



INVESTIGATION OF CONSTRAINS TOWARD PARTICIPATION IN SPORTS AND LEISURE ACTIVITIES OF PEOPLE WITH DISABILITIES

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Abstract:

The purpose of the study is to investigate the factors that deter, inhibit and/or prevent the participation of people with disabilities in athletic activities, and also the investigation of possible differentiation of reasons that inhibit exercise in people with disabilities based on gender, age, educational level, congenital or acquired disability, the participation or not in athletic activities and the frequency of participation. For the needs of this study, the “Barrier to Physical Activity Questionnaire for People with Mobility Impairments – BPAQ-MI” (Vasudevan, Rimmer, & Kviz, 2015) was used. The results showed that the main intrapersonal inhibitors are the concerns for health and the attitudes regarding physical activity. Interpersonal factors that inhibit are physical inertia, the lack of encouragement, and the non-adoption of an active lifestyle in the familial and friendly environment. The lack of accessible infrastructures and programs, the lack of appropriate equipment for adapted exercise, the lack of marketing for people with disabilities, the lack of coverage of the cost of participation from health insurance, and the high cost of participation in athletic programs constitute basic organizational barriers. The lack of accessibility of the general environment, the means of transport to the place of exercise, and safety constitute social barriers. Statistically important differences are observed between the two genders, different age groups, different levels of education, and different frequency of participation in athletic activities. The understanding of the inhibitors and obstacles, will contribute to the obviation of the reasons of distance, to the reinforcement of participation in athletic programs and recreational movement. The designers of athletic policy, the managers of athletic and recreational centers ought to

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improve the infrastructure, the services, according to the needs of people with disabilities, and to eliminate possible obstacles that bar participation.

Keywords: constrains, people with disabilities, participation in sport activities

1. Introduction

An energetic and active lifestyle for people with physical, sensory, and mental disabilities is accompanied by significant benefits on a physical, emotional, psychological, and social level, promoting a higher quality of life (Sherrill, 2004; World Health Organization, 2020). However, the levels of physical activity of people with disabilities are exceptionally low due to the lack of exercise and limited opportunities (Health People Report, 2020; Wilson & Clayton, 2010). People with disabilities are more likely to be inactive and abstain from physical exercise in comparison to the healthy population (Krane & Orkis, 2009; Vasudevan, Rimmer, & Kviz, 2015). In fact, adults with disabilities have almost double the probability in comparison to people without disabilities to be physically inactive (42.4% instead of 22.65%) (Sports England, 2022). Likewise, children with disabilities act less on physical activity in comparison to their typically-developing peers (Shields & Synnot, 2016). At the same time, people with disabilities that often occupied themselves with adapted sports pointed out a better perception of quality of life in comparison to their relatively inactive peers (Chatzilelecas, Filipovic, & Petrinovic, 2015). The understanding of interpreting factors and barriers constitutes a vital and decisive factor for the lifting of the reasons for departure, and reinforcement of participation in athletic and physical entertainment programs. However, the reasons for departure from physical activity are complex and multifaceted (Vasudevan et al., 2015). A clear perception of these will help the successful application of policies for the promotion of physical activity for people with disabilities (French & Hainsworth, 2001). The purpose of this current study is the investigation of factors that deter inhibit and /or prevent the participation of people with disabilities in athletic activities. Further goals where the investigation of possible differentiation of the causes that inhibit the physical activity of people with disabilities on the basis of: a) gender, b) age, c) educational level, d) whether the disability is congenital or acquired e) the participation or not in athletic activities, and f) the frequency of participation.

2. Literature Review

2.1. Inhibitors of Participation in Adapted Sports

The levels of physical activity of people with disabilities are much lower than the corresponding levels of the general population (Health People Report, 2020) and the extensive investigation of the matter, captures different reasons for the decreased participation. The systematic review of Clemente (2017) showed that there are various obstacles and each type of disability faces different bounds, which occasionally regard

physical obstacles (health, fatigue, related cardiological problems, asthma, security etc.) sometimes due to logistical infrastructure (non-accessible athletic infrastructure, lack of appropriate athletic programs) and on occasion psychological reasons (personal perceptions, negative self-image, low confidence, anxiety, stress etc.). Often the reasons, according to Clemente (2017) are location related, such as the great distance from athletic installations, while occasionally they regard the lack of economic resources, the lack of knowledge, the overprotectiveness of the parental environment, and the negative social stances against disability. The research of Úbeda-Colomer, Devís, and Sit (2019) categorizes as more important obstacles the (a) intrapersonal (for example fatigue, pain, lack of motivation), (b) organizational (for example lack of adapted programs, economical cost), (c) interpersonal, (inactive and underactive stances of the familial and friendly environment) (d) structural/social (inaccessible streets, non-noticeable pavements, street crossings without any signaling etc.). Important differences were found in the obstacles by gender, age, disability, related disability, and type of disability. It seems that the groups that are hurt the most by the obstacles of those with multiple disabilities and a higher score of disability. The study of Vasudevan, Rimmer, and Kviz (2015) uncovered that the obstacles to participation in physical activity are categorized into the following factors: health, attitudes, and beliefs, family, friends, built environment of athletic space, staff, and policy, community-built environment, and safety. The study showed important negative correlations such as the frequency of physical activity (minutes/week) and several positive correlations between the adaption of the inhibitors of sport and inactivity hours/day). In a systematic review, Ginis et al. (2016) came to the conclusion that on an intrapersonal level, the factors that inhibit participation in physical activity are psychological, functions and structures of the body, but also the condition of occupation.

In fact, it is more commonly mentioned in the psychological subcategories of emotion, beliefs attitudes / received benefits, and perceptions, and also in the matter of the functions and structures of the body. Intrapersonal factors that also have been mentioned are decreased self-esteem and the fear of failure (Ferrari, 2019) and perceived abilities and low self-image (McGarty & Melville, 2018). In the same framework, family culture, attitudes, and beliefs of the parents and the effect of the friendly environment have been mentioned as interpersonal factors (McGarty & Melville, 2018; Solish, Perry, & Minnes, 2010), as well as, the difficulty of finding a friend of the same age for recreational activity (Pitchford, Siebert, Hamm, & Yun, 2016). Finally, the long distance from the athletic activity (Hammal, Jarvis, & Colver, 2004), the lack of economic resources, the lack of concern from the state, the non-accessible infrastructure, the lack of appropriate equipment but also the lacking information (Jaarsma, Dijkstra, Geertzen, & Dekker, 2015; Shikako-Thomas, Majnemer, Law, & Lach, 2008) are viewed as structural factors. While studying the everyday participation in physical activity of children on the autism spectrum Memari et al. (2015) found that the economic burdening of the family and the lack of opportunities were noted as the main obstacles to physical activity. Based on the research of Grills et al. (2017), the lack of information regarding the services, the difficulty

of accessibility in athletic services, public transport, and the lack of proper facilitation constitute obstacles to accessibility while the unsupportive stances of the familiar environment are often negative influences. Rosly et al. (2018) support the barriers to participation regarding the inaccessible infrastructure, the expensive physical activity equipment, and the physical pain caused by the disability. In their study, Walker et al. (2020) came to the conclusion that the obstacles to participation and sports among teenagers with cerebral palsy that live in rural societies include a lack of inclusion, isolation of the family, and limited accessibility of equipment and resources. In the study of Batten et al. (2020), centered around people with amputation of lower limbs, the notion that obstacles connected to the functionality and form of the body included the prosthetic function, the integrity of the non-amputated limbs, the pain of phantom limb and other medical matters, in optimal condition; prosthetics function and appropriate physical condition being recognized as expeditors of physical activity. Personal obstacles included challenges of adjustments to changes, while environmental obstacles included territorial accessibility and the climate, while social obstacles included unwanted attention and financial matters. Rimmer et al. (2017) while evaluating a sample of 227 sports infrastructures in 10 states (USA) spotted the low accessibility of the majority of infrastructures, the inappropriate equipment for adapted physical activity, the lack of information/signage that facilitates accessibility, etc. as restricting factors. According to Calder, Sole, and Mulligan (2018), the accessibility of athletic centers is unlikely to change until the legislation of building compliance is updated from the minimum standards. A collaborative approach is required whereby those responsible for legislation drafting and law-making, the professionals of the building, and the people with disabilities can share their respective knowledge, learn from each other, and design together an inclusive environment of athletic activity without discrimination.

3. Material and Methods

3.1. Sample – Demographic Characteristics

The sample of the present study was N = 143 people with motor disabilities, of which 88 were men (61.5%) and 55 were women (38.5%). Regarding age 44.8% (n = 64) were aged 18-39, 38.5% (n = 55) were aged 40-59 and 16.8% (n = 24) were over 60 years old. Regarding their educational level, 47.6% of the sample (n = 68) have secondary education, 33.6% (n = 48) have tertiary education, 15.4% of the sample (n = 22) has primary education while the remaining 3.5% (n = 5) has Postgraduate Diploma. Regarding mobility disorders, 39.2% of the sample (n = 56) have mobility impairment due to spinal cord injury, 20.3% (n = 29) due to multiple sclerosis, 10.5% of the sample (n = 15) due to arthritis, 9.8% (n = 14) due to pain, 9.1% of the sample (n = 13) due to cerebral palsy, 7.7% (n = 11) due to amputation, 7.7% (n = 11) due to stroke, 4.9% (n = 7) due to diabetes or cardiac disorders and 0.7% of the sample (n = 1) due to lymphedema. Regarding mobility aids, 52.2% of the sample uses a wheelchair as an aid, 23.5% uses a cane, 19.1% are ambulatory and the remaining 5.1% of the sample uses a prosthetic limb. Finally, 71.3% of the sample states

that their disability is acquired, while 28.7% report that it is from birth. Regarding the adaptation of physical activity, 53.1% of the sample states that they participate in some kind of sports activity while 46.9% answer negatively. Among those who exercise, 34.2% report participating frequently 2 times a week, 26.3% frequency of participation 1 time a week, 23.7% reports that they participate 3 times a week, 10.5% report that they participate 5 or more times a week, and 5.3% report that they participate 4 times a week.

3.2. Tools of Collection of Data

For the purposes of this study, the Barriers to Physical Activity Questionnaire for People with Mobility Impairments – BPAQ-MI (Vasudevan, Rimmer, Kviz, 2015) was used. The BPAQ-MI investigates the four categories of inhibiting factors (a) intrapersonal (health, Beliefs/attitudes toward physical activity), (b) interpersonal (role of family and friends), (c) organizational (fitness center-built environment, staff, programme, policy) and (d) community (community-built environment, safety). The questions were answered on a Likert scale of 5 points (1= very small ...5 = very big). The Cronbach's alpha was: (i) health = .882, (ii) beliefs/attitudes towards physical activity = .879, (iii) role of friends = .886, (iv) role of family = .908, (v) fitness center-built environment = .944, (vi) staff/program/policy = .845, (vii) community-built environment = .898 and (viii) safety = .794.

3.3. Statistical Analysis

The independent variables of the study were (a) gender, (b) age, (c) educational level, (d) the origin of disability [congenital, acquired], (e) participation or not in any kind of sports activity and (f) frequency of participation in sports activities. Dependent variables were the 4 factors of the questionnaire (a) intrapersonal, interpersonal, (c) organizational, and (d) community inhibiting factors. In the study, descriptive and inductive statistical analysis were utilized (t-test analysis for independent groups, ANOVA) and Levene's test was used to test to the condition of quality of variances.

4. Results and Discussion

4.1. Intrapersonal Barriers Factors towards Participation in Sports Activities

According to Table 1, health concerns constitute important intrapersonal inhibiting factors. Specifically, 77% of the sample state that physical activity requires a lot of work/effort/energy, 69.7% reported that they get tired/exhausted, 69.5% that they do not have the appropriate level of physical condition to be physically active, 60.7% feel physical discomfort during physical activity, while the 56.9% feel pain during exercise. Regarding attitudes/beliefs towards physical activity, 60% of the sample reports that they do not have the motivation to be physically active, 56.7% that they do not have confidence in their abilities, and 54.3% states that physical activity is not a pleasant experience. A significant percentage (51.8%) declare that they have not seen positive results from previous physical activity, while 49.3% do not believe in the usefulness of exercise for their health. The low self-perception is reflected in the fact that 44.2% feel bad about their

appearance during physical exercise. Lack of motivation (amotivation), is proven to be a significant inhibiting factor since 42.7% do not see any reason to be physically active (Table 1).

Table 1: Intrapersonal Barriers Factors (Health, Beliefs/Attitudes toward Physical Activity)

	M	SD	Very small Barrier		Somewhat of a Barrier		Moderate of a Barrier		Big Barrier		Very Big Barrier	
			N	%	N	%	N	%	N	%	N	%
Health	2.89	0.93										
You get tired or fatigued			8	5.0%	35	24.6%	44	31.0%	33	23.2%	22	15.5%
You were in pain			27	19.4%	33	23.7%	42	30.2%	24	17.3%	13	9.4%
You believe physical activity requires too much work/effort/energy			5	3.6%	27	19.4%	39	28.1%	42	30.2%	26	18.7%
You didn't have an appropriate fitness level to be physically active (e.g., lack of aerobic ability)			23	16.3%	20	14.2%	40	28.4%	35	24.8%	23	16.3%
You felt physical discomfort while being physically active			18	12.9%	37	26.4%	35	25.0%	27	19.3%	23	16.4%
You were afraid of getting injured while being physically active			31	21.8%	34	23.9%	40	28.2%	25	17.6%	12	8.5%
You were depressed			60	43.2%	31	22.3%	22	15.8%	20	14.4%	6	4.3%
Beliefs/Attitudes toward physical activity	2.49	0.96										
You lack the motivation to be physically active			33	23.6%	23	16.4%	45	32.1%	26	18.6%	13	9.3%
You don't have confidence in your ability to be physically active			34	24.1%	27	19.1%	36	25.5%	30	21.3%	14	9.9%
You were embarrassed about your appearance while being physically active			54	38.6%	24	17.1%	29	20.7%	23	16.4%	10	7.1%
You have not seen positive results from previous physical activity			45	32.4%	22	15.8%	42	30.2%	17	12.2%	13	9.4%
You feel you are too old to be physically active			50	35.5%	37	26.2%	23	16.3%	20	14.2%	11	7.8%
You didn't think physical activity would help you			41	29.3%	30	21.4%	35	25.0%	19	13.6%	15	10.7%
Being physically active is not enjoyable			38	27.9%	27	19.9%	46	33.8%	19	14.0%	6	4.4%
You don't see a reason to be physically fit			51	37.5%	27	19.9%	30	22.1%	16	11.8%	12	8.8%

4.2. Interpersonal Barriers Factors towards Participation in Sports Activities

In regard to interpersonal inhibitory factors, the role of the familiar and friendly environment emerges as important. The wider friendly environment acts as an inhibitor when their friends do not talk about sports (69.4%), when they are not physically active (62.5%), when they do not have another physically active disabled person to follow their

example (56.9%). Physical inactivity is explained by the fact that physical activity is not a priority for their friends (56.1%) and that they do not encourage or support their effort to be physically active (41%). The effect of the familial environment also seems to be catalytic. The family members may be a limiting factor, since 71.2% are not physically active, they do not encourage the effort to adopt physical activity (66.9%) and it is not a priority for them 58.3%, while a large percentage (48.6%) do not believe that exercise is useful for improving health (Table 2).

Table 2: Interpersonal Barriers Factors (Friends – Family)

	M	SD	Very small Barrier		Somewhat of a Barrier		Moderate of a Barrier		Big Barrier		Very Big Barrier	
			N	%	N	%	N	%	N	%	N	%
Friends	2.66	1.00										
You did not have another person with a disability who was physically active to look up to			44	31.7%	16	11.5%	36	25.9%	24	17.3%	19	13.7%
Your friends didn't assist you to be physically active			31	22.1%	32	22.9%	45	32.1%	18	12.9%	14	10.0%
Your friends are not physically active			16	11.3%	37	26.2%	49	34.8%	28	19.9%	11	7.8%
Your friends don't talk about being physically active			25	18.7%	16	11.9%	54	40.3%	28	20.9%	11	8.2%
Your friends were not encouraging or supportive of your efforts to be physically active			37	26.6%	45	32.4%	28	20.1%	15	10.8%	14	10.1%
Your friend's priorities take precedence/priority over you being physically active			36	25.5%	26	18.4%	53	37.6%	17	12.1%	9	6.4%
Family	2.78	1.03										
Your family's culture, beliefs, or morals did not place physical activity as a priority			20	14.4%	38	27.3%	42	30.2%	26	18.7%	13	9.4%
Your family did not assist you to be physically active			30	21.6%	35	25.2%	36	25.9%	28	20.1%	10	7.2%
Your family members are not physically active			12	8.6%	28	20.1%	41	29.5%	38	27.3%	20	14.4%
Your family members were not encouraging or supportive of your efforts to be physically active			35	25.2%	11	7.9%	58	41.7%	20	14.4%	15	10.8%
Your family did not think physical activity would be helpful to improve your health			39	28.3%	32	23.2%	41	29.7%	19	13.8%	7	5.1%

4.3. Organizational Barriers Factors towards Participation in Sports Activities

In terms of organizational factors, the main participation barriers were focused on the lack of accessible showers and changing rooms (66.0%), the lack of accessible routes to the gym/sports venue (63.8%), the lack of accessible toilets (63.6%), the absence of accessible door handles (62.9%), the narrowness of corridors and/or corridors with barriers (60.0%), lack of access to indoor track for walking/wheelchair movement (58.5%), lack of accessible ramps in the gym/sports venue (56.9%), lack of disability-friendly exercise equipment in the gym/sports venue (56.3%), inaccessibility of the ground where they walk (50%), lack of accessible parking (43.9%) and lack of accessible lifts in the gym/sports venue (39.7%). In terms of staff/programs/policies, lack of disability marketing and information (74.7%), lack of accessible walking/wheelchair paths in parks (71.9%), lack of accessible classes/programs in the gym/sports venue (70.3%), lack of accessible sports opportunities in the gym/sports venue (66.4%), lack of interpretive services e.g., sign language (66.4%), not having health insurance provider covering the cost of participation (63.1%), not having signs explaining where each space is located (52.2%), high cost of participation in sports programs (39.4%), lack of help from gym/sports venue staff (30.2%) and finally that other gym/sports venue staff are rude (18.7%) (Table 3).

Table 3: Organizational Barriers Factors (Fitness Center Built Environment, Staff/Programme/Policy)

	M	SD	Very small Barrier		Somewhat of a Barrier		Moderate of a Barrier		Big Barrier		Very Big Barrier	
			N	%	N	%	N	%	N	%	N	%
Fitness Center Built Environment (FC_BE)	2.74	1.05										
Lack of accessible exercise equipment at fitness center			28	19.7%	34	23.9%	34	23.9%	36	25.4%	10	7.0%
The walkways/aisles were too narrow or had obstacles			27	19.3%	29	20.7%	50	35.7%	23	16.4%	11	7.9%
Lack of accessible door handles			27	19.3%	25	17.9%	47	33.6%	28	20.0%	13	9.3%
Lack of accessible curb cuts at fitness center			30	21.7%	20	14.5%	47	34.1%	33	23.9%	8	5.8%
Ground that you walk/roll on was not accessible			35	25.0%	35	25.0%	42	30.0%	23	16.4%	5	3.6%
Lack of accessible ramps at fitness center			30	21.6%	30	21.6%	31	22.3%	34	24.5%	14	10.1%
Lack of accessible bathrooms at fitness center			32	22.9%	19	13.6%	33	23.6%	30	21.4%	26	18.6%
Lack of accessible showers/locker rooms			29	20.6%	19	13.5%	29	20.6%	22	15.6%	42	29.8%
Lack of accessible elevators at fitness center			54	39.7%	28	20.6%	26	19.1%	14	10.3%	14	10.3%
Lack of accessible parking at fitness center			44	31.7%	34	24.5%	32	23.0%	13	9.4%	16	11.5%
Lack of access to indoor track for walking/wheeling			36	25.7%	22	15.7%	28	20.0%	31	22.1%	23	16.4%

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Staff/Programme/Policy	2.75	0.85										
Fitness center membership fees were too high			58	40.8%	28	19.7%	35	24.6%	18	12.7%	3	2.1%
Your health insurance plan do not cover membership fees			35	24.8%	17	12.1%	43	30.5%	24	17.0%	22	15.6%
Lack of inclusive marketing			14	9.9%	22	15.5%	26	18.3%	39	27.5%	41	28.9%
Lack of accessible classes/programs at fitness center			27	19.6%	14	10.1%	35	25.4%	20	14.5%	42	30.4%
Other fitness center members were mean or rude			82	59.0%	31	22.3%	13	9.4%	7	5.0%	6	4.3%
Lack of accessible walking/rolling paths at parks			13	9.4%	26	18.7%	24	17.3%	43	30.9%	33	23.7%
Lack of assistance from fitness center staff			67	48.2%	30	21.6%	28	20.1%	8	5.8%	6	4.3%
Lack of accessible sport opportunities at fitness center			24	17.1%	23	16.4%	48	34.3%	36	25.7%	9	6.4%
Signs showing where things are located were not accessible			30	21.7%	36	26.1%	48	34.8%	13	9.4%	11	8.0%
Lack of interpretive services (e.g., sign language)			33	24.1%	13	9.5%	31	22.6%	32	23.4%	28	20.4%

4.4. Community Barriers Factors towards Participation in Sports Activities

Among the constraining factors relating to the community as a whole, it appears that accessibility to the wider environment and safety are key constraining factors. Specific barriers include inaccessible pavements (91.6%), inaccessible public toilets (87.3%), poorly maintained roads and inaccessible car parks (84.7%), lack of rest areas such as benches (75.4%), narrow or damaged pavements (84%), mode of transport to the exercise area (73.3%); steep cross slopes of pavements (71.6%) and finally the absence of crosswalks with traffic signals (69.5%). On safety issues, the presence of unattended dogs in the community (82.3%), lack of adequate lighting (77.9%), speed of cars (75.2%), rapidly changing traffic signals (58.8%) and, to a lesser extent, excessive crime or fear of crime in the neighborhood (57.9%) are inhibitors (Table 4).

Table 4: Community Barriers Factors (Community Built Environment, Safety)

	M	SD	Very small Barrier		Somewhat of a Barrier		Moderate of a Barrier		Big Barrier		Very Big Barrier	
			N	%	N	%	N	%	N	%	N	%
Community Built Environment (C-BE)	3.48	0.85										
Lack of access to public restrooms			4	2.8%	14	9.9%	32	22.5%	36	25.4%	56	39.4%
Uneven or crooked sidewalks			6	4.2%	6	4.2%	47	33.1%	38	26.8%	45	31.7%

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The sidewalks have cracks, gaps, or are under construction			2	1.4%	21	14.7%	44	30.8%	35	24.5%	41	28.7%
Lack of rest areas (e.g., benches)			3	2.2%	31	22.5%	43	31.2%	38	27.5%	23	16.7%
Potholes in the street, driveways, or parking lot			4	2.8%	18	12.6%	42	29.4%	37	25.9%	42	29.4%
Sidewalk's cross slope is too steep/slanted			8	5.7%	32	22.7%	49	34.8%	27	19.1%	25	17.7%
The crosswalks lack traffic lights			17	12.1%	26	18.4%	20	14.2%	48	34.0%	30	21.3%
Lack of accessible curb cuts in community			8	5.6%	13	9.2%	45	31.7%	44	31.0%	32	22.5%
Lack of accessible transportation to fitness center			13	9.4%	24	17.3%	52	37.4%	33	23.7%	17	12.2%
Sidewalks were not wide enough			7	4.9%	36	25.4%	42	29.6%	19	13.4%	38	26.8%
Safety	3.07	0.80										
Excessive crime or fear of crime in neighborhood			35	25.0%	24	17.1%	39	27.9%	33	23.6%	9	6.4%
The cars drive too fast			13	9.2%	22	15.6%	55	39.0%	34	24.1%	17	12.1%
Excessive car traffic in my community			14	10.1%	31	22.5%	45	32.6%	40	29.0%	8	5.8%
The traffic lights or crosswalk signals change too quickly			27	19.9%	29	21.3%	55	40.4%	16	11.8%	9	6.6%
Lack of adequate street lighting at night			6	4.3%	25	17.9%	53	37.9%	40	28.6%	16	11.4%
Loose dogs in community			10	7.1%	15	10.6%	30	21.3%	32	22.7%	54	38.3%

4.5. Differences in Barrier Factors Based on Gender (t-test)

Table 5 shows that women rate inhibitors; (a) health concerns (3.26 vs. 2.66 $p<.000$), (b) beliefs/attitudes towards physical activity (2.89 vs. 2.23 $p<.000$), (c) the role of friends (2.89 vs. 2.52 $p<.029$) and family (3.02 vs. 2.63 $p<.028$) as more important in comparison to men's reports.

Table 5: Differences in Barrier Factors Based on Gender

	Gender				Levene's test		t-test		
	Men N = 88		Women N = 55		F	p	t	df	p
	M	SD	M	SD					
Health	2.66	.85	3.26	.93	2.137	.146	-3.958	141	.000
Beliefs/Attitudes towards physical activity	2.23	.93	2.89	.86	1.036	.311	-4.235	140	.000
Friends	2.52	.95	2.89	1.03	.027	.870	-2.201	140	.029
Family	2.63	1.06	3.02	.94	.650	.422	-2.228	137	.028

Fitness Center Built Environment (FC_BE)	2.63	1.12	2.90	.92	4.350	.039	-1.507	130,356	.134
Staff/Program/Policy	2.66	.90	2.89	.76	4.369	.038	-1.636	128,507	.104
Community Built Environment (C_BE)	3.43	.83	3.57	.88	.028	.866	-.981	141	.328
Safety	2.99	.83	3.19	.75	.065	.798	-1.383	139	.169

4.6. Differences in Barrier Factors Based on Age Categories (ANOVA)

There were statistically significant differences in opinions between age categories in terms of health barrier factors, beliefs/attitudes towards physical activity, and the role of friends and family ($p < .000$). Tukey's post hoc test was used to determine which age groups differed from each other. In addition, the Bonferroni correction was used to determine the new level of significance, ($\alpha^* = \alpha/3 = 0.05 / 3 = 0.017$). It has been observed that people aged 18 - 30 years compared to people aged 40 - 59 ($p = .001$) and people aged 60+ ($p = .001$) were found to rate health as an inhibiting factor to a lesser extent. Moreover, individuals aged 18 - 30 years versus individuals 60+ ($p = .001$) rated beliefs/attitudes towards physical activity as a moderately inhibiting factor. Furthermore, individuals aged 18 - 30 years compared to those aged 60+ ($p = .005$) rated the role of friendship environment as an inhibiting factor to a lesser extent. Finally, 18-30 year olds compared to 40-59 ($p = .015$) and 60+ ($p = .000$) rated the role of the family environment as an inhibiting factor to a lesser extent.

Table 6: Differences in Barrier Factors Based on Age Categories

	Age												
	18 - 39 N = 64		40 - 59 N = 55		60+ N = 24		Levene Statistic	df1	df2	p	df1	df2	p
	M	SD	M	SD	M	SD							
Health	2.57	.75	3.07	1.02	3.35	.87	4.987	2	140	.008	2	61.357	.000
Beliefs/ Attitudes towards physical activity	2.15	.82	2.57	.96	3.16	.93	.181	2	139	.834	2	139	.000
Friends	2.41	.88	2.74	.99	3.17	1.12	1.480	2	139	.231	2	139	.005
Family	2.39	.73	2.89	1.10	3.56	1.09	6.858	2	136	.001	2	54.154	.000
Fitness Center Built Environment (FC_BE)	2.63	1.06	2.78	1.09	2.91	.95	.479	2	139	.621	2	139	.496
Staff/Program/Policy	2.67	.83	2.80	.87	2.83	.88	.313	2	140	.732	2	140	.641
Community Built Environment (C_BE)	3.36	.92	3.61	.86	3.51	.59	4.800	2	140	.010	2	75.297	.301
Safety	3.00	.77	3.06	.92	3.26	.55	6.693	2	138	.002	2	74.034	.200

4.7. Differences in Barriers Factors Based on Educational Level (ANOVA)

There were statistically significant differences in views/opinions between different levels of education in terms of health barriers, beliefs/attitudes towards physical activity, the role of friends and family environment, and accessibility of sports facilities ($p < .005$).

Tukey's post hoc test was used to determine which educational groups differed from each other. In addition, the Bonferroni correction was used to determine the new significance level, ($\alpha^* = \alpha/6 = 0.05/6 = 0.008$). It was observed that participants with secondary education versus participants with tertiary education ($p = .003$) rated health concerns as a greater inhibiting factor. In addition, it appears that individuals with tertiary education versus individuals with primary education ($p = .004$) and secondary education ($p = .003$) rated beliefs/attitudes towards physical activity as an inhibiting factor to a lesser extent. No statistically significant differences have been detected regarding the role of a friendly environment. Finally, it has been observed that individuals with primary education compared to those with tertiary education ($p = .001$) rated the role of the familial environment as an inhibiting factor to a greater extent (Table 7).

Table 7: Differences in Barriers Factors Based on Educational Level

	Educational level														
	Less than High School N = 22		High School Graduate N = 68		University N = 48		Master N = 5								
	M	SD	M	SD	M	SD	M	SD	Levene Statistic	df1	df2	p	df1	df2	p
Health	3.06	.90	3.09	.95	2.49	.84	3.29	.53	1.911	3	139	.131	3	139	.003
Beliefs/ Attitudes towards physical activity	2.88	.93	2.67	.98	2.06	.81	2.39	.82	.236	3	138	.871	3	138	.001
Friends	2.98	1.15	2.59	.97	2.54	.95	3.40	.65	1.408	3	138	.243	3	135	.001
Family	3.46	1.16	2.78	.92	2.42	1.00	3.16	.65	1.818	3	135	.147	3	138	.005
Fitness Center Built Environment (FC_BE)	2.80	.80	2.87	.97	2.39	1.17	3.89	.57	3.300	3	138	.022	3	20.127	.001
Staff/Program/ Policy	2.72	.74	2.84	.89	2.58	.83	3.18	.92	.449	3	139	.718	3	139	.265
Community Built Environment (C_BE)	3.52	.60	3.56	.88	3.29	.90	4.14	.60	3.522	3	139	.017	3	19.074	.083
Safety	3.28	.51	3.21	.75	2.79	.93	2.93	.80	4.150	3	137	.008	3	18.136	.062

4.8. Differences in Barriers Factors Based on the Frequency of Participation in Sports Activities (ANOVA)

Statistically significant differences in views/attitudes were observed between the different categories of participation frequency in sports activities in terms of health inhibitors, beliefs/attitudes towards physical activity, accessibility of a structured sports area, and safety ($p < .05$). To find out how the participation frequency category in sports activities differ from one another, Tukey's Post hoc control was used. In addition, the Bonferroni correction was used to find the new significance level, ($\alpha^* = \alpha/15 = 0.05/15 = 0.0033$). It has been observed that participants who exercise 5 or more times a week compared to those who do not exercise at all ($p = .001$) evaluate health, as a deterrent, to a lower degree. Furthermore, it has been observed that those who exercise 5 or more times a week compared to those who do not exercise at all ($p = .001$) evaluate

beliefs/attitudes towards physical activity to a lower degree as an inhibitory factor. For the accessibility of a structured sports area, no statistically significant differences were found. Finally, it has been observed that those who exercise 5 or more times a week compared to those who either do not exercise at all ($p = .000$), exercise 1 time per week ($p = .000$), or exercise 3 times a week ($p = .000$) evaluate safety to a lower degree as a deterrent (Table 8).

There were no statistically significant differences in the views of people with a congenital disability and people with acquired disabilities regarding inhibitory factors ($p > .05$).

The present study further confirms, in the Greek context, that the reasons for the lower levels of participation in the physical activity of people with disabilities are complex and multi-factorial. An integrated and coherent framework should take all potential obstacles (intrapersonal, interpersonal, psychological, organizational, community, and of course policies) into consideration and also provide inclusion practices (Carroll & Alexandris, 1997; Vasudevan et al., 2015). The findings concerning intrapersonal inhibitors, (health concerns, psychology, fatigue, pain, lack of motivation), are in accordance with existing literature (Carroll & Alexandris, 1997; Jaarsma et al., 2014; Rosly et al., 2018; Úbeda-Colomer, Devís, & Sit, 2019; Vasudevan et al., 2015). However, they contrast the incentive effect of the research carried out by Carroll and Alexandris (1997), which supports the sense of 'balance'. The findings concerning interpersonal inhibitors are consistent with surveys (Rosly et al., 2018; Shields & Synnot, 2016) that argue that people with disabilities face additional barriers to sporting participation due to parents' reservations, negative social attitudes toward disability, and lack of skills of trainers. Findings on organizational inhibitors are in line with a multitude of studies. Issues such as accessibility, adequacy of facilities, and quality of service have emerged as major barriers to participation (Carroll & Alexandris, 1997; Jaarsma et al., 2014; Rosly et al., 2018; Vasudevan et al., 2015). Similar are the lack of adapted sports programs and the high economic costs (Úbeda-Colomer et al., 2019). Accessibility in general, public spaces, security, non-friendly means of transport were found to be the most important obstacles at Community level (Rosly et al., 2018; Úbeda-Colomer et al., 2019).

5. Conclusion

Low levels of participation in physical activity and general sports for people with disabilities is a complex phenomenon with often different justifications. Understanding of the barriers and obstacles faced will help to remove the reasons for abstinence and enhance participation in sports and leisure programs. There is a need for inclusive programs that encourage the continuous participation of PWDs in sport. Sports policy designers, sports and leisure center managers should improve their infrastructure, services, and wider environment aiming to cater to the needs of people with disabilities, and to remove potential barriers that hinder, inhibit, and/or prevent participation.

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Table 8: Differences in Barriers Factors Based on Frequency of Participation in Sports Activities

	Frequency of participation in sports activities																		
	Not at all N = 67		1 time / week N = 20		2 times / week N = 26		3 times / week N = 18		4 times / week N = 4		5+ time / week N = 8								
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	Levene Statistic	df1	df2	p	df1	df2	p
Health	3.26	1.01	2.74	.67	2.58	.61	2.62	.82	2.71	.35	1.91	.82	4.570	5	137	.001	5	23.629	.003
Beliefs/Attitudes towards physical activity	2.85	1.04	2.39	.45	2.17	.71	2.17	.91	2.56	.52	1.38	.88	4.029	5	136	.002	5	21.958	.003
Friends	2.80	1.18	2.59	.76	2.54	.69	2.56	.92	2.71	.25	2.27	1.08	4.478	5	136	.001	5	27.350	.716
Family	2.85	1.13	2.86	.80	2.69	.76	2.3	1.09	3.10	1.00	2.06	1.32	2.203	5	133	.058	5	133	.483
Fitness Center Built Environment (FC_BE)	2.78	1.06	2.98	.65	2.80	1.22	2.81	1.10	2.25	.94	1.66	.67	2.650	5	136	.026	5	21.586	.007
Staff/Program/Policy	2.88	.84	2.75	.74	2.59	.92	2.78	.96	2.55	.33	2.16	.80	1.139	5	137	.343	5	137	.261
Community Built Environment (C_BE)	3.56	.91	3.44	.70	3.38	.91	3.56	.84	3.00	.81	3.31	.63	.878	5	137	.498	5	137	.743
Safety	3.21	.73	3.38	.55	2.75	.73	3.36	.77	2.25	.69	1.94	.89	1.041	5	135	.396	5	135	.000

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