



PHYSICAL DISABILITIES AND PSYCHOLOGICAL ISSUES: A SYSTEMATIC REVIEW OF THE LITERATURE

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Abstract:

The purpose of the present systematic review was to gather information on the interest of researchers on psychological issues of people with physical disabilities throughout a time period of twenty years (1995-2015). Previous similar reviews were not determined by the literature. For the implementation of their view electronic bases and hand search were used following specific criteria. Search revealed approximately 70.000 studies but only 58 in total covered the set criteria. The findings of the review revealed a limited research interest on psychological issues relevant to people with physical disabilities, with the interest increasing for the period 2006-2010. It was also found that descriptive, cross-sectional and qualitative research designs were preferred with data mainly gathered via questionnaires. Samples were derived from general and sport population (male and female). Finally, psychological issues mainly studies were parts of the self and emotions and less parts of personality and motivation.

Keywords: systematic review, psychological issues, physical disabilities, 1995-2015

1. Introduction

Physical disability is a negative situation that affects the psychological status of disabled people. A number of authors consider physical disability as a major limitation to psychosocial interactions of a person with his or her environment (Hutzler & Bar-Eli, 1993). In people with physical disabilities, one may observe typical psychological phenomena resulting from the interplay between their individual personality structures and the unique environmental and social problems confronting them (Hutzler & Bar-

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Eli, 1993). It seems that physical disability has an important effect on the psychological situation of disabled people a fact that makes the role of psychology rather important. Olkin (2003) claims that psychology generally views disability as being the domain of rehabilitation psychology rather than part of mainstream psychology training. The use of the psychological factor has mainly been found in interventions (psychological) regarding the transition of disabled people towards a new way of life where he/she may find assistance in solving possible issues deriving from this new way of life. People experiencing disability for the first time face stress, have to deal with life changes, differentiation of values and a series of issues relating to their experiences through their life.

The relation between disability and psychology is an issue that has attracted the interest of researchers. Sherrill and Tripp (2015) at a traditional review of literature in the area of physical activity and sports have presented the psychological characteristics of individuals with disabilities. These are: self (self-concept, self-efficacy, self-esteem, self-confidence, self-image, self-identity), motivation (goal orientation) and emotions (stress, anxiety, happiness, dejection).

Regarding reviews, these in general constitute a research method with review studies holding an exceptional position among the most researched studies (Grant & Booth, 2009). According to Medical Subject Headings (MeSH) a literature review describes the published material that offers an examination of recent and present literature.

Regarding systematic review, it is supported that it is a research method that aims to review research literature through the use of systematic and rigorous methods (Gough, Oliver, & Thomas, 2012). The “systematic review” refers to a literature review associated with a clearly formulated research question that uses systematic explicit methods to identify, select, and critically appraise relevant research from previously published studies related to the question at hand (The Cochrane Collaboration, 2005). Boland, Cherry, and Dickson (2008), claim that systematic reviews can be considered as the “gold standard” for reviewing the extended literature on a specific topic as it synthesizes the findings of previous research investigating the same or similar questions.

Apart from the systematic, there is also the traditional literature review. According to Aveyard and Sharp (2011), Gough et al. (2012), and Petticrew and Roberts (2006), we may say that a traditional review is more prone to bias than a systematic review, including selection bias when only studies which are published are selected and language bias when studies are selected based on their language of publication, such is English.

Regarding disability and psychology, review studies deal mainly with the total disability range (e.g., Jensen, Moore, Bockow, Ehde, & Engel, 2011). Review studies that deal with specific disabilities such as the physical ones, literature shows that the interest of scholars is focused only on special populations as for example on disabled people who participate in physical activities and sports (e.g., Block, Griebenauf, & Brodeur, 2004; Sherrill & Tripp, 2015), or on non-participants at sport activities (e.g., Kawanishi & Greguol, 2013).

The non-exclusion of a population by a review in relation to the population's activities offers a clearer view on the cognitive object of study. The importance of the present study is firstly the fact that it deals with their view of articles on disability, the largest minority group in the world (Shapiro, 1993). Secondly, it covers the gap in literature of systematic reviews of cognitive psychology in disability in general population and strengthens the area of athletic population, i.e. the work of Hutzler and Bar-Eli (1993) who examined the psychological benefits of sports on disabled people. This will offer additional information to scholars in the area of psychology in people with physical disabilities as is for example research tendencies on the creation of a clear view on psychological issues that have been studied in the area of disability in all populations.

2. Method

The present research design was based on the information drawn from relevant studies with systematic reviews (Grant & Booth, 2009; Petticrew & Roberts, 2006; Saebu, 2010), studies on the issue of physical disability (Freitas, Dias, & Fonseca, 2013; Saebu, 2010) and studies on psychological issues within the area of disability (Hutzler & Bar-Eli, 1993; Sherrill, 2015; Weiss, 2004).

2.1 Search Strategy

2.1.1 Selection of Search Means

Petticrew and Roberts (2006) claim that the number of data bases or other sources required for search vary and is defined based on the time and available sources. Suarez-Almazor, Belseck, Homik, Dorgan, and Ramos-Remus (2000) supported that for a full search at least two or more data bases are required, as well as hand searching in selective journals. The use of hand searching in journals is often considered as necessary since electronic searches depend on how well studies are adjusted to the data bases in order to avoid mistakes in search. Hand searching offers researchers confidence for the received information from the specific journals (Petticrew & Roberts, 2006).

Thus, in the present study the strategy used the following two main sources to locate published studies psychological issues in the individuals with physical disabilities: (a) electronic searches of computerized databases, including Scholar Google, PsychoINFO, and PubMed. The selection of these data bases is generally acknowledged and provides a complete overview of studies and articles that covering disability to psychology. This way of search is in accordance to previously similar literature reviews (e.g., Hutzler & Bar-Eli, 1993; van der Ploeg, van der Beek, van der Woude, & van Mechelen, 2004). The key words used in the present study were “physical disabilities” AND “psychology” or “psychological issues”, (b) hand searching of journals, including *Adapted Physical Activity Quarterly*, *European Journal of Adapted Physical Activity*, *International Journal of Disability, Development and Education*, *Archives of Physical Medicine and Rehabilitation*, *Disability and Rehabilitation*, *Disability Studies Quarterly*, *European Journal of Counselling Psychology*, *Journal of Developmental and Physical Disabilities*, *Journal of Rehabilitation Research & Development*, *Psychological Reports*.

It is understood that the present study focused only on research published in journals, since they represent “are cord of an area’s scholarships and provide a foundation to understand research trends” (Silverman & Skonie, 1997, p. 300). Nevertheless, we should recognize that there are other sources (e.g., dissertations, books, conferences) that may contribute to the study of physical disability and psychology. We should though note that for example, dissertations are not easily accessible and a rigorous review process is not always required for books (Gilbert & Trudel, 2004). Finally based on the previous recommendations on conducting systematic reviews (see, Knipschild, 1995), in the present study we did not include studies that had been published as abstracts or conference proceedings.

2.1.2 Study Selection

The following criteria were set to select studies. More specifically articles should: (1) be written in English, (2) be published in peer-reviewed journals, (3) be published within the time period between 1995 and 2015, (4) include individuals of all ages with physical disability or spinal cord injury without pain. (*In the present study physical disabled was defined as someone with a mobility or sensory impairment*). Impairment is a characteristic, feature or attribute within an individual which is long-term and may or may not be the result of disease or injury and may (Morris, 2004, p. 19). (5) to include at least one measure on psychological issue.

In the present study, quality of life was considered as a psychological issue. Quality of life in psychology has been adopted as an outcome measure (Holmes, Bix, Meritz, Turner, & Hutelmyer, 1997). According to World Health Organization’s Quality of Life (WHOQOL), quality of life is defined as the perception of people’s position in

life within culture and value system where they live in and in relation to their goals and expectations. An element of the quality of life is life satisfaction, which is considered as one of the primary indicators of quality of life, well-being (Diener, Oishi, & Lucas, 2009).

2.1.3 Data Collection

The copies of articles were gathered and assessed based on the criteria set. The analysis of articles was done via the descriptive and semi-quantitative review protocol as described by Sallis, Prochaska, and Taylor (2000). Initially the articles were coded by a number, but as independent sample populations (k) used as unit analysis. Additionally, the sample was distinguished by: year of publication, journal, research design (e.g., descriptive, longitudinal, quantitative), data collection (e.g., interview, questionnaires), general and sport population, male and female, ages groups based on the mean age and measures.

2.1.4 Data Extraction

Considering these selection criteria for the studies, data extraction based on the titles located 70.467 studies (51.085 from data bases search and approximately 19.380 about by hand searching in journals). Most of the articles were (70.381) were eliminated based on title or abstract being irrelevant to the search, following an assessment by two reviewers. 87 full text articles were assessed by one special reviewer. Following the above mentioned assessment, 29 articles were excluded leaving 58 articles for final analysis.

3. Results

Results are presented based on: (a) the years of review and journals that published the studies, (b) research designs, (c) the way data was gathered, (d) the characteristics of samples (population type, mean age, and gender), and (e) the psychological issues dealt by the studies.

3.1. Publication Year and Journals

Table 1 presents the results of the review of studies based on year of publication. Results were grouped in 4 groups but and the journals in which the studies were published. A closer look at the table shows that the research interest of the scholars on psychology related issues of people with physical disabilities is high for the time period 2006-2010 at 34.5% for the twenty -year period examined in the present study. The Table also shows that even though a large number of journals have published the studies

located, the main volume of studies were published by the Adapted Physical Activity Quarterly at 37.9%, the European Journal of Adapted Physical Activity (8.6%), the Archives of Physical Medicine and Rehabilitation (6.9%), the International Journal of Disability and the Development and Education (6.9%).

3.2. Research Design

The results of the review (Table 2) regarding research design, initially revealed that descriptive design (72.4%) was used more than the experimental one (20.7%). At this point the limited number of studies that used experimental and control groups should be noted.

Table 1: Publication Year, and Journals

Characteristics	Reference of Studies	Samples k(%)
Publication Year		
1995 – 2000	5,6,8,9,28,30,33,35,41,45,51, 52	12(20.7)
2001 – 2005	2,15,17,19,34,37,38,39,44,49, 50,53,58	13(22.4)
2006 – 2010	3,10,11,12,13,16,18,21,22,27 29,31,32,36,40,42,47,48,55,57	20(34.5)
2011 – 2015	1,4,7,14,20,23,24,25,26,43,46, 54,56	13(22.4)
<i>Note:</i> The years were delineated into 4-year periods for comparison across equal periods of time		
Journals		
Adapted Physical Activity Quarterly	5,6,7,9,10,13,15,30,31,32,33,34, 35,41,42,43,44,47,48,49,53,54	22(37.9)
European Journal of Adapted Physical Activity	4,12,23,46,55	5(8.6)
Archives of Physical Medicine and Rehabilitation	1,3,26,28	4(6.9)
Disability and Rehabilitation	22	1(1.7)
Health & Social Work	2	1(1.7)
International Journal of Disability, Development and Education	8,14,37,45,56	5(8.6)
Women & Health	11	1(1.7)
Journal of Sport Behavior	16	1(1.7)
Rehabilitation Psychology	17,57	2(3.4)
Women’s Health Issues	18,19	2(3.4)
Journal of Exercise Rehabilitation	20	1(1.7)
Kaohsiung Journal of Medicine Science	21	1(1.7)
Physical Education and Sport	24	1(1.7)
Journal of Developmental and Physical Disabilities	25,29,36	3(5.2)

Perceptual and Motor Skills	27,50	2(3.4)
Journal of Rehabilitation	38	1(1.7)
Social Science & Medicine	39	1(1.7)
Violence Against Women	40	1(1.7)
Journal of Adolescent Health	51	1(1.7)
International Journal of Psychology	52	1(1.7)
The Sport Psychologist	58	1(1.7)

Note: *k* = number of sample populations: 1=(Amtmann, Bamer, Cook, Askew, Noonam, & Brockway, 2012), 2=(Antle, 2004), 3=(Arbour-Nicitopoulos, Ginis, & Latimer, 2009), 4=(Bastos, Crredeira, Probst, & Fonseca, 2012), 5=(Blinde & McClung, 1997), 6=(Campbell & Jones, 1997), 7=(de Bressy de Guast, Golby, VanWersch, & d'Arripe-Longueville, 2013), 8=(Davis, Langone, & Malone, 1996), 9=(Dunn, 2000), 10=(Dunn & Dunn, 2006), 11=(Duvdevany, 2010), 12=(Ferreira & Fox, 2008), 13=(Giacobbi, Stancil, Hardin, & Bryant, 2008), 14=(Gilbert, Murphy, Krueger, Ludwing, & Efron, 2013), 15=(Goodwin, 2001), 16=(Groff & Zabriskie, 2006), 17=(Hughes, Robinson-Whelen, Taylor, Swedlund, & Nosek, 2004), 18=(Hughes, Robinson-Whelen, Taylor, & Hall, 2006), 19=(Hughes, Taylor, Robinson-Whelen, & Nosek, 2005), 20=(Jeong & Park, 2013), 21=(Ju, Lee, Wang, Chu, & Lin, 2006), 22=(Ju, Lee, Lee, Wang, Teng, & Lo, 2009), 23=(Kampfe, Honer, & Willimczik, 2014), 24=(Kasum, Lazarevic, Jakovljevic, & Bacanac, 2011), 25=(Kim, Hong, & Kim, 2015), 26=(Klyse, Bombardier, et al. Kalpakjian, 2015), 27=(Kokaridas, Perkos, Harbalis, & Koltsidas, 2009), 28=(Manns & Chad, 1999), 29=(Marinic & Brkljacie, 2008), 30=(Martin, 1999), 31=(Martin, 2006), 32=(Martin, 2008), 33=(Martin, Adams-Mushett, & Smith, 1995), 34=(Martin & Smith, 2002), 35=(Martin, Eklund, & Mushett, 1997), 36=(Miyahara & Piek, 2006), 37=(Mrug & Wallander, 2002), 38=(Nosek & Hughes, 2001), 39=(Nosek, Hughes, Swedlund, Taylor, & Swank, 2003), 40=(Nosek, Hughes, Taylor, & Taylor, 2006), 41=(Perreault & Marisi, 1997), 42=(Perreault & Vallerand, 2007), 43=(Perrier, Smith, Strachan, & Latimer-Cheung, 2014), 44=(Rose & Larkin, 2002), 45=(Sands & Wettenhall, 2000), 46=(Scarpa, 2011), 47=(Shapiro & Martin, 2010), 48=(Sit, Lau, & Vertinsky, 2009), 49=(Skordilis, Koutsouki, Asonitou, Evans, Jensen, & Wall, 2001), 50=(Skordilis, Gavriilidis, Charitou, & Asonitou, 2003), 51=(Stevens, Steele, Jutai, Kalnins, Bortolussi, & Biggar, 1996), 52=(Tam & Watkins, 1995), 53=(Tasiemski, Kennedy, Gardner, & Blaikley, 2004), 54=(Tasiemski & Brewer, 2011), 55=(Van de Vliet, Van Biesen, & Vanlandewijck, 2008), 56=(Wanneberg, 2014), 57=(Wilson, Washington, Engel, Ciol & Jensen, 2006), 58=(Martin, 2002).

Table 2: Research designs

Characteristics	Reference of studies	Samples <i>k</i> (%)
<i>Research design</i>		
Descriptive	1,2,4,6,9,10,11,12,13,20,21,22,23,24,25,27,28, 30,31,32,33,34,35,37,39,40,41,42,43,44,47,48, 49,50,51,52,53,54,55,56,57,58	42(72.4)
Experimental	3,5,7,8,11,14,15,16,17*,18*,19,29*,45,46	12(20.7)
Cross-sectional	2,3,4,5,6,9,10,11,12,13,14,16,17,18,19,20,21,22, 23,24,26,27,28,29,30,31,32,33,34,35,37,40,41, 42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58	50(86.2)
Longitudinal	1,25,26	3(5.2)
Quantitative	1,2,3,4,5,6,8,9,10,11,12,13,14,16,17,18,19,20,21,22,	52(89.6)

	23,24,25,26,27,28,29,30,31,32,33,34,35,37,39,40,41, 42,44,45,46,47,48,49,50,51,52,53,54,55,57,58	
Qualitative	36,38,43,56	4(6.9)
Mix Methods	7,13	2(3.4)

Note: * Studies using experimental and control group

Results also showed that cross-sectional (86.2%) studies are preferred more than longitudinal ones (5.2%). A similar picture was presented between quantitative and qualitative studies with the quantitative studies (89.6%) mostly preferred by researchers in comparison to qualitative ones (6.9%).

3.3 Data Collection

As can be seen in Table 3 the majority of studies used questionnaires to gather data, while a small number used the method of interview. Regarding the questionnaire mostly used were the Athletic Identity Measurement Scale (AIMS; Brewer & Cornelius, 2001), which was used at 8 studies for the evaluation of athletic identity, the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda, 1989) and the Sport Orientation Questionnaire (Gill & Deeter, 1988) both used at 4 studies each to investigate goal orientation in sports and sport orientation accordingly, the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983), and Physical Self-Perception Profile (PSPPp; Fonseca, Fox, & Almeida, 1995) used at 3 studies each regarding the estimation of perceived stress and physical self-concept accordingly, while the rest of the questionnaires were used by a smaller number of studies.

Table 3: Data Collection

Characteristics	Reference of Studies	Total
<i>Data Collection</i>		
Interviews	5,13,14,15,19,26,39,43,51,56	10
Observation	8	1
Questionnaires	1,2,3,4,6,7,9,10,11,12,13,16,17,18, 20,21,22,23,24,25,26,27,28,29,30, 31,32,33,34,35,37,40,41,42,44,45 46,47,48,49,50,51,52,53,54,55,57,58	48
CDSSES	1	1
PSS	1,18,40	3
PHQ 9-item	1	1
PROMIS	1	1
Self-perception	2	1
Self-efficacy	3,51	2
TOPS	4	1
CTAI-2	6	1

PPI	7	1
TEOSQ	9,23,49,50	4
PMCSQ	9,10	2
ALT-PE	10	1
TSCS	11	1
QOL.Q	11	1
PSPPp	12	1
RSES	12,30,48	3
PASIPD	13	1
AIMS	16,27,30,33,35,53,54,55	8
CES-D	18,40	2
GSES	18	1
CSAI 2	20,41	2
COMQOL-S	21,22	2
Cattell 16PF	24	1
PHQ-9	26	1
(PGD	26	1
SOQ	27,33,49,50	4
QOLP-PSD	28	1
RWI	29	1
SPAS	30	1
SFQS	31,34	2
PSE	32	1
TSE	32	1
TCSE	32	1
RSE	32,55	2
PANA	32	1
PAQ	37	1
SMS	42	1
ACSI-28	42	1
SPPC	44	1
PSPP	45,55	2
SPAQ	45	1
PSDQ	46,47	2
TSCS-2	48	1
ASSEI	52	1
HADS	53,54	2
CHQ-CF87	57	1
MSPSS	57	1
HPSE	58	1
SRPSE	58	1
SRTSE	58	1
Questionnaire for social validation	12,26	2

3.4 Sample Characteristics

From the analysis of the literature as shown in Table 4, studies addressed to two population types (general and sport) with a small superiority of general population. Ages used were: under 16 years old, 30-40 years old and the combination of all ages with a unified percentage around 22% for each group. Regarding gender, the combination of both sexes (50.0%) was the dominant one.

Table 4: Sample Characteristics

Characteristics	Reference	Samples k(%)
<i>Population Type</i>		
General	1,2,3,5,8,9,10,11,14,15,17,18,19,21,22,25,26 28,29,36,37,38,39,40,41,43,44,48,51,52,56,57	32(55.2)
Sport	4,6,7,12,13,16,20,23,24,27,30,31,32,33,34,35, 42,45,46,47,49,50,53,54,55,58	26(44.8)
<i>Mean Age</i>		
Under 16	2,8,9,10,15,22,31,34,37,44,51,57	12(20.7)
16-20	12,21,26,30,33,47	6(10.3)
21-25	45,46	2(3.4)
26-30	23,41,42,	3(5.2)
30-40	4,6,7,13,14,24,27,32,48,52,54,56,58	13(22.4)
Over 41	3,18,25,53	4(6.9)
Combined	1,5,11,16,28,29,36,38,39,40,43,49,55	13(22.4)
Not identified	17,19,20,35,50	5(8.6)
<i>Gender</i>		
Males only	7,27,41,50,58	5(8.6)
Females only	11,17,18,19,38,39,40,45	8(13.8)
Combined	1,2,4,5,6,8,9,10,12,13,14,15,16,29,30,32,33 34,42,43,44,46,47,48,49,51,54,55,56	29(50.0)
Not identified	3,20,21,22,23,24,25,26,28,31,35,36,37,52,53,57	16(27.6)

3.5 Measurements of psychological issues

Table 5 presents measurements of psychological issues in there viewed studies. Specifically, issues relating to self, such are self-worth, self-concept, self-esteem, self-efficacy, self-talk, to motivation such are sport and goal orientation, motivation climate, to emotions such are grief, anxiety, stress, depression, emotional control, quality of life, happiness, sport friendship quality, personality and general issues such are identity, athletic identity and behavioral issues.

Table 5: Summary Table of Studies referring to psychological issues

Study	Sample	Measure/s
Amtmann, Bamer, Cook, Askew, Noonam, & Brockway (2012)	726 adults aged 18 years and older	Depression, Anxiety
Antle (2004)	85 young people 8-23 years	Global self-worth
Arbour-Nicitopoulos, Ginis, & Latimer (2009)	44 adults mean age 49.70 years	Self-efficacy
Bastos, Crradeira, Probst, & Fonseca (2012)	70 males and 3 female athletes mean age 33.3 years	Goal setting Emotional control Automaticity Relaxation Activation Self-talk Imagery Attentional control
Blinde & McClung (1997)	Eleven women (ages 19 to 54 years) and 12 men (ages 20 to 36 years)	Self-perception
Campbell & Jones (1997)	103 people (87 male and 16 female) wheelchair sport participants, ages ranged from 19 to 46 years old	Competitive Trait Anxiety
De Bressy de Guast, Golby, Van Wersch, & d'Arripe-Longueville (2013)	38-year-old male	Psychological performance
Davis, Langone, & Malone (1996)	Three preschool children with disabilities and six children without disabilities	Prosocial behaviours
Dunn (2000)	65 children (23 boys and 42 girls) with movement difficulties ($M_{age} = 11.01$ years) and 111 children (45 boys and 66 girls) without movement difficulties ($M_{age} = 10.77$ years)	Goal orientation in Physical Education Perceptions of motivational climate in Physical Education
Dunn & Dunn (2006)	65 children (23 boys and 42 girls) with movement difficulties ($M_{age} = 11.01$ years) and 111 children (45 boys and 66 girls) without movement difficulties ($M_{age} = 10.77$ years)	Motivational climate Adaptive and maladaptive participation behaviors
Duvdevany (2010)	100 women with physical disabilities, and 100 women without PD, age 21-45 years	Self-concept Quality of life
Ferreira & Fox (2008)	137 basketball players (64 wheelchair basketball players [5 females and 59 males], and 69 male athletes without disability), mean age 20.91 years	Physical Self-perception Profile Self-esteem
Giacobbi, Stancil, Hardin, & Bryant (2008)	12 male and 14 female adults playing wheelchair basketball, ages 18-54 years	Quality of life
Gilbert, Murphy, Krueger, Ludwing, &	Sample (N = 196), 64 men, 122 women, and 10 (5%) who did not indicate gender. Mean age	Affective states (depression, anxiety,

Efron (2013)	35.12 years	positive emotion, life satisfaction) Self-evaluation (self-esteem)
Goodwin (2001)	Twelve students (9 boys and 3 girls) between the ages of 7 and 13 years, with physical disabilities	Self-esteem
Groff & Zabriskie (2006)	22 males and 11 females athletes with physical disabilities, age 11-44 years	Athletic identity
Hughes, Whelen, Swedlund, & Nosek(2004)	Robinson-Taylor, Women with physical disabilities (N=102, 51 per group).	Self-esteem Self-efficacy Depression
Hughes, Whelen, Taylor, & Hall (2006)	Robinson-Taylor, 63 women (25 workshop;38 wait-listed control), mean age 51.22 years	Stress Psychological health Generalized Self-Efficacy
Hughes, Robinson-Whelen, & Nosek (2005)	Taylor, 415 women with physical disabilities	Stress
Jeong & Park (2013)	Sixty-six wheel-chair tennis players	Competition anxiety
Ju, Lee, Wang, Chu, & Lin (2006)	63 adolescents from 22 schools aged 10-18 years	Quality of life
Ju, Lee, Lee, Wang, Teng, & Lo (2009)	1012 adolescents mean age 15.4 years	Quality of life
Kampfe, Honer, & Willimczik (2014)	229 elite German athletes with and without a disability, aged mean 27.27 and 23.97 years respectively	Achievement motivation (task and ego orientation)
Kasum, Jakovljevic, & Bacanac (2011)	Lazarevic, 25 wheelchair basketball players and 32 wheelchair non-athletes, mean age 33.5 years 35.2 years respectively	Personality
Kim, Hong, & Kim (2015)	6010 adults aged 65 and older with physical disabilities	Quality of life (life satisfaction)
Klyse, Bombardier, et al. Kalpakjian (2015)	206 adults, mean age 15.4 years	Grief Depression
Kokaridas, Harbalis, & Koltsidas (2009)	Perkos, 50 wheelchair basketball players (all men) aged 21-47 years	Sport orientation Athletic identity
Manns & Chad (1999)	38 persons, whose time since injury ranged from longer than 2 to less than 30 years	Quality of life
Marinic & Brkljacie (2008)	397 persons with physical disabilities and 913 persons from the general population	Happiness
Martin (1999)	57 adolescent swimmers (27 females and 30 males) with disabilities, ages 16-19 years	Anxiety Athletic identity Self-esteem
Martin (2002)	Fifty-one male adult ($M= 35.4$ yrs; $SD = 10.9$ yrs; Range = 18 - 61 yrs) wheelchair long distance racers	Self-efficacy

Martin (2006)	112 athletes with disabilities ages 12-18 years	Sport friendship quality
Martin (2008)	79 adults (66 men and 13 women) wheelchair basketball players	Self-efficacy
Martin, Adams-Mushett, & Smith (1995)	57 youth swimmers (27 females and 30 males) with disabilities, ages 16-19 years	Athletic identity Sport orientation
Martin & Smith(2002)	150 youths (85 male and 65 female) athletes, ages 9-18 years	Sport friendship quality
Martin, Eklund, & Mushett (1997)	Seventy-eight swimmers with disabilities	Athletic identity
Miyahara & Piek (2006)	1984 persons with physical disabilities	Self-esteem
Mrug & Wallander (2002)	184 young people with a physical disability, mean age 15.03 years	Personality
Nosek & Hughes (2001)	Women with disabilities	Self-esteem Self-efficacy
Nosek, Hughes, Swedlund, Taylor, & Swank (2003)	881 women with physical disabilities, ages 18-65 years	Sense of self in terms of self-esteem, Self-cognition (perceptions of how others see them)
Nosek, Hughes, Taylor, & Taylor (2006)	415 women with physical disabilities, with a mean age of 46.0 years	Depression Stress
Perreault & Marisi (1997)	Thirty-seven elite male wheelchair basketball players ranging in age from 25 to 40 years old	Anxiety
Perreault & Vallerand (2007)	72 (41 men and 31 women) wheelchair basketball players, with a mean age of 30.1 years	Sport motivation Athletic coping skills
Perrier, Smith, Strachan, & Latimer-Cheung (2014)	Seven women and four men, with an average age of 40.1	Athletic identity
Rose & Larkin (2002)	380 children, ranging in age from 8-12 years	Self-perception profile
Sands & Wettenhall (2000)	six female wheelchair basketball players and 20 female able-bodied basketball players, ages ranged from 18 to 33years for the wheelchair participants and 18 to 28 years for the able-bodied	Physical Self-perception profile Social Physique Anxiety
Scarpa (2011)	1149 individuals with and without disability aged between 13 and 28 (578 boys and 571 girls)	Physical self-concept Self-esteem
Shapiro & Martin (2010)	36 youth (ages 12–17 years) and older adolescent (18–21 years) athletes with physical disabilities (female = 9, males = 27; M age = 16)	Physical self-concept
Sit, Lau, & Vertinsky (2009)	66 persons (33 men and 33 women) with physical disabilities, and a mean age of 30.1 years	Physical Self-concept Self-esteem
Skordilis, Koutsouki, Asonitou, Evans, Jensen, & Wall (2001)	34 male and 14 female marathoners and 166 male and 29 female basketball players	Sport orientation Goal orientation
Skordilis, Gavriilidis, Charitou, & Asonitou	35 professional, 36 amateur, and 35 wheelchair basketball athletes	Sport orientation Goal orientation

(2003)	Stevens, Steele, Jutai, Kalnins, Bortolussi, & Biggar (1996)	101 students (male and female), ages 11-16 years	Self-esteem
	Tam & Watkins (1995)	146 non-disabled and 135 subjects with physical disabilities	Self-esteem
	Tasiemski, Gardner, Kennedy, & Blaikley (2004)	678 people, ages 20-77 years	Athletic identity, Anxiety, Depression
	Tasiemski & Brewer (2011)	1034 persons (173 women and 861 men), ages 19-68 years	Athletic identity, Life satisfaction Anxiety, Depression
	Van de Vliet, Van Biesen, & Vanlandewijck (2008)	18 Paralympic athletes, ages 17-48 years, and 37 non-Paralympic Elite athletes ages 13-25 years	Athletic identity Self-esteem Physical Self-perceptions
	Wanneberg (2014)	15 persons (12 women and 3 men), ages 15-65 years	Identity
	Wilson, Engel, Washington, Ciol, & Jensen (2006)	37 persons, ages 8-20 years	Psychological adjustment

4. Discussion

The present study aimed to offer a systematic review of psychological issues presented in people with physical disabilities. The study also aimed to reveal research trends and issues presenting the most interest in populations with physical disabilities.

Within the framework of the literature review, the present study located 58 studies dealing with psychological issues of people with physical disabilities. The largest number (20) of published studies are found between 2006-2010, with other five-year periods to present a uniformity regarding the number of publications with significantly smaller number. Considering the important role of the psychological factor on disabled people, the total number of studies located in the present study is considered extremely low, revealing that the interest of researchers on psychology issues for people with physical disabilities is very limited. This is enhanced by the previous mentions of other scholars (e.g., Martin, 2002, 2006).

The findings of the present study even though they revealed that a wide range of journals have selected to publish studies on the psychological issues of people with physical disabilities, percentage wise the journals that have published a significant number of such studies is rather limited. This seems to be related to the limited number of studies located. Nevertheless, we can consider that there are a large number of journals that are interested in publishing relevant studies.

Findings regarding research design that were followed by the studies reviewed for the purposes of the present study initially revealed that descriptive research method was mainly used at a percentage of 72.4%. This shows that researchers were seeking to study psychological issues as these were developed in their natural environment at a specific time and not study how, when and why various psychological phenomena are developed (Shields & Rangarjan, 2013). In other words, researchers did not show any interest on the determination of the relation between cause-result for psychological characteristics of individuals with physical disability (Thomas, Nelson, & Silverman, 2005).

Within the framework of research design, it was observed that researchers preferred the use of cross-sectional method against longitudinal one. This finding reveals the interest of researchers on psychological phenomena that appear at a specific time in individuals with physical disabilities, without though showing the same interest for the cause of these phenomena and for their formation in various groups such are sex, age, populations, etc. Heiman (2002) claimed that a cross-sectional study offers the ability to observe people of various ages and in different time periods.

Finally, the analysis of data on research methods in the present study showed the preference of researchers in quantitative research (89.6%). The use of quantitative research assists the understanding of phenomena such is perception of self in individuals with physical disability through numerical data. The procedure of measurement followed in quantitative research assists the understanding of the relation between empirical observation and mathematical expression of quantitative relations (Given, 2008). Aliaga and Gunderson (2000) describe the quantitative research as explaining a phenomenon by collecting quantitative (numerical) data that are analyzed using mathematically based methods such as statistics. The quantitative research is widely used in sciences such are psychology, health and human development, etc (Given, 2008).

In order to gather quantitative data the use of questionnaires was preferred. Researchers used questionnaires to acquire data on psychological issues through asking the participants to answer questions and not observe their behavior. It is obvious that results derived from the questionnaires show limitations, since we cannot know if the answers are compatible with reality. This reveals the need to cross check results with other methods such are interview and observation. The use of mixed methods such are questionnaire and interview are used to confirm results despite the differences in data selection, analysis and interpretation (Harris & Brown, 2010).

Regarding the characteristics of the sample used in there viewed studies, findings of the present study revealed a small superiority of the general population against the athletic one. The relevantly high percentage of studies in sports (44.8%)

reveals the interest of researchers on the dynamics of psychological issues in disability sports. Martin (1999), considering the fact that there are many similarities among athletes with and without disabilities, stressed the importance of understanding factors such as the psychological ones associated with disability and disability sport. Research interest for the study of psychological issues was focused mainly in ages under 16 years, from 30 to 40 years, and also a respective interest for the whole age range simultaneously, with a rate around 22% for each of the three age groups separately. In general, the sample in the majority of studies included adults. This is possibly due to the fact that disability is a situation that becomes more intense in this group of people. Martin (1999) reports that 85% of athletes with a disability had an acquired disability (e.g., car accident). Another characteristic of the sample was that studies mainly used mixed samples (male and female) something that shows that in research sex was used in the same way by the researchers.

Another finding of the present study is the orientation in measures of psychological issues in individuals with physical disabilities. Block et al. (2004) have expressed the importance of psychological issues by stating that psychological problems may be equally significant with those of disability. The psychological issues examined referred mainly to the components of "self" and a number of "emotions" and secondarily to issues relating to "personality" and "motivation" towards goal achievement (see Table 6).

"Self" is determined as the "way through which an individual perceives his/her self" (Harter, 1999; Rosenberg, 1986). Perception of self typically encompasses the constructs of self-concept, self-esteem and self-efficacy (Roberts, Treasure, & Conroy, 2007). In the present review, it was found that the above constructs were those used mainly for the study of self-perception in individuals with physical disabilities.

The interest of researchers on the study of the above mentioned constructs of self in individuals with physical disabilities seem to be timeless since in a previous review on athletes with disabilities the findings were similar (Hutzler & BarEli, 1993). This timeless obsession on the study of the self-concept in individuals with physical disabilities is possibly due to the fact that the concept of self, keeps together the internal cohesion of the individual, determines the way various experiences are explained and offers a total of expectations (Burns, 1982).

Table 6: Summary table of issues measured

Psychological issue	Issues measured	Number/ (%)	Partial Sum (%)
Self-perception			30 (52.6)
	Self-cognition	1 (1.8)	
	Self-concept	9 (15.8)	
	Self-esteem	13 (22.8)	
	Self-efficacy	6 (8.8)	
	Self-world	1 (1.8)	
	Self-talk	1 (1.8)	
Motivation			12 (21.1)
	Goal orientation	5 (8.8)	
	Sport orientation	4 (7.0)	
	Motivation climate	3 (5.3)	
Emotion			29 (50.1)
	Grief	1 (1.8)	
	Anxiety	8 (14.1)	
	Stress	3 (5.3)	
	Depression	6 (10.5)	
	Quality of life	6 (10.5)	
	Satisfaction of life	2 (3.5)	
	Happiness	1 (1.8)	
	Sport friendship quality	2 (3.5)	
Personality			14 (24.6)
	General issues	2 (3.5)	
	Identity	10 (17.7)	
	Behavior	2 (3.5)	

Emotions are psychological concepts and are considered to be a result of a subjective, conscious experience and are characterized primarily by psycho-physiological expressions, biological reactions and mental states. Lazarus (2000) defined emotions as *“an organized psycho-physiological reaction to ongoing relationships with the environment, most often, but not always, interpersonal or social”* (p. 230).

Studies reviewed in the present study showed that the psychological concept of “emotion” in people with disabilities has interest scholars. Research on discrete emotions helps us appreciate the evolutionary-adaptive reasons why humans are motivated to adopt an apocalyptic orientation to life (Fuller, 2007). A number of psychologists have confirmed that emotions affect thought, decision making and actions (Bechara, Damasio, & Damasio, 2000; Fredrickson, 2000; Lerner & Keltner, 2000). Emotions that mainly concerned researchers were anxiety, depression and the quality/satisfaction of life. Anxiety is an emotional state that may be of psychogenetic origin or a consequence of a physical illness. The study of anxiety in individuals with

physical disabilities helps the assessment of behavioral disorders caused by anxiety. The anxiety is considered to reflect uncertainty regarding goal attainment and coping (Lazarus, 2000) and is typified by feelings of apprehension and tension along with activation or arousal of the autonomic nervous system (Spielberger, 1966).

Depression is mentioned as an emotional disorder. Frijda (1994) suggested that depression is an emotion resulting from the perception of the individual on the relation between actual progress and expectations regarding the rate of progress. Depression is likely to appear if someone does not believe that has made sufficient progress in achieving a meaningful goal, or following an actual or perceived failure to achieve a meaningful goal. A consequence of depression may be the absence of willingness to do pleasurable things (e.g., communication), less self-perception and low performance in physical activities (Lane & Terry, 2000). Based on the above it is understood that the evaluation of depression in people with physical disabilities may be an interesting element for researchers.

Quality of life can be defined as the subjective evaluation of the satisfaction derived from the good characteristics of a person's life (Whiteneck, 1994). In this case, quality of life is almost synonymous to the satisfaction for one's life (Siosteen, Lundqvist, Blomstrand, Sullivan, & Sullivan, 1990). The following factors have been supported to determine the quality of life social inclusion (e.g., community integration, residential environment), self-determination (e.g., autonomy, choice), personal development (e.g., education and rehabilitation), rights (e.g., privacy, citizenship), interpersonal relations (e.g., friendship, social network), emotional well-being (e.g., contentment, self-concept), physical well-being (e.g., health, leisure), and material well-being (e.g., employment, transportation) (Brown, Schalock, & Brown, 2009; Schalock, Brown, Brown, Cummins, Felce, Matikka et al., 2002).

Personality, as psychological term refers to issues relating to the dynamic organization of physical, spiritual, moral and social individual properties and which are expressed throughout their social life. Through the present study it was found that examined researchers dealt with personality issues such are the identity and personality of individuals in physical activities such are sports. Poppes, van der Putten, and Vlaskamp (2010) claimed that many disabled individuals present provocative attitudes. The study of similar elements of personality assists in the better understanding and prediction of behavior of individuals with physical disabilities through the increase of their efficiency and problem solving (Bacanac, 2001).

Finally, another psychological issue found to have been researched was goal motivation. Goal achievement is distinguished by task and ego, each one of which is linked to a different perception of ability and definition of happiness (Nicholls, 1984, 1989). The present study revealed that studies examining goal achievement of

individuals with physical disabilities this was examined within the framework of goal orientation, sport orientation, and motivation climate. This framework helps to research views that lead disabled individuals to decision making and which behavior they present towards achievement (Roberts et al. 2007).

4.1 Limitations

Research terms used in the present study did not cover all relevant published studies, therefore limitations were expected. Regarding the inclusion of criteria leading to the exclusion of studies, concerns have been raised on possible bias during the review procedure (Stern & Simons, 1997). An initial limitation may regard the time period set for the conducting of the present study. The review was limited to studies published only in the English language. Another limitation may be the criterion set for the use of studies published in journals with judges, excluding therefore from the procedure unpublished studies, etc.

5. Conclusions

Despite the above mentioned limitations, findings offer a clear view on the estimation of psychological issues faced by individuals with physical disabilities. Unfortunately, the interest of researchers on psychological issues of the examined population was rather limited with the exception of the time from 2006 to 2010. Even though a large number of journals was found to have published relevant to what is examined issues, the most of the studies were covered by one single journal. Research designs for the study of data used included descriptive, cross-sectional and quantitative. The use of experimental design with an experimental and a control group was very limited. To gather data questionnaires were preferred against other methods. Sample used came equally from general and sport population while ages examined were under 16 years old, 30-40 years old and some samples that included almost all ages. Regarding gender, male-female combination was preferred, although in a large number of studies gender was not determined. Finally, psychological issues examined included mostly parts of self and emotions, and less issues relating to personality and goal motivation.

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