden from plain view. Having the recorder out of sight helped maintain a smooth flow to the interview by alleviating anxiety of being recorded. Audio recordings were then transcribed and coded to protect any personal identifiable information that was shared (e.g. individual names, school and program names, etc.).

Participants were informed that participation was completely voluntary and that they were able to opt out of the interview at any time. Participants were told that they were not required to answer the questions that were asked and were able to choose what information to share. If they felt uncomfortable at any time, they could choose not to answer a question or end the conversation. Participants were asked to provide as much or as little detail as they were comfortable to give.

Analysis

The interview was audio recorded, transcribed verbatim, and manually coded by author. To identify common threads throughout the data, a thematic analysis was conducted. To isolate the emerging thematic statements, a line-by-line analysis was conducted. This analysis entailed reading the transcript and field notes numerous times. Particularly revealing phrases were highlighted and coded with meaningful labels.

The coding label manual was created based on the thematic findings from the systematic literature review and the Positive Youth Development approach utilizing the Five Cs framework. The Five Cs are competence, confidence, connection, character, and caring/compassion (Zarrett & Lerner, 2008) and the final which leads to contribution. The concepts that followed the systematic literature review and the Five Cs framework were then grouped into larger categories, such as “benefits” and “barriers”. This led to the development of large themes and final sub thematic categories for reporting.

Trustworthiness

Several techniques were used to ensure trustworthiness of the data, its interpretation and reporting for this study (Cresswell, 2007). First, credibility was addressed by the extent to which the participants’ experiences were carefully represented and the analysis of the data remained true to the shared stories by the parents (Cohen & Crabtree, 2006). Data triangulation was achieved by examining the parent’s experiences from several points of views. The data was also compared with the literature review results from Study 1 and the questionnaire results from Study 2 to assist in the integrity of the inferences drawn, to elaborate and corroborate findings in order to strengthen the study. that achieved data saturation and transferability. Prolonged engagement with continued contact with the family was established in was also established in

order to develop trust and cultivate a rapport. Finally, reflectivity of research findings was supported through journaling of my thoughts and contextual notes and personal biases that arose from personal understanding and previous experiences were acknowledged and kept in the reflexive journal. This allowed for a better understanding of the research experience and any findings that appeared to be discrepant were examined and discussed with the thesis advisor in an attempt to identify any bias that may skew the overall results of the study.

Researcher's Role

The researcher's past experiences, biases, and emotions during data collection and analysis process influenced the participants expressions and the manner of data analysis. The researcher has personal background in working with individuals with various disabilities, experience developing and volunteering in community adapted physical activity programs for individuals of all ages with disabilities, and personal background regarding the study of recreational sport and physical activity programs for youth with disabilities. Therefore, her experiences, perspectives, and positive outlook on physical activity and disability shaped the research questions, discussion, and the way the findings were presented—in content, participants responses, and language used.

Results

The purpose of this study was to develop an in-depth understanding of how an adaptive recreation experience provides supports and barriers to positive youth development for a physically disabled youth. Lerner's 5 C's, *confidence, competence, connection, character, caring* and *culture/contribution* served as a guiding framework for the study development, data analysis and reporting. Based on the analysis two major themes were developed and each were divided

into several subthemes that corresponded with Lerner’s 5 Cs and contributions (Table 6). The themes are presented around the PYD Five Cs framework:

Table 6 PYD Five Cs

THEME	SUBTHEME	LERNER 5C +
Benefits	Level of confidence, development of skills Attitude Mindset of her future	Competence
	Athletic Ability Self-Worth	Confidence
	Individuality Independence	Character
	No data found	Caring
	Sense of community Social network	Connection
	Normalizing experience	Culture/Contribution
Barriers		
	Lack of opportunities <ul style="list-style-type: none"> • Skill levels and abilities • Social connections • Programs and curricula effectiveness 	Confidence (youth) Connection Competence (youth/adults)
	Isolation and Bullying	Connection Caring

Benefits

“I think for her, the biggest change would be she envisions a future of some sort.”

Physical activity has been shown to have significant impacts for youth with disabilities by increasing perceptions of competence and enhancing self-efficacy by expanding awareness of potential (Taub & Greer, 2000). Physical activity may also foster skills like goal-setting, cooperation, and professionalism that transfer into other contexts outside of physical activity (Taub & Greer, 2000; Groff & Kleilber, 2001). These benefits of physical activity align with competence as defines as one of the Five C’s framework of positive youth development. The findings from this study support the literature regarding the benefits of physical activity on individuals’ competence. The Oliver parents mentioned that through participation in sports Kim has grown in her *level of confidence* and *development of skills* unrelated to sports. It was also

mentioned, that physical activity has challenged Kim's *personal growth* and had significant influence on her *attitude* and *mindset of her future*.

She takes school more seriously because she has to. She has to pass or she can't play. We are still working on her executive functioning for sure but she has gotten a better.

I think for her, the biggest change would be she envisions a future of some sort, whether she achieved her goals of going to the Paralympics or not, she has something to reach for. She sees it in her head and she has friends that are doing that. It has given her something. And because of that, you know when grades come out she freaks out, and she has to own it a lot earlier than most, I think. When you have big dreams, you don't wait until you are a sophomore in high school to start chasing, you have to start chasing now. So, I think that is the best thing for her and giving her a sense of community.

“She used to be scared of people looking at her.”

Some of the reported benefits of physical activity for youth with physical disabilities are feelings of pride, happiness, sense of accomplishment, satisfaction, confidence, and fulfillment (Ahmed et al., 2018). Confidence is also recognized as one of the Five C's and refers to an internal sense of overall positive self-worth, mastery, and self-efficacy; having in one's capacity to succeed (Zarrett & Lerner, 2008). The literature regarding physical activity and the associated benefit of enhanced confidence are supported by the findings from this study. Kim's parents mentioned that there have also been notable improvements in her confidence regarding her *athletic ability* and *self-worth* since she started engaging in sports.

She used to be so scared of people looking at her when she first came here. I don't think she cares about it anymore, in the regular day and even in track. She doesn't seem to mind that people are looking at her, or if her teammates are looking at her or coming up to her and asking questions. I can't imagine her doing that her first year here. I can't imagine her answering questions from kids, talking

to them and not feeling like, she might still feel a little out of place but as she gains more confidence in what she is doing that helps her.

“What adaptive sports did for her and us was raising the bar for her independence.”

Physical activity settings have been found to be a valuable context for identity exploration and development for youth with physical disabilities (Carter et al., 2014; Groff & Kleiber, 2001). This notion of physical activity as a context for *identity formation* was supported with similar results mentioned by Kim’s parents. Physical activity provided Kim a context to enhance her sense of individuality while also increasing her and her parent’s independence expectations. *Individuality* and *independence* are components of character that has been identified as one of the Five Cs.

It has been a huge bolster in her identity. I don't think she necessarily started with a negative image of herself or felt bad. It has given her a place to put herself and I think that is what has helped her the most.

I think sports helped us get out of our mindset, we took her as far as we knew how to. We didn't know until we took her to basketball and took her to that camp, we didn't know that there was a higher bar. We didn't know that she didn't need certain things. Not that we are against support, but it really raised our awareness and her independence level, her problem solving, her everything. Everything.

What adaptive sports did for her and us was raising the bar for her independence, which is what we already wanted to do. Sports gave us a better framework or a higher bar to reach because they are not messing around. At first, we would go in asking “where are the grab bars and all of this other stuff?” and they just say, “oh she will figure it out”. She has to problem solve and figure out how to get herself in and out of the shower when it isn't wheelchair accessible. Yes, we want to be advocates for change in the environment but if it is not, we tell have to tell her “the world does not revolve around you, so figure it out.”

Program coaches and teammates can be effective resources in challenging the athletes and the families. Parents can often be the barriers to participation and growth for children with

disabilities and having other people set different standards and expectations for the athletes can alleviate that hinderance. Independence and high expectations are typical societal and cultural norms in the United States. Within the context of the Five Cs model of PYD, character is an indication of an individual's respect for societal and cultural rules.

In a way parents can be the barriers by babying them a bit. You know, "Oh I want to protect you from all of the bad stuff", "Careful, don't hurt yourself", to now it's like "fall down, get up, go do it. You can do it." The camp directors and other sport coaches give no mercy.

"...when she came back from the women's camp, it was like she found something"

The Five Cs define connection as positive bonds with people and institutions that are reflected in exchanges between the individual and his or her peers, family, school, and community in which both parties contribute to the relationship (Zarrett & Lerner, 2008). The parents in this study explained the importance of having a **community** of individuals that their daughter can relate to. They shared that not only has it been beneficial to be around other wheelchair basketball players, but being around others with spina bifida, and connecting with other females who have disabilities. The benefits of social connections based on similarities explained by this family align with research regarding the benefits of social interaction and connectedness. A reported positive outcome related to participating in adapted physical activities is the opportunity to interact with other individuals with disabilities that fosters a sense of connectedness (Groff & Kleiber, 2001).

It was difficult for her at first (basketball league), because she was the youngest player and the only girl. Being the only girl was one of the hardest things for her, I think. There are more girls on the team now but it really helped when she went to her first women's basketball camp, and that is when she felt like she had community. When she came back from camp she kept saying stuff like "we do this" and "we talk like this" it was all about "we". I think it was the first time she had ever been around girls that were like her. She had gone to a few spina bifida camps but she was the highest functioning kid there. It was fun and we think she

enjoyed it because it gave her experience with a lot of different things but when she came back from the women's camp, it was like she found something. She is a basketball player and that is who she is.

That's your community, as far as all of this adaptive recreation stuff, that is probably the best thing that can happen to the kids. Because it gives them a place for them not to be the only one.

Kim's parents also explained that having connections with similar peers and being a part of a team not only fosters a sense of connectedness but can be a vital resource for promoting and advocating for independence.

For our daughter, learning how to transfer (in and out of her wheelchair) was always hard. And now transferring from a day chair, with brakes, to a basketball chair which has no breaks, and you are trying to teach her how to do it, helping her out and lifting her legs for her. One day an older gentleman on the team pushes by and say "what are you doing? You don't need help! You are strong enough.", and then asks her to show him how she is doing it, "no, you are doing it wrong.". Then someone says, "what if she falls?" and they respond with "she will fall on her ass. Pick herself up and do it again.". There is a humor to it but it's also like "you know what, yeah you will fall down, everyone does so get up."

For the Oliver family, participating in adaptive recreation has provided them with connections, a *sense of community*, and a *social network* that have been valuable resources for Kim and provided her opportunities to participate in other physical activities.

When we were registering her for the middle school, we told the athletic director that our daughter was excited to run track and, oh by the way, she is in a wheelchair. It freaked her out. Nobody really knew what was involved. And by law they have to let her do that. One of the ladies from the Texas regional Paralympic games came here and a guy who medaled in Beijing, came and explained this is what she needs, this is how she trains, this is how her chair works, and all of these different things. They were all very impressed because he looks like Mr. Incredible. That was helpful because it lent credibility to what is happening, and we wanted to tell them we don't know if she will become an Olympian but if she does you might be coaching a future Olympian. You don't know how to say that exactly without sounding arrogant, because when she messes up they are going to be like okay whatever.

“We tell her all the time “this isn't just about you”.”

Physical activity may allow people with disabilities to be seen outside of the stereotypical societal views and be seen as a healthy, vibrant, and physically active individual (Taub & Greer, 2000; Goodwin, Thurmeier & Gustafson, 2004). The parents mentioned that Kim’s participation in physical activities has been a *normalizing experience* not only for herself but for future athletes that come after her. Lerner & Lerner (2011) state that these Five Cs could lead to the development of a Sixth C: Contributions to self, family, community, and institutions of a civil society. Kim’s parents noted that her participation in sports at school is a context for her to be an active participant in contributions to the community, regardless if that is her intention.

But I think that now she is public, people have seen her run track. We want to see it more normalized. I hope other kids see that. We tell her all the time “this isn't just about you”. That is a lot of pressure for her, she says that all the time but we just have to tell her “sorry, that's the way that it is”. Someone has to start it. They will look at you, and when you mess up or do something that you are like “why did you do that?” like grades or something. Everyone watches everything that you do. And she has said that is a lot of pressure. “Yes, it is.” People are looking at everything you do, good or bad. They are watching us too, your mom and dad, they are watching all of us. But if you are in a wheelchair they are going to notice you right away. And that's just the way it is. I do think it is good for the community though. I think it is good for everyone, to be around people with disabilities. As they are included, everybody wins in terms of normalizing it. That they are a person, they are seen, all the bright things.

Kim’s participation in these school-based sports may have significant impacts on community members perceptions of disabilities, coaches and the school’s ability and willingness to promote appropriate inclusion, and participation for youth with physical disabilities that come after her. The leadership stance that Kim is taking in this way illustrates the healthy developmental approach presented by Lerner & Lerner (2011) Sixth C on contribution.

Barriers

Four major themes emerged around barriers. These four themes were *lack of opportunities, social environments and stigma, lack of awareness, and investment.*

“We literally didn't, for a year, know what to do.”

Lack of opportunities. Opportunities to participate in programs specifically designed for youth with disabilities provides participants with a sense of connectedness and equality (Groff & Kleiber, 2001). These social interactions between youth with disabilities are not as readily available in schools or other community environments. The parents mentioned the difficulties they experienced with finding activities and programs that were appropriate for their daughter's skill level and abilities.

We literally didn't, for a year, know what to do. We would call the Special Olympics people and were just like “ehh”. We did Challenger Baseball for a couple of seasons and it was good but it wasn't where she was at (cognitively). We felt like she need something else that met her need better but couldn't find anything. We stumbled upon the basketball team when we were in Houston working on her chair.

In addition to the lack of local opportunities the parents described for their daughter to participate, they shared the difficulties not having access to or being able to connect with other local youth who have physical disabilities. The parents said that it has been difficult trying to find similar families to connect with locally. This lack of ***local social connections*** has led to feelings of isolation for the family and their daughter, specifically in regard to physical activities like track. Disconnected youth tend to have poor outcomes because they often fall through the gaps between the nation's social systems: education, employment, child welfare, juvenile justice, health, and mental health. Healthy transition to autonomy and adulthood is facilitated by secure attachment and emotional connectedness with parents and other adults. Social connections can

provide “social buffering” for youth in the face of stressors, adversity, or trauma (Bronfenbrenner Center for Translational Research, 2013). Research on social buffering has found that “the presence of supporting and comforting others can help decrease the intensity of stress response and its associated negative feelings. These studies find that social buffering effects are amplified during adolescence, so that teens more readily absorb the positive effects of social support in the face of stress” (Bronfenbrenner Center for Translational Research, 2013).

There is one kid that we know of in town that has spina bifida, one of our friends who is a teacher hooked us up with him so we could go shoot baskets together. But if the parents hadn't been the barrier, the dad, the mom was for it, but if the parents weren't the barriers he would go so far.

We have heard that there is another local girl with spina bifida that is a year under her, so they will go to the same school next year. We don't know anything about them. No one is going to tell you unless you happen to run into them. So, you don't know what level they are on or things they are interested in. There is no way to connect to say, ‘hey, how is it going? Or what are y’all up to? What are you interested in or not interested in?’ We have no idea what this child is interested in, she could want to be a poet or something and have absolutely no interest in running track, that might be boy stuff. There has got to be more kids out there in this town. I'm sure there are, we just don't know about them. They are just hidden.

Lack of other local wheelchair athletes not only impacts their daughter socially, but it can have a negative impact on the school and coaches. The effectiveness of existing programs and curricula are impacted by the effectiveness of schools and coaches. Coaches and or schools may also have feelings of reservation or resentment towards individuals with disabilities and their participation in physical activities. These feelings could be due to lack of knowledge and experience working with youth that have disabilities and/or modifying an activity, program, or setting. The coaches in their daughter’s school are not aware of her needs and they do not know how to appropriately modify the activity or setting for her to be successful.

Because you don't have that community there, I think it makes it harder for the school because they don't know what to do. You don't have any other wheelchair racers in the district, period. They all show up at state and then race each other. They all know each other. (because of being the only wheelchair racer) There is a lot of stuff that you are like, even running, you are like why does she have to run by herself around the track? When it's like, even though UIL rules state that they can run on lane one or lane eight. The funny thing is, it's like okay you are afraid of her running into somebody? She is not going to catch anybody! They are out the gate. Because It takes her so long to get out of the gate because she is pushing. Eventually she will be going as fast as you will be running but it takes her 800 yards to get there. That's just the way it is. But it's like I would like that at some point to happen to where she is not, not because I want her to beat somebody but because when you are running up against somebody, you run faster.

“Don't run into me on the track with your chair”

The parents in this study discussed the social barriers their daughter faces while participating in sporting activities with other teenagers who do not have disabilities. The parents said that their daughter has had to deal with *isolation, bullying, and navigating negative stereotypes and stigmas* associated with having a disability. Having a sense of connectedness is a protective factor against negative stereotypes (Bernat & Resnick, 2006).

She had some issues with some kids. You know, they were running some drills and they say, “don't run into me on the track with your chair” and them calling her names and stuff. But I think the track thing, they see her running, working out, and doing stuff it's like at least for some, some have rallied around her a little bit. I asked her “is it getting better now?” and she said, “oh yeah”. And she kept hitting her personal record, she kept improving so that helped her a lot.

Some of these experiences align with the literature about negative stereotypes and stigmas about people with disabilities. Lack of opportunities in school settings can reinforce perceptions among peers that people with disabilities are not athletes and/or cannot participate at the same level (Piatt, Bell, Rothwell, & Wells, 2014; Goodwin, Thurmeier, & Gustafson, 2004; Taub & Greer, 2000).

I think her getting involved in sports, her getting involved in track, I don't know what the teachers thought of it, I'm sure the students thought "oh she can lift weights but she can't do the same things we do".

Youth with physical disabilities often report that they are stigmatized by society as weak and dependent and wheelchair use is often portrayed as a symbol of tragedy and pity (Goodwin, Thurmeier, & Gustafson, 2004). The parents described similar experiences of hearing negative or lower perceptions of their daughter's abilities and how physical activity has alleviated some of those perceptions.

You go into environments where there are a lot of preconceived notions about what you are and what you are not. And that has to get broken down somehow. I think it helps the community more than it helps her. When you see somebody doing something, even though they might be saying things like "oh poor little disabled kid on the track", I can't stop them from thinking that but at least it puts someone in front of them doing something that gets them to go "that's rough". I had so many people come up to me after her 400, going "wow, that a lot of work. She is working so hard" not just "oh good for her". It helps the community see her in that venue rather than, "oh you did something no one else did". No, you did something that was worth clapping for. "You are so inspiring because you picked up a can of green beans by yourself", no it's not.

The parents explain that it is not always easy addressing and breaking down these stereotypes and stigmas when they are reinforced because their daughter is not able to demonstrate her abilities.

It's hard because like even little things, like even in the athletic realm. In school during basketball, they are making all of the kids shoot one handed, and she is trying to and it is making her look awful. She can't even reach the backboard when she first starts. So, it reinforces the "oh look at the kid in the wheelchair trying to make a basket". You give her two hands and she will make it and she will go down and do stuff.

"...there is no way we can deprive her of that, even though it hurts financially."

The parents in this study stated that *investment* in adaptive sports can be a significant barrier to participation. Due to the lack of local opportunities for adapted sport activities, families

often disclose that the time, money, and effort associated with participating can be restricting (Ahmed et al., 2018; Jaarsma, Dijkstra, Blecourt, Geertsen & Dekker, 2015). These identified investment barriers are also commonly reported challenges individuals with physical disabilities and their families experience found in the literature. On average, youth with physical disabilities report having to drive one to two hours from home to play in adapted sports leagues (Piatt, Bell, Rothwell, & Wells 2014). The parents noted that this investment for their daughter's participation can cause serious strain on their resources and limits other opportunities for the family and their son.

It is really expensive to be driving back and forth and feeding yourself every week. Gas, food, and tournaments, and hotels, and all of that kind of stuff cuts into some other opportunities, especially for our son. But we are like there is no way we can deprive her of that, even though it hurts financially. The cost is not horrible for us, with in-state tournaments. The kids that play on her team in also have to commute, some like two hours. Everyone drives from other places. Half the team isn't from Houston itself, we all come in. Granted it is probably a little more competitive than other things they could be doing but it gives them all, all the kids see the value in it. They have a great coach, they have a great support system, they like each other.

The investment barriers that this family has to overcome are common challenges many other individuals with physical disabilities and their families face. These barriers highlight the issue around lack of local access to adaptive recreation activities. Lack of local opportunities can put significant financial strain on families and consequently diminish physical activity participation rates for people with disabilities.

Summary

Kim's parents identified many, what they believe to be, benefits of and barriers to physical activity for their daughter. However, the associated barriers identified in this study were comparable to the existing literature and can significantly influence participation rates in

physical activity for youth with physical disabilities. The most consequential barriers reported by the Oliver family, were lack of local access and lack of awareness. Both of these associated barriers may have grave repercussions for individuals with physical disabilities, such as diminishing physical activity levels and amplifying the negative and serious health risks of physical inactivity.

Discussion

The in-depth interview with the Oliver parents offered some supportive evidence to many of the points discussed in the literature. The parents' beliefs on the benefits of physical activity for their daughter supported the claims of physical activity as a context for positive youth development. The Five Cs model of positive youth development was utilized as a theoretical framework for thematic analysis. The Cs that were used to arrange the identified benefits of physical activity in this study are competence, confidence, character, connection, and culture/contribution. These Five C's have been shown to be effective means of obtaining optimal development fostering healthy autonomy and transition into adulthood, as well as providing a buffer when faced with stressors, adversity, or trauma. Inability to develop these Cs can have the consequence of not developing autonomy or having protective factors when faced with a challenging event.

Kim's parents recognized the effects of physical activity on their daughter's competence both in and out of sports context. The parents mentioned a noticeable rise in their daughter's confidence in her physical abilities and social interactions with her peers that do not have disabilities. Physical activity provided Kim a supportive environment to explore and develop aspects of her character and enhance her sense of individuality and independence. These

Participation in adaptive recreation activities provides participants a context to build a sense of connectedness and relatedness with each other. Kim's parents mentioned the significant influence of having a community and social network. Through these social connections their daughter has been able to develop a sense of identity within a team or group while also challenging and raising her level of independence and perceptions of capabilities. The parents mentioned that this adaptive community has been a supportive resource helping them navigate and advocate for their daughter in other settings. Social connections can provide youth with a buffer when facing stressors, adversity, or trauma. Social buffering has found that the presence of supporting and comforting others can help decrease the intensity of stress response and its associated negative feelings, and readily absorb the positive effects of social support in the face of stress (Bronfenbrenner Center for Translational Research, 2013). Social connections also promote healthy transition into adulthood and development of autonomy.

Their daughter's participation in physical activities at her school has been a way of normalizing disability and physical activity. Giving her a context to be seen outside of the stereotypical societal views and to break down stigmas. The parents believe that Kim's participation in school-based sports may have significant impacts on the community, her coaches and school, and youth with physical disabilities that come after her. Physical activity has supported her independence and sense of individuality all components of the Five C, character. This interview did not provide information to support the caring component of the Five Cs. Though, their child may have somehow obtained this component it was not described in the interview. Lack of optioning this skill can have negative impacts for optimal development, specifically in dealing with empathy and sympathy relating to others.

Lack of local opportunities to participate, lack of awareness, negative social environments and stigmas, and investment were some of the most substantial barriers reported in this study. These barriers are all commonly reported challenges that individuals with physical disabilities and their families confront in the literature. Lack of local opportunities can be correlated with ineffective schools, coaches, and staff. Appropriately trained personnel and curricula is necessary to creating more inclusive programs for youth with disabilities. This study found similar experiences in Kim's parents explanations. The parents describe the difficulties their daughter has experienced when participating in physical activities at school. The lack of experience of adapting programs or working with people with disabilities, has cause some serious consequences to their daughter's participation. The findings from this study provide evidence to support the existing literature, not only for the benefits of physical activity but the common barriers as well.

Limitations

This study is not without its limitations. A significant limitation of this study is the single-family design. Though having a single-family case study allowed for in-depth investigation that provided holistic explanations for examined areas, there was no way to conduct comparative analysis between families. If the study had a larger sample size, there could have been potentially been unique and compelling insights that could support or contradict findings in the literature.

Implications for Practice

Findings from this study can be potentially beneficial for guiding future research directions. Positive youth development examined in the context of physical activity is somewhat limited and is even more so for physical activity for youth with physical disabilities. Research is

needed for positive youth development in physical activity settings and for youth with physical disabilities. The benefits of physical activity, and the effects of positive youth development approaches on youth have been established. However, there needs to be more research on the effects of physical activity as positive youth development programs.

This study may also provide valuable information for practitioners. The identified benefits of and barriers to physical activity for youth with physical disabilities in this study supported many of the benefits and barriers identified in the literature. Practitioners should view the findings from this study as holistic evidence that supports the existing literature and make appropriate changes to existing programs or create new and better programs and activities. Utilizing positive youth development approaches in the context of physical activity, can allow practitioners to create effective programs that provide youth optimal opportunities to enhance future life outcomes.

CHAPTER V

CONCLUSIONS

The purpose of this study was to examine the benefits of and barriers to physical activity for youth with physical disabilities and the effects a community event on increasing participant awareness of adapted physical activities. Findings from both quantitative and qualitative studies provided valuable insights on factors that influence physical activity engagement for youth with physical disabilities and effects of community events. The three research questions this study sought to answer were:

1. What are the potential benefits of and barriers to physical activity for youth with physical disabilities?
2. Did the “Able, Active, Adaptive” conference increase participants awareness, knowledge, and interest of physical activity for people of all abilities?
3. What are the benefits of and barriers to physical activity for a family with a child that has a physical disability?

The first study sought to answer the question, what are the potential benefits of and barriers to physical activity for youth with physical disabilities? Findings suggest that there are many factors that influence engagement in physical activity for youth with physical disabilities, but there is little research done on this specific segment of the population. Many of the existing studies are not exclusively on physical activity for youth with physical disabilities. Findings also show that much of the associated barriers are external and often outside of the individuals control (i.e. opportunities to participate and negative social environments and interactions). Though there were many reported barriers, findings also show that youth with physical disabilities also

experience many benefits from physical activity. These benefits include 1) improvements in development and overall physical and psychological health; 2) social benefits, both for youth with and without disabilities, such as enhancing social capabilities and breaking down negative societal stereotypes; 3) a context for identity exploration and development.

This study is not without limitations. The study was a contemporary review that only examined studies conducted within the last 18 years. The scope of the study also limited the benefits of and barriers to physical activity identified for individuals with various disabilities not solely physical, as well as factors identified for youth and adults. The narrow scope of this study, youth with physical disabilities, limited the identified benefits of and barriers to physical disabilities, and also eliminated opportunities for comparative analysis between groups (i.e. type of disabilities and age of participants).

The second study utilized evaluations to explore the effects of the “Able, Active, Adaptive” conference on participants awareness, knowledge, and awareness of adapted physical activities. The literature suggests that health promotion events, like community health fairs, can be key intervention strategies in improving knowledge of health concerns and responsiveness to public health priorities. These health interventions can be effective methods of addressing the needs of underserved and/or vulnerable populations, like people with disabilities. However, findings from this study also note there is a lack of research on community events that are specifically focused on the needs of individuals with disabilities. The “Able, Active Adaptive” conference that was designed to engage and educate participants from Texas A&M University and individuals from the surrounding community on the adaptive processes, activities, products, services, and organizations necessary for a healthy and optimal quality of life for people of all ages and abilities. Evaluations were sent to participants and included measures of conference satisfaction;

conference logistics; and effects of participation on level of awareness, knowledge, and interest of adapted physical activities. The findings of the study showed that there were significant differences in participants level of awareness, knowledge, and interest of adapted physical activities after attending the event.

This study should be viewed in light of few limitations. Though the results of the study found significant differences in participants levels of awareness, knowledge, and interest of adapted physical activity after attending the conference, causality cannot be inferred. The study's sample was also a limitation. There was not enough variability between conference participants and therefore, hindered the ability for comparative analysis. The response rate of the study was only at 24.95%, limiting the results of the evaluation. The last-minute changes in the conference schedule to accommodate the on-campus funeral of First Lady, Barbara Bush may have had significant influence on conference and evaluation participation. Another limitation of this study was caused by survey administration. There was a survey distribution error and two forms of the evaluation were sent out to participant. This could have affected participants wiliness to participate, potentially impacting the response rate.

The final study sought to answer, what are the benefits of and barriers to physical activity for a family with a child that has a physical disability? The study was conducted with a single-family interview with parents that have a child with a physical disability and focused on examining their perceptions on the benefits of and barriers to physical activity for their child. The findings suggest that the family and their child encounter many barriers to physical activity, that are similar to the identified barriers in the first study (i.e. negative social environments and interactions and lack of appropriate opportunities to participate). Findings from this study also show that the parents have

perceived many benefits of physical activity for their daughter. These perceived benefits support the literature regarding physical activity as an effective context for positive youth development.

The Five Cs model of PYD provided a framework to emphasize themes in the study. Competence, confidence, character, connection, and culture/contribution were the Cs used to organize the findings on benefits of physical activity in this study. Attaining these C's can lead to optimal youth development, and support autonomy and a healthy transition into adulthood. Consequently, not obtaining these has been found to lead to poor outcomes. Youth that do not acquire these components of youth development may fall in the gaps of the nation's social systems: education, employment, child welfare, juvenile justice, health, and mental health. Other significant consequences for not obtaining these components can be lack of social attachment and decreased autonomy, which are necessary as 'buffers' when youth are faced with stressors, adversity, or trauma (Bronfenbrenner Center for Transitional Research, 2013).

This study also had its own unique limitations. The was conducted as a single-family case study. Such a small sample hindered the ability for comparative analysis, which could have provided potentially significant findings. A larger sample could have provided insightful comparisons between the groups but also against the literature.

Future Research Agenda

The findings of this study suggest several opportunities for future research. The first study's findings suggest research into the associate benefits of and barriers to physical activity, specifically for youth with physical disabilities. Many studies that were focused on physical activity for individuals with disabilities were typically done with a combined focus of disabilities (i.e. physical and intellectual). There is a limited amount of literature regarding the factors associated with physical activity for youth with physical disabilities. The findings of the second

study present the opportunity to utilize community health events as health outreach functions and for increasing participants awareness, knowledge, and interest of adapted physical activities. Further research is needed on the effects of community events, specifically for those with the focus on individuals with physical disabilities. Research regarding ways of increasing awareness of these benefits and barriers to physical activity for youth with physical disabilities, would be beneficial for researchers as well as practitioners.

Understanding the associated barriers to and benefits of physical activity for youth with physical disabilities is essential in order to design effective programs. As practitioners are made aware of common barriers that youth with physical disabilities encounter, they may be able to make appropriate changes to existing programs and/or create new curricula, adapted facilities, and adequately train staff members in order to have holistic development for all youth.

Awareness of these barriers may also assist practitioners create more inclusive and supportive environments and programs for youth with physical disabilities. Improvements to programs and curricula, may facilitate social connections between youth with and without disabilities and utilize physical activities as normalizing events that can alleviate negative societal stereotypes.

Parting Thoughts

The study of factors that influence physical activity for youth with physical disabilities and promoting awareness is complex and cannot fully examined in the course of one study. The findings presented here provide information that can be beneficial for researcher, practitioners, communities, and individuals with disabilities and/or their families. Additionally, this information is meant to give practitioners a little more clarity on the factors that influence physical activity for youth with physical disabilities. This clarity can be utilized to create more inclusive and effective programs and community awareness events.

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APPENDIX A

DATABASE SEARCH TERMS

Medline Ovid:

exp Exercise/; exp SPORTS/; exp SPORTS/ or exp SPORTS FOR PERSONS WITH DISABILITIES/; (sport* or (physical adj1 activit*)).ti,ab; or/1-4; exp disabled persons/ or exp amputees/; exp disabled persons/; disabled persons/ or exp amputees/; (physical adj2 disabilit*).ti,ab.; 5 and (7 or 8 or 9); 5 and (9 or 8); ((adaptive or inclusive) adj3 activit*).ti,ab.; 11 and 12; exp Intellectual Disability/; disabilit*.ti,ab.; 5 and (7 or 14 or 15); exp Child/; exp Adolescent/; exp Young Adult/; (child* or adolescen* or teen* or (young adj1 adult)).ti,ab.; ((college or high school or elementary school or middle school) adj2 student*).ti,ab.; or/17-21; 16 and 22; (physical adj1 disabil*).ti,ab.; 23 and (24 or 8); Limit 25 to english and 2000-2019

CINAHL (Ebsco)

((MH "Exercise+") OR (MH "Resistance Training") OR (MH "Sports+") OR (MH "Sports, Disabled+") OR (MH "Physical Activity")) OR TI ((sport* or (physical n1 activit*))) OR AB ((sport* or (physical n1 activit*)))
AND
((MH "Disabled") OR (MH "Amputees") OR (MH "Athletes, Disabled") OR (MH "Child, Disabled") OR (MH "Students, Disabled")) OR TI (physical n2 disabilit*) OR AB (physical n2 disabilit*)

AND

((MH "Child+") OR (MH "Adolescence+") OR (MH "Young Adult") OR (MH "Students, College") OR (MH "Students, High School") OR (MH "Students, Middle School") OR (MH "Students, Elementary") OR (MH "Students, Disabled")) OR TI ((child* or adolescen* or teen* or (young n1 adult))) OR TI (((college or high school or elementary school or middle school) n2 student*)) OR AB ((child* or adolescen* or teen* or (young n1 adult))) OR AB (((college or high school or elementary school or middle school) n2 student*))

SportDiscus (Ebsco)

((DE "CHILDREN" OR DE "BOYS" OR DE "GIRLS" OR DE "SCHOOL children" OR DE "TEENAGERS" OR DE "YOUNG adults" OR DE "YOUTH") OR (DE "COLLEGE students")) OR (DE "HIGH schools") OR TI ((child* or adolescen* or teen* or (young n1 adult))) OR TI (((college or high school or elementary school or middle school) n2 student*)) OR AB ((child* or adolescen* or teen* or (young n1 adult))) OR AB (((college or high school or elementary school or middle school) n2 student*))

AND

DE "DISABILITIES" OR (OR TI (physical n2 disabilit*) OR AB (physical n2 disabilit*))

AND

((DE "EXERCISE" OR DE "ABDOMINAL exercises" OR DE "AEROBIC

exercises" OR DE "ANAEROBIC exercises" OR DE "AQUATIC exercises" OR DE "ARM exercises" OR DE "BACK exercises" OR DE "BREATHING exercises" OR DE "BREEMA" OR DE "BUTTOCKS exercises" OR DE "CALISTHENICS" OR DE "CHAIR exercises" OR DE "CHEST exercises" OR DE "CIRCUIT training" OR DE "COMPOUND exercises" OR DE "COOLDOWN" OR DE "DO-in" OR DE "EXERCISE adherence" OR DE "EXERCISE for children" OR DE "EXERCISE for girls" OR DE "EXERCISE for men" OR DE "EXERCISE for middle-aged persons" OR DE "EXERCISE for older people" OR DE "EXERCISE for people with disabilities" OR DE "EXERCISE for women" OR DE "EXERCISE for youth" OR DE "EXERCISE therapy" OR DE "EXERCISE video games" OR DE "FACIAL exercises" OR DE "FALUN gong exercises" OR DE "FOOT exercises" OR DE "GYMNASTICS" OR DE "HAND exercises" OR DE "HATHA yoga" OR DE "HIP exercises" OR DE "ISOKINETIC exercise" OR DE "ISOLATION exercises" OR DE "ISOMETRIC exercise" OR DE "ISOTONIC exercise" OR DE "KNEE exercises" OR DE "LEG exercises" OR DE "LIANGONG" OR DE "METABOLIC equivalent" OR DE "MULAN quan" OR DE "MUSCLE strength" OR DE "PILATES method" OR DE "PLYOMETRICS" OR DE "QI gong" OR DE "REDUCING exercises" OR DE "RUNNING" OR DE "RUNNING -- Social aspects" OR DE "SCHOOL exercises & recreations" OR DE "SEXUAL exercises" OR DE "SHOULDER exercises" OR DE "STRENGTH training" OR DE "STRESS management exercises" OR DE "TAI chi" OR DE "TREADMILL exercise" OR DE "WHEELCHAIR workouts" OR DE "YOGA"

OR DE "SPORTS" OR DE "AERODYNAMICS in sports" OR DE
"AERONAUTICAL sports" OR DE "AGE & sports" OR DE "AMATEUR
sports" OR DE "ANIMAL sports" OR DE "ANTISEMITISM in sports" OR DE
"AQUATIC sports" OR DE "BALL games" OR DE "BALLISTICS in sports" OR
DE "BASEBALL" OR DE "BIOMECHANICS in sports" OR DE "COLLEGE
sports" OR DE "COMMUNICATION in sports" OR DE "CONTACT sports" OR
DE "CROSS-training (Sports)" OR DE "DISC golf" OR DE
"DISCRIMINATION in sports" OR DE "DOG sports" OR DE "DOPING in
sports" OR DE "ENDURANCE sports" OR DE "EXTREME sports" OR DE
"FANTASY sports" OR DE "FASCISM & sports" OR DE "FEMINISM &
sports" OR DE "GAELIC games" OR DE "GAY Games" OR DE "GOODWILL
Games" OR DE "GYMNASTICS" OR DE "HOCKEY" OR DE
"HOMOPHOBIA in sports" OR DE "HYDRODYNAMICS in sports" OR DE
"INDIVIDUAL sports" OR DE "KINEMATICS in sports" OR DE "KNIFE
throwing" OR DE "LGBT people & sports" OR DE "LOG-chopping (Sports)"
OR DE "MASCULINITY in sports" OR DE "MASS media & sports" OR DE
"MILITARY sports" OR DE "MINORITIES in sports" OR DE "MOTION
pictures in sports" OR DE "MOTORSPORTS" OR DE "NATIONAL socialism &
sports" OR DE "NATIONALISM & sports" OR DE "NONVERBAL
communication in sports" OR DE "OLYMPIC Games" OR DE "PARKOUR" OR
DE "PHOTOGRAPHY of sports" OR DE "PHYSICS in sports" OR DE
"PRESIDENTS -- Sports" OR DE "PROFESSIONAL sports" OR DE
"PROFESSIONALISM in sports" OR DE "RACING" OR DE "RACISM in

sports" OR DE "RACKET games" OR DE "RADAR in sports" OR DE
 "RECREATIONAL sports" OR DE "REGIONALISM & sports" OR DE
 "ROBOTICS in sports" OR DE "RODEOS" OR DE "ROLLER skating" OR DE
 "SCHOOL sports" OR DE "SENIOR Olympics" OR DE "SEXUAL harassment
 in sports" OR DE "SHOOTING (Sports)" OR DE "SHUTOUTS (Sports)" OR DE
 "SOCIALISM & sports" OR DE "SOFTBALL" OR DE "SPORT for all" OR DE
 "SPORTS & state" OR DE "SPORTS & technology" OR DE "SPORTS &
 theater" OR DE "SPORTS & tourism" OR DE "SPORTS competitions" OR DE
 "SPORTS for children" OR DE "SPORTS for girls" OR DE "SPORTS for older
 people" OR DE "SPORTS for people with disabilities" OR DE "SPORTS for
 women" OR DE "SPORTS for youth" OR DE "SPORTS forecasting" OR DE
 "SPORTS in antiquity" OR DE "SPORTS penalties" OR DE "SPORTS rivalries"
 OR DE "SPORTS teams" OR DE "SPORTS tourism" OR DE "STEREOTYPES
 (Social psychology) in sports" OR DE "TARGETS (Sports)" OR DE "TEAM
 sports" OR DE "TEAMWORK (Sports)" OR DE "TELEVISION & sports" OR
 DE "TRACEURS" OR DE "VIDEO tapes in sports" OR DE "VIOLENCE in
 sports" OR DE "WINTER sports") OR (DE "PHYSICAL activity")) OR (OR
 TI ((sport* or (physical n1 activit*))) OR AB ((sport* or (physical n1 activit*))
)

ERIC (ebsco):

(DE "Elementary School Students" OR DE "Children" OR DE "Preadolescents"

OR DE "Young Children" OR DE "Middle School Students") AND (DE "High School Students" OR DE "Secondary School Students" OR DE "College Bound Students" OR DE "Adolescents" OR DE "Junior High School Students") OR TI ((child* or adolescen* or teen* or (young n1 adult))) OR TI (((college or high school or elementary school or middle school) n2 student*)) OR AB ((child* or adolescen* or teen* or (young n1 adult))) OR AB (((college or high school or elementary school or middle school) n2 student*)

AND

DE "Physical Disabilities" OR DE "Heart Disorders" OR DE "Neurological Impairments" OR TI (physical n2 disabilit*) OR AB (physical n2 disabilit*)

AND

((DE "Exercise") OR (DE "Physical Activity Level")) OR (DE "Physical Activities" OR DE "Athletics" OR DE "Dance" OR OR TI ((sport* or (physical n1 activit*))) OR AB ((sport* or (physical n1 activit*))

APPENDIX B

PARENT/CAREGIVER INTERVIEW GUIDE

1. Tell me about your family and the role of having a family member with a disability.
2. What comes to mind when I say, “adaptive recreation”?
3. Does your disabled family member participate in adaptive recreation activities?
4. What role has adaptive recreation played in your lives?
 - a. The family?
 - b. For your family member with a disability?
 - i. PROBE: If adult, discuss childhood significance
5. What was life like before adaptive recreation?
6. How has life changed since your family member with a disability started participating?
7. How do you find out about adaptive recreation opportunities in your community?
8. How easy is it for you to access adaptive recreation information or activities in your community?
9. Do you have a group of individuals or network that supports you and your disabled family member?
 - a. How do they help?
10. How important is adaptive recreation for youth with disabilities and their families?
11. Do you believe your community is aware of adaptive recreation?
 - a. PROBE:
 - i. What are the benefits
 - ii. What are the barriers to participation
 - iii. How would you develop and enhance existing programs?
12. What are ways you think are effective in increasing awareness in your community?