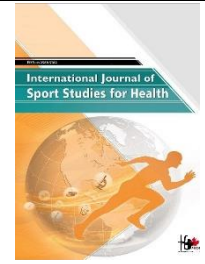


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Perceived Barriers and Facilitators to Physical Activity Among Individuals with Disabilities: A Qualitative Study



Abbie. Wilson^{1*}, Veronica. Longo², James. Ma², Solmaz. Bulut³

¹ Department of Psychology, Clark University, Worcester, Massachusetts, USA

² Rehabilitation Department, York Rehab Clinic, Toronto, Canada

³ MS, LPC, BHWC, Department of Counseling and Recovery Services of Oklahoma, Tulsa, OK, USA

* Corresponding author email address: abbiewilson@clarku.edu

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ABSTRACT

Objective: This study aimed to explore the perceived barriers and facilitators to physical activity among individuals with disabilities.

Methods and Materials: A qualitative phenomenological approach was employed to capture the experiences of individuals with disabilities. Participants were recruited from visitors of York Rehab Clinic in Canada, meeting the criteria of being aged 18 and above, having a physical disability, and being capable of providing informed consent. Data were collected through semi-structured interviews with 23 participants until theoretical saturation was reached. Interviews were transcribed verbatim and analyzed using thematic analysis, supported by NVivo software, to identify key themes and subthemes.

Findings: The study identified several barriers and facilitators to physical activity. Physical barriers included accessibility issues, transportation challenges, environmental barriers, and health-related limitations. Social barriers encompassed lack of social support, attitudinal barriers, lack of awareness, dependency on caregivers, and negative past experiences. Facilitators included supportive environments, social encouragement, professional guidance, motivational factors, adapted programs, and technological aids. Psychological factors such as self-efficacy, mental health benefits, perceived benefits, fear of injury, motivation fluctuations, and coping strategies also played significant roles in influencing physical activity participation.

Conclusion: The findings underscore the multifaceted nature of barriers and facilitators to physical activity among individuals with disabilities. Addressing physical accessibility, fostering supportive social environments, providing professional guidance, and leveraging technological aids are crucial for promoting physical activity participation. Future research should incorporate larger, diverse samples and explore tailored strategies for different types of disabilities. Practical recommendations include improving facility accessibility, enhancing social support, and integrating technology to facilitate physical activity.

Keywords: Physical activity, disabilities, barriers, facilitators, qualitative research, accessibility, social support, professional guidance, technological aids.

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1. Introduction

Physical activity is widely recognized as a critical component of health and well-being, offering numerous physical, psychological, and social benefits. For individuals with disabilities, engaging in physical activity can be particularly beneficial in mitigating the adverse effects of their conditions, improving overall health, and enhancing quality of life (1). Despite these benefits, individuals with disabilities often face unique and substantial barriers that hinder their participation in physical activity. Understanding these barriers, as well as the facilitators that can enhance physical activity participation, is essential for developing effective interventions and supportive environments for this population (2).

Individuals with disabilities encounter a myriad of physical, social, and environmental barriers that impede their ability to engage in regular physical activity. Physical barriers often include inaccessibility of facilities and equipment, inadequate transportation options, and environmental challenges such as poor weather conditions and unsafe terrain (3, 4). Aaltonen et al. (2012) found that lack of accessible infrastructure was a significant deterrent for individuals with disabilities, particularly those reliant on wheelchairs or other mobility aids (1).

Social barriers, including lack of social support, societal stigma, and negative attitudes towards disability, also play a critical role. The absence of supportive networks can leave individuals feeling isolated and discouraged from participating in physical activities (5). Atchison and Libarkin (2016) highlighted that societal attitudes towards disability can significantly impact the perceived accessibility of various activities, including physical exercise (6).

Environmental barriers are further compounded by the socio-economic factors that affect individuals with disabilities. Factors such as limited financial resources, lack of accessible transportation, and inadequate healthcare support can severely restrict opportunities for physical activity (7, 8). Chenary et al. (2016) emphasized the need for comprehensive support systems that address these multi-faceted barriers to facilitate greater engagement in physical activity among individuals with disabilities (9).

In contrast, various facilitators can significantly enhance the participation of individuals with disabilities in physical activity. Supportive environments, inclusive facilities, and adaptive programs designed to accommodate different types of disabilities are crucial (10). These facilitators create a

more welcoming and accessible atmosphere that encourages individuals with disabilities to engage in physical activity (11).

Social encouragement from family, friends, and the community also plays a pivotal role in promoting physical activity. Positive social interactions and encouragement can boost confidence and motivation, making individuals more likely to participate in physical activities (12). Professional guidance from physiotherapists and other healthcare providers, who can offer personalized exercise programs and expert advice, further supports physical activity engagement (13).

Technological advancements have introduced new tools and resources that facilitate physical activity among individuals with disabilities. Assistive devices, exercise apps, and online platforms provide accessible options for engaging in various forms of physical activity, regardless of physical limitations (14). These technologies can be particularly beneficial for those who face significant mobility challenges or live in areas with limited physical activity infrastructure (15).

Psychological factors such as self-efficacy, mental health benefits, and perceived benefits of physical activity also influence participation rates among individuals with disabilities. Self-efficacy, or the belief in one's ability to succeed in specific situations, is a powerful motivator. Individuals with high self-efficacy are more likely to engage in physical activity and persist despite challenges (16). Positive mental health outcomes, including reduced anxiety and improved mood, are additional benefits that encourage sustained participation in physical activity (17).

Perceived benefits such as improved health, enhanced quality of life, and increased independence further motivate individuals with disabilities to engage in physical activity (18). Conversely, fear of injury and variability in motivation can serve as psychological barriers. Concerns about getting hurt or exacerbating existing conditions can deter participation, while fluctuations in motivation can impact consistency in physical activity (19).

Addressing the barriers and enhancing the facilitators to physical activity among individuals with disabilities is essential for fostering an inclusive and supportive environment. As noted by Mohamed and Husin (2019), creating accessible physical activity opportunities requires a multi-faceted approach that includes policy changes, community support, and individual empowerment (20).

Educational and advocacy efforts are critical in changing societal perceptions and attitudes towards disability and

physical activity (21). Programs aimed at increasing awareness and understanding of the unique challenges faced by individuals with disabilities can promote a more inclusive culture that supports physical activity participation (22).

Moreover, integrating physical activity into the daily lives of individuals with disabilities can have far-reaching benefits beyond physical health. Improved social participation, greater independence, and enhanced overall well-being are just a few of the positive outcomes associated with regular physical activity (23). As Ruiz (2023) pointed out, physical activity can also play a crucial role in fostering intimate relationships and social connections, further enhancing quality of life (24).

This study aims to explore the perceived barriers and facilitators to physical activity among individuals with disabilities through a qualitative approach. By understanding the complex interplay of physical, social, environmental, and psychological factors, we can develop more effective interventions and support systems that promote physical activity participation in this population. Addressing these barriers and leveraging facilitators is not only crucial for improving health outcomes but also for enhancing the overall quality of life and social inclusion for individuals with disabilities. As the body of research continues to grow, it is imperative that policymakers, healthcare providers, and communities work together to create an environment that supports and encourages physical activity for all individuals, regardless of their physical abilities.

2. Methods and Materials

2.1 Study Design and Participants

This qualitative study employed a phenomenological approach to explore the perceived barriers and facilitators to physical activity among individuals with disabilities. The participants were recruited from visitors of York Rehab Clinic in Canada. The inclusion criteria were individuals aged 18 years and above who have a physical disability, are mentally capable of providing informed consent, and are willing to participate in a semi-structured interview. We aimed for a diverse sample in terms of age, gender, type of disability, and duration of the disability to capture a broad range of experiences and perspectives.

2.2 Data Collection

Data were collected using semi-structured interviews, which provided the flexibility to explore participants'

experiences in depth while allowing for the emergence of new themes. An interview guide was developed based on existing literature and expert input, covering topics such as personal experiences with physical activity, perceived barriers, facilitators, and suggestions for improving physical activity participation among individuals with disabilities.

Interviews were conducted in a private setting at York Rehab Clinic to ensure confidentiality and comfort for the participants. Each interview lasted approximately 45 to 60 minutes and was audio-recorded with the participants' consent. Theoretical saturation was reached when no new themes or insights were emerging from the interviews, which occurred after 20 participants were interviewed.

2.3 Data Analysis

The audio-recorded interviews were transcribed verbatim and analyzed using thematic analysis. The analysis process involved several steps:

Familiarization with the Data: The researchers read and re-read the transcripts to immerse themselves in the data and gain a comprehensive understanding of the participants' experiences.

Generating Initial Codes: Key phrases and sentences were identified and coded. Coding was done manually by two independent researchers to enhance the reliability of the analysis.

Searching for Themes: Codes were grouped into potential themes based on similarities and patterns. A thematic map was created to visualize the relationships between themes and sub-themes.

Reviewing Themes: Themes were reviewed and refined to ensure they accurately reflected the data. This involved checking the themes against the coded data extracts and the entire data set.

Defining and Naming Themes: Each theme was clearly defined and named, capturing the essence of the participants' experiences.

Writing Up: A detailed narrative was constructed, supported by direct quotes from the participants to illustrate the themes and provide rich, contextual insights into the perceived barriers and facilitators to physical activity among individuals with disabilities.

The analysis was conducted using NVivo software to manage and organize the data. Throughout the analysis, we adhered to principles of reflexivity, maintaining an awareness of our own biases and ensuring that the findings were grounded in the participants' perspectives.

3. Findings and Results

The study included 23 participants who were visitors of York Rehab Clinic in Canada. The age of participants ranged from 18 to 65 years, with a mean age of 42 years. Of the participants, 13 (56.5%) were female and 10 (43.5%) were male. The types of disabilities represented in the study varied, including 8 participants (34.8%) with spinal cord injuries, 5 participants (21.7%) with cerebral palsy, 4 participants (17.4%) with multiple sclerosis, 3 participants

(13%) with amputations, and 3 participants (13%) with other physical disabilities such as muscular dystrophy and arthritis. The duration of living with a disability ranged from 1 year to over 30 years, with an average duration of 15 years. Most participants (17 or 73.9%) lived in urban areas, while the remaining 6 (26.1%) resided in rural settings. Educational levels varied, with 12 participants (52.2%) having completed high school, 7 (30.4%) having some college education, and 4 (17.4%) holding a university degree.

Table 1. The Results of Qualitative Analysis

Category	Subcategories	Concepts
1. Physical Barriers	Accessibility Issues	Lack of ramps, inaccessible equipment, poor facility design
	Transportation Challenges	Lack of accessible transport, long travel times, high costs
	Environmental Barriers	Poor weather conditions, uneven terrain, lack of safe spaces
	Health-Related Limitations	Pain, fatigue, medical conditions
2. Social Barriers	Social Support	Lack of family support, absence of peer groups, social isolation
	Attitudinal Barriers	Negative attitudes from others, societal stigma, discrimination
	Lack of Awareness	Ignorance about disability needs, lack of information
	Dependency on Caregivers	Need for assistance, caregiver availability, dependence dynamics
3. Facilitators	Negative Past Experiences	Previous negative interactions, fear of judgment, past failures
	Supportive Environment	Inclusive facilities, accessible spaces, positive atmosphere
	Social Encouragement	Family encouragement, peer support, community involvement
	Professional Guidance	Support from physiotherapists, personalized training, expert advice
	Motivational Factors	Personal goals, intrinsic motivation, success stories
4. Psychological Factors	Adapted Programs	Tailored exercise programs, specialized classes, adaptive equipment
	Technological Aids	Assistive devices, exercise apps, online resources
	Self-Efficacy	Confidence in abilities, previous success, self-belief
	Mental Health	Anxiety reduction, mood improvement, stress relief
	Perceived Benefits	Health improvements, quality of life, increased independence
	Fear of Injury	Concerns about getting hurt, risk of worsening condition
	Motivation Fluctuations	Variability in motivation, influence of mood, goal setting
Coping Strategies	Stress management techniques, problem-solving skills, resilience	

3.1 Physical Barriers

Accessibility Issues: Participants frequently mentioned the lack of ramps, inaccessible equipment, and poor facility design as significant barriers to engaging in physical activity. One participant noted, "The gym near my house has no ramps, and most of the equipment is not adapted for wheelchair users."

Transportation Challenges: Many individuals cited the lack of accessible transport, long travel times, and high costs associated with traveling to fitness facilities. A participant shared, "It takes me over an hour and two buses to get to the nearest accessible gym, and that's if the buses are running on time."

Environmental Barriers: Poor weather conditions, uneven terrain, and lack of safe spaces were highlighted as obstacles. "I love going for walks, but the sidewalks in my

neighborhood are terrible, and it's unsafe," explained one interviewee.

Health-Related Limitations: Pain, fatigue, and medical conditions were commonly mentioned as limiting factors. One participant said, "Some days, my pain is so bad that I can't even think about exercising."

3.2 Social Barriers

Social Support: The lack of family support, absence of peer groups, and social isolation were significant barriers. "I wish my family understood how important exercise is for me, but they don't really support me," one participant lamented.

Attitudinal Barriers: Negative attitudes from others, societal stigma, and discrimination were frequently discussed. A participant expressed, "People often stare at me

when I try to work out, and it makes me feel very self-conscious."

Lack of Awareness: Ignorance about the needs of individuals with disabilities and the lack of information were noted as barriers. "Most people just don't know what we need to participate in physical activities," said one participant.

Dependency on Caregivers: The need for assistance, caregiver availability, and dependence dynamics were highlighted. "I can't exercise without my caregiver's help, and sometimes they're not available," explained a participant.

Negative Past Experiences: Previous negative interactions, fear of judgment, and past failures discouraged participants. One interviewee recalled, "I had a bad experience at a gym once, and now I'm afraid to go back."

3.3 Facilitators

Supportive Environment: Inclusive facilities, accessible spaces, and a positive atmosphere were seen as facilitators. "I finally found a gym that welcomes people with disabilities, and it makes a huge difference," shared a participant.

Social Encouragement: Family encouragement, peer support, and community involvement were vital facilitators. A participant mentioned, "My friends and family cheer me on, which keeps me motivated."

Professional Guidance: Support from physiotherapists, personalized training, and expert advice were beneficial. "My physiotherapist has been incredible in helping me find exercises that work for me," said one participant.

Motivational Factors: Personal goals, intrinsic motivation, and success stories inspired participants. "Setting small, achievable goals keeps me motivated," explained one interviewee.

Adapted Programs: Tailored exercise programs, specialized classes, and adaptive equipment were crucial facilitators. "The adaptive yoga class has been a game-changer for me," shared a participant.

Technological Aids: Assistive devices, exercise apps, and online resources helped participants stay active. "I use an app that tailors workouts to my needs, and it's really helpful," said one participant.

3.4 Psychological Factors

Self-Efficacy: Confidence in abilities, previous success, and self-belief were critical for participation. One participant

stated, "Once I realized I could do it, my confidence skyrocketed."

Mental Health: Benefits such as anxiety reduction, mood improvement, and stress relief were highlighted. "Exercise helps me manage my anxiety and improves my mood," explained a participant.

Perceived Benefits: Health improvements, quality of life, and increased independence were significant motivators. "Physical activity has improved my overall health and given me more independence," shared one interviewee.

Fear of Injury: Concerns about getting hurt and the risk of worsening their condition were common. "I'm always worried about injuring myself further, which sometimes holds me back," said a participant.

Motivation Fluctuations: Variability in motivation, influence of mood, and goal setting were discussed. "My motivation varies a lot; some days I'm really driven, other days not so much," noted one participant.

Coping Strategies: Stress management techniques, problem-solving skills, and resilience helped participants. "I've learned some great coping strategies that help me stay on track," explained a participant.

4. Discussion and Conclusion

The findings of this study revealed a complex array of barriers and facilitators that impact the participation of individuals with disabilities in physical activity. The barriers were categorized into physical, social, and psychological domains, while the facilitators included supportive environments, social encouragement, professional guidance, motivational factors, adapted programs, and technological aids. These results underscore the multifaceted nature of the challenges and supports experienced by this population.

Physical Barriers: Accessibility issues such as lack of ramps, inaccessible equipment, and poor facility design were frequently mentioned. These findings align with previous studies that identified physical inaccessibility as a significant deterrent to physical activity among individuals with disabilities (1, 3). Transportation challenges, including lack of accessible transport and high costs, were also significant barriers as mentioned in prior studies (4).

Social Barriers: Lack of social support, negative attitudes, and societal stigma were prominent social barriers. These results are consistent with those of Hassett et al. (2021) and Atchison and Libarkin (2016), who highlighted the critical role of social environments and attitudes in influencing physical activity participation (5, 6).

Psychological Factors: Self-efficacy and mental health benefits emerged as significant facilitators, while fear of injury and motivation fluctuations were notable barriers. These findings align with studies by Hong, Stokar, and Choi (2016) and Idowu et al. (2015), emphasizing the psychological components that influence physical activity behavior (16, 19).

Supportive Environments and Professional Guidance: Inclusive facilities and professional support were identified as key facilitators. These results are supported by research from Shields, Synnot, and Barr (2011) and Courtney-Long et al. (2017), which emphasize the importance of accessible environments and expert guidance in promoting physical activity (10, 11).

The findings from this study highlight the critical interplay between physical, social, and psychological factors in shaping physical activity behaviors among individuals with disabilities. The pervasive issue of accessibility underscores the need for more inclusive infrastructure. Aaltonen et al. (2012) and Ascondo et al. (2023) both emphasized that without accessible facilities and equipment, individuals with disabilities are significantly hindered in their ability to engage in physical activity (1, 3). This study corroborates these findings, demonstrating that physical barriers remain a significant obstacle.

Social barriers such as lack of support and negative attitudes also emerged as significant impediments. Hassett et al. (2021) and Atchison and Libarkin (2016) similarly found that social environments greatly influence physical activity participation (5, 6). The current study's findings further highlight the importance of addressing societal stigma and fostering supportive social networks to enhance participation rates.

Psychological factors, particularly self-efficacy and perceived benefits, play a crucial role in motivating individuals with disabilities to engage in physical activity. The positive impact of self-efficacy and mental health benefits found in this study aligns with the prior work (16). Additionally, the fear of injury and fluctuating motivation identified in this study reflect concerns noted before (19). These psychological barriers indicate the need for interventions that boost confidence and provide consistent motivation to sustain physical activity participation.

The role of supportive environments and professional guidance cannot be overstated. Shields, Synnot, and Barr (2011) and Courtney-Long et al. (2017) highlighted the importance of accessible facilities and professional support, findings which are echoed in the present study (10, 11). The

availability of adapted programs and the use of technological aids also emerged as significant facilitators, suggesting that tailored approaches and innovative solutions can effectively promote physical activity among individuals with disabilities.

This study has several limitations that should be considered when interpreting the findings. Firstly, the sample size of 23 participants, while sufficient for qualitative research, limits the generalizability of the results to the broader population of individuals with disabilities. Additionally, the study relied on self-reported data, which may be subject to biases such as social desirability and recall bias. The focus on visitors of York Rehab Clinic may also introduce a selection bias, as these individuals might have more access to rehabilitation resources compared to the general population of people with disabilities. Finally, the study did not account for potential differences in barriers and facilitators based on specific types of disabilities, which could provide more nuanced insights.

Future research should aim to address the limitations of this study by incorporating larger, more diverse samples to enhance the generalizability of the findings. Longitudinal studies could provide valuable insights into how barriers and facilitators to physical activity change over time and in response to interventions. Additionally, future research should explore the differences in physical activity participation across various types of disabilities to identify tailored strategies that can address specific needs. Quantitative studies could also complement qualitative findings by providing statistical evidence of the prevalence and impact of identified barriers and facilitators. Exploring the role of technology in promoting physical activity and examining its effectiveness in various disability contexts would also be valuable.

Based on the findings of this study, several practical recommendations can be made to enhance physical activity participation among individuals with disabilities. First, improving the accessibility of facilities and equipment is paramount. This includes the installation of ramps, accessible exercise equipment, and the design of inclusive spaces that accommodate various disabilities. Policymakers and facility managers should prioritize accessibility in the design and renovation of public and private fitness facilities.

Second, fostering supportive social environments is crucial. Community programs that promote social inclusion and support networks for individuals with disabilities can significantly enhance participation. Educating the public and training fitness professionals to adopt positive attitudes

towards disability can help reduce societal stigma and encourage more inclusive practices.

Third, providing professional guidance and adapted programs is essential. Healthcare providers and fitness professionals should receive specialized training to deliver personalized exercise programs tailored to the needs of individuals with disabilities. These programs should be designed to boost self-efficacy and provide consistent motivation, addressing psychological barriers such as fear of injury and fluctuating motivation.

Lastly, leveraging technology can play a significant role in facilitating physical activity. The development and promotion of assistive devices, exercise apps, and online platforms tailored to individuals with disabilities can provide accessible and flexible options for engaging in physical activity. These technological solutions should be integrated into broader strategies aimed at enhancing physical activity participation.

This study highlights the multifaceted barriers and facilitators to physical activity among individuals with disabilities. By understanding these factors, stakeholders can develop more effective interventions and supportive environments that promote physical activity participation. Addressing physical accessibility, fostering supportive social environments, providing professional guidance, and leveraging technology are critical components of such strategies. Future research should continue to explore these areas, incorporating larger and more diverse samples, to build a comprehensive understanding of how to best support individuals with disabilities in leading active, healthy lives.

Authors' Contributions

A.W. conceptualized the study, designed the research methodology, and supervised the project implementation. V.L. conducted the literature review, facilitated the recruitment process, and ensured the accuracy of data collection. J.M. performed the thematic analysis using NVivo software, interpreted the results, and contributed to drafting the manuscript. S.B. conducted interviews, managed data transcription, and reviewed the manuscript for critical intellectual content. All authors participated in discussing the findings, critically reviewed the manuscript, and approved the final version for publication.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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