

Life satisfaction in university students with disabilities: Differences by sociodemographic variables and associations with physical activity and athletic identity

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Abstract:

People with disabilities tend to have lower subjective well-being than their peers without disability. This study examined differences in the life satisfaction (LS) of Spanish university students with disabilities according to sociodemographic variables, and its associations with physical activity (PA) and athletic identity (AI). A cross-sectional study was conducted with 1,227 participants (624 Female - 598 Male) from state and private Spanish universities. The participants completed an electronic survey on LS, PA and AI after which a descriptive analysis, pairwise comparisons (Mann-Whitney U, Kruskal-Wallis tests), and Spearman's correlations were performed on the data. Instruments used for data gathering were the Satisfaction With Life Scale (SWLS), the International Physical Activity Questionnaire (IPAQ) and the Athletic Identity Measurement Scale (AIMS). The results showed that university students with disabilities in Spain were slightly dissatisfied with their lives. The cross-sectional comparisons according to the origin of disability found that University students with congenital disability reported higher levels of LS than those with acquired disability. Those students with multiple disabilities and chronic illness reported lower levels of LS than students with physical or sensory disabilities. Furthermore, LS seemed not to be affected by gender while significantly affected by age since the youngest group of participants reported higher levels of LS than the middle and oldest groups. Both AI and PA were positively correlated with LS. The findings offered in this study point out that the satisfaction levels observed among students with disabilities suggest that universities and society at large were still disabling agents with an inherent need for improving their healthy lifestyles. This study provides insights that may be helpful for enhancing LS among university students with disabilities through promotion of PA.

Key Words: - sport, adults, identity, survey, exercise

Introduction

Because people with disabilities tend to have lower subjective well-being than their peers without disability (Van Campen & Van Santvoort, 2013), one of the important objectives of community policy is the task of improving the health and well-being of people with disabilities (WHO, 2015). Improvements in the lives of persons with disabilities is specifically mentioned in the 2030 Agenda for Sustainable Development (UN, 2015). Moreover, governments worldwide have begun to use life satisfaction (LS) as a metric for making political decisions and evaluating the well-being of society from the perspective of their citizens (Diener, Inglehart, & Tay, 2013). Therefore, it is important to know the level of LS among people with disabilities, according to different variables of interest, in order to make subsequent informed decisions for improving the lives of this especial group of citizens.

Subjective well-being is a multifaceted concept that has been studied extensively. It consists of an affective component, which is usually divided into positive affect and negative affect, and a cognitive component, which is called LS (Andrews & Withey, 1976; Diener, Suh, Lucas, & Smith, 1999). LS represents the cognitive dimension of subjective well-being and has been identified as a cognitive evaluation and a global sense of well-being from the perspective of respondents (Pavot & Diener, 1993a; Shin & Johnson, 1978). This means that LS reflects the balance, or the imbalance, between people's goals and their achievements. Also known as quality of life, LS has been examined across cultures and can be measured with the Satisfaction With Life Scale (SWLS; Diener et al. 1985; Pavot & Diener, 1993b). The SWLS is a 5-item unidimensional measure that serves as a brief assessment of a people's general sense of satisfaction with their life as a whole. People with disabilities typically score in the 17-23 range on the SWLS (Gannotti, Minter, Chambers, Smith, & Tylkowski, 2011; Kortte, Gilbert, Gorman, & Wegener, 2010; Lucas-Carrasco & Salvador-Carulla, 2012; Lucas-Carrasco, Sastre-Garriga, Galán, Den Oudsten, & Power, 2014; Nemček, 2016; Rosengren, Brogårdh, Jacobsson, & Lexell, 2016), which corresponds with slightly satisfied, neutral, or slightly dissatisfied levels of LS.

Persons with physical disabilities tend to rate their LS lower than do persons without disabilities (Nosek, Fuhrer, & Potter, 1995). Addabbo, Sarti, and Sciuili (2006) found that people with disabilities in Italy had lower levels of satisfaction in various dimensions of life than people without disabilities, and that household structure, health, and disability status were more strongly related to LS than personal and income variables. Smith (2015) found significant differences in LS between stroke survivors with and without functional limitations. People with functional limitations had almost twice the odds of reporting poor LS than those without functional limitations. Research on elderly people found that people with mobility disability reported lower LS than their counterparts without disability (Mollaoğlu, Tuncay, & Fertelli, 2010). In contrast, research conducted in Spain showed that people with intellectual disabilities do not necessarily have lower LS than the general population (Lucas-Carrasco & Salvador-Carulla, 2012). In light of these discrepant findings, further research on LS is necessary with persons with disability (Mollaoğlu, et al., 2010).

Physical activity (PA) may play a role in the LS of people with disabilities. Results of a recent longitudinal study in Germany indicated that participation in PA was positively related to LS, with a stronger association between PA and LS for people with disabilities than for people without disabilities (Pagan, 2018). This may be due to the psychophysical benefits of physical and sport activities, and the benefits linked to increased autonomy, social support, and empowerment for participants with disabilities (Carroll et al., 2014; Martin & Mushett, 1996; Pérez-Samaniego, López-Cañada, & Monforte, 2017). Related research has shown that sport participants report greater LS than nonparticipants in sport among persons with physical disabilities (Yazicioglu, Yavuz, Goktepe, & Tan, 2012). Similar results were found in patients with spinal cord injury, as those involved in sports and physical recreation reported higher LS than patients without such involvement (Tasiemski, Kennedy, Gardner, & Taylor, 2005). People with various types of disabilities (i.e., physical and sensory) who participate in sport also reported greater LS than those living a sedentary lifestyle (Nemček, 2016). In contrast, in a study of adults with low and moderate intellectual disabilities (García & Ovejero, 2017), the difference in LS between athletes and nonathletes was not statistically significant, with both groups reporting high levels of LS. However, participation in team sports was associated with greater LS than participation in individual sports.

In a Spanish study of adults without disabilities, Goñi and Infante (2010) found positive associations between PA and both LS and physical self-concept. This finding suggests that the promotion of active identities could be one of the key points for increasing the PA and LS of people with disabilities since identities are part of the self-concept.

One of the active identities of the self-concept that has been studied is athletic identity (AI), which has been defined as the degree to which a person identifies with the role of athlete and is closely linked to sport participation (Brewer, Van Raalte, & Linder, 1993). Research has shown positive relationships between AI and sport commitment, health and fitness outcomes, social relationships, and self-esteem (Horton & Mack, 2000). AI is also positively correlated with vigorous physical activity in college students (Downs & Ashton, 2011), and with both LS and sport participation in athletes with cerebral palsy from 32 countries (Groff, Lundberg, & Zabriskie, 2009) and people with spinal cord injury (Tasiemski & Brewer, 2011). Conversely, Tasiemski, Kennedy, Gardner, and Blaikley (2004) found no statistically significant relationship between AI and LS in people with spinal cord injury.

Demographic and disability-related factors may also contribute to the LS of people with disabilities. For instance, there is evidence that age is inversely related to LS among people with disabilities (Putzke, Barrett, Richards, & DeVivo, 2003) and that people with a congenital disability tend to report higher LS than people without a congenital disability (Bogart, 2014).

According to a recent review, there are relatively few studies examining LS in people with disability, and even fewer studies examining LS in samples with different types of disability (Pagan, 2018). To enrich knowledge pertaining to LS in persons with disabilities, the aims of this study were: (a) to identify differences in LS as a function of selected demographic (age and gender) and disability-related variables (type of disability and origin of disability -acquired or congenital) among university students with disabilities in Spain; and (b) to examine associations between LS and both AI and PA, as well as AI and PA in the same sample of students.

The preliminary findings from previous review suggest several testing hypotheses for this study: 1) the participants will report low or medium values in LS; 2) male and older students score higher LS than women and young students; 3) students with acquired and multiple disabilities will get lower levels in LS than those with congenital and only one impairing condition; and 4) PA and AI will be positively associated with LS. While many of these hypotheses on LS are not surprising, they remind us how important testing them is in an understudied population such as the university students that presents different types of disability.

Material & methods

Participants

University students with disabilities ($N = 1,241$) participated in this study between 2016 and 2017. From an estimated accessible population of 15,038 students with disabilities in Spain (Fundación Universia, 2016), it was determined that 997 participants were needed for a statistically valid sample size (Confidence level = 95%; Population proportion = 50%; Margin of error = 3%). To be included in the study, the following criteria

were considered: (i) enrolled at a Spanish university; and (ii) in possession of a disability certificate of at least 33%, which is the minimum level required by the Spanish government to grant social benefits. Through the disability care service of 76 different Spanish universities, prospective participants were emailed a link to an online survey. Due to the universities' data protection policies prevented us from directly assessing the students, they were sent the survey by email by the disability care services. After excluding 14 respondents who did not answer all the items related to LS, PA and AI or gave inconsistent responses, a total of 1,227 participants remained for analysis. According Table 1 the mean age of the respondents was 40.46 years (range 18-76 years) and more than half (50.9%) of participants were women. The majority of university students had an acquired disability (62.3%). The predominant disability type was physical disability (43.2%), followed by chronic illness (14.1%) and sensory disability (13%), and a considerable group of participants presented multiple disabilities (21.5%).

Table 1. Sample characteristics according to variables ($N = 1,227$).

Variable	N	% total
Gender		
<i>Male</i>	598	49
<i>Female</i>	624	51
<i>Missing</i>	5	0
Age		
18-35	403	33
36-46	412	34
>46	410	33
<i>Missing</i>	2	0
Disability type		
<i>Physical disability</i>	515	42
<i>Mental disorder</i>	80	7
<i>Sensory disability</i>	159	13
<i>Chronic illness</i>	173	14
<i>Multiple disability</i>	264	22
<i>Missing</i>	36	3
Origin of disability		
<i>Congenital</i>	460	38
<i>Acquired</i>	765	62
<i>Missing</i>	2	0

Procedure and instruments

A cross-sectional study was carried out using LimeSurvey (2.05+) through Internet. Prior to administering the survey, all the procedures and materials were approved by the Ethics Committee of the University of Valencia. When accessing the survey, a click on a box directed prospective participants to an informed consent form that explained the conditions of participation (e.g., confidentiality, anonymity, right to refuse or abandon). Once the participants agreed with the informed consent, they started the survey that included several sociodemographic and disability questions, the SWLS (Diener et al., 1985), the International Physical Activity Questionnaire-Short form (IPAQ; Craig et al., 2003), and the Athletic Identity Measurement Scale (AIMS; Brewer & Cornelius, 2001; Brewer et al., 1993).

Sociodemographic and disability variables (gender, age, disability type, and origin of disability) were assessed with a series of items. Age was divided into three categories using percentiles 33 and 66. Disability type was determined by participants' responses to items pertaining to physical disability, mental disorder, sensory disability, and chronic illness. A fifth level of disability type—multiple disability—was created for people who reported having more than one disability.

The SWLS (Diener et al., 1985) was used to assess LS. This self-report measure of subjective well-being has 5-items and uses a 7-point Likert scale response format. Scores on the SWLS are interpreted as: extremely dissatisfied (5–9), dissatisfied (10–14), slightly dissatisfied (15–19), neutral (20), slightly satisfied (21–25), satisfied (26–30), and extremely satisfied (31–35) (Pavot & Diener, 2008). For the current study, the Spanish version was used. This version has been validated in various populations and features a 5-point Likert scale response format with endpoints of "totally disagree" (1) and "totally agree" (5). A Cronbach's alpha coefficient of .88 has been obtained for the Spanish version of the SWLS (Atienza, Pons, Balaguer, & Merita, 2000; Pons, Atienza, Balaguer, & García-Merita, 2002).

Physical activity, in particular moderate-to-vigorous physical activity (MVPA), was measured by the IPAQ (Craig et al., 2003). This questionnaire is a worldwide self-report instrument used to collect PA data (Craig et al., 2003), which asks for the time, in minutes, respondents spent on walking, moderate and vigorous PA in the last 7 days. The instrument was modified to be more inclusive for assessing physical activity in people

with disabilities, as it has been applied in previous studies (Pans, González, Úbeda-Colomer & Devís-Devís, 2019; Rosenberg et al., 2013; Úbeda-Colomer, Monforte, & Devís-Devís, 2019).

The AIMS, developed by Brewer et al. (1993), subsequently modified by Brewer and Cornelius (2001), has been widely used to measure AI. This scale is a 7-item self-report measure that uses a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The scale was recently used with Paralympic athletes (Piatt, 2018), and its reliability and validity were documented in a study of Spanish adolescents (Peiró-Velert, Valencia-Peris, Fos-Ros, & Devís-Devís, 2016). The AIMS has also been demonstrated valid in Spanish students with disabilities and presented an acceptable level of internal consistency (Cronbach’s alpha = .87) (Pans, Úbeda-Colomer, & Devís-Devís, 2021).

Data Analysis

All statistical analyses were performed using SPSS (Version 24; SPSS Inc., Chicago, IL). As data obtained did not follow a normal distribution, the descriptive statistics were expressed in medians and interquartile ranges (IQR). Accordingly, Mann-Whitney U and Kruskal-Wallis tests were used for inferential statistics and Spearman’s correlations (rho) for assessing associations among PA, AI, and LS. Differences were accepted as significant at the $p < .05$ level, applying the Bonferroni correction where appropriate.

Results

The median and IQR of LS were 16 and 20, respectively, for the whole sample. These values correspond to a ‘slightly dissatisfied’ level of LS, according to the classification established by Pavot and Diener (2008). Descriptive statistics for each item of LS are presented in Table 2 LS.

Table 2. Descriptive Statistics of the SWLS (1 = totally disagree; 5 = totally agree)

Items	Median	IQR
In most ways my life is close to my ideal	3	2
The conditions of my life are excellent	3	2
I am satisfied with my life	4	2
So far I have gotten the important things I want in life	4	1
If I could live my life over, I would change almost nothing	3	2
Total values	16	20

Table 3 shows the inferential statistics for the other main variables of interest. As displayed in this table, the Kruskal-Wallis tests revealed statistically significant differences in LS by age and type of disability ($p < .001$). Pair comparisons showed students in the youngest group reported higher LS than the students in the middle group ($p < .001$) and the oldest group ($p < .002$). Students with multiple disabilities reported lower LS than those with physical disabilities ($p < .001$) and sensory disabilities ($p < .001$). Also, students with chronic illness reported lower LS than those with physical disabilities ($p < .015$) and sensory disabilities ($p < .001$). Moreover, Mann-Whitney U test presented a significant difference in LS by origin of disability ($p < .001$), being those students with congenital disabilities who obtain higher values in LS than those with acquired disabilities.

Table 3. Descriptive statistics for LS and differences by variables of interest

Life Satisfaction	N	Med	IQR	Kruskal-Wallis p-value
Type of disability				$p < .001^*$
Physical disability	514	17	8	
Mental disorder	79	15	10	
Sensory disability	159	18	6	
Chronic illness	171	15	7	
Multiple disability	264	15	7.75	
Age				$p < .001^*$
Youngest group (18-35 years)	403	18	8	
Middle group (36-45 years)	410	16	8	
Oldest group > 45 (years)	408	16	8	
				Mann-Whitney U p-value
Gender				$p < .574$
Men	595	16	8	
Women	623	16	8	
Origin of disability				$p < .001^*$
Congenital	459	17	8	
Acquired	648	15	8	

* Indicates significant differences

As presented in Table 4, positive correlations were found between LS and both AI (rho = 0.21; $p < .001$) and MVPA (rho = 0.24; $p < .001$). A strong positive correlation between AI and MVPA (rho = 0.42; $p < .001$) was also found.

Table 4. Correlations between LS and both AI and PA.

	Life Satisfaction	Physical activity (MVPA)	AI
LS	1		
Physical activity (MVPA)	.24**	1	
Athletic identity	.21**	.42**	1

**All correlations are significant at $p < .001$

Discussion

To the best of our knowledge, this is the first study to examine differences in the LS of university students with disabilities as function of sociodemographic variables, and associations among LS, AI, and PA. A primary finding shows that participants reported a median of 16 on the SWLS (11.42 to compare with studies on 7-point Likert.), being classified as ‘slightly dissatisfied’ with their LS. This value is lower than the mean SWLS score of 17.8 for persons with multiple sclerosis in Spain (Lucas-Carrasco et al., 2014) and much lower than the SWLS means of 21.8, 20.4, and 22.1 for Swedish persons with Parkinson’s disease, American adults with spinal cord injuries, and Slovak young and adults with disabilities, respectively (Kortte, Gilbert, et al., 2010; Nemček, 2016; Rosengren, et al., 2016). The median SWLS value for the current study is slightly below the average for the general population (Pavot & Diener, 1993b) and is much lower than those found for adults with cerebral palsy ($M = 23$; Gannotti, et al., 2011), and Spanish adults with intellectual disabilities ($M = 25.89$; Lucas-Carrasco & Salvador-Carulla, 2012). Nevertheless, the SWLS value of the current study is consistent with previous reports indicating that people with disabilities rate their LS lower than their counterparts without disabilities (Van Campen & Van Santvoort, 2013). However, it also may suggest that Spanish society, at large, and universities, in particular, are far from providing a healthy environment to university students with disabilities. This result seems to indicate that society and universities are still ‘disabling agents’, as stated by the social theory of disability (Shakespeare, 2013). Therefore, it is necessary to developed more programs and improve the existing ones for promoting inclusion and healthy lifestyles among students with disabilities, resulting on their enhancement as a by-product.

With respect to age, the youngest third of participants rate their LS higher than the middle third and the oldest third. These results are consistent with LS literature across the lifespan among people without disabilities (Baird, Lucas, & Donnellan, 2010) and people with spinal cord injury (Putzke et al., 2003), since LS is decreasing over the lifespan. This is possible because of the loss of social support and increasing health problems over time. However, Addabbo et al. (2006) found than older people with disabilities were more likely than younger people with disabilities to report being sufficiently satisfied with their lives.

Results of the current study also show that students with congenital disabilities report higher LS than their peers with acquired disabilities. Bogart (2014) found similar results in a sample of U.S. adults with disabilities, as people with congenital disabilities reported higher LS than those with acquired disabilities. A potential explanation for this finding is that people with acquired disabilities experience a biographical disruption after the accident, injury or illness that produce the disability and the subsequent process of restoration of identity can lead to a situation of failure or dissatisfaction (Smith & Sparkes, 2008).

Overall, the current results indicate that university students with multiple disabilities and those with chronic illness report lower LS than students with physical and sensory disabilities. These findings are understandable because students with multiple disabilities tend to report experiencing more total barriers to PA than their single-disability counterparts (Úbeda-Colomer et al., 2019). However, LS does not differ significantly by gender as also has been observed in previous research developed in Spain with people with intellectual disabilities (Lucas-Carrasco & Salvador-Carulla, 2012). It is supposed then that LS is not affected by gender among Spanish university students with disabilities probably because the perception of LS is more impacted by age-related than gender-related factors.

As part of the findings from the present study, LS is observed as positively correlated with both PA and AI, being the strongest correlation with PA. These findings are consistent with related studies on disable adults since they highlight how PA and AI levels are directly associated with LS (Goñi & Infante, 2010; Tasiemski & Brewer, 2011; Tasiemski et al., 2005; Yazicioglu et al., 2012). This is an important result since PA and AI appear as two potential key areas of action for social and university policy-makers in promoting healthy lifestyles and LS among university students with disabilities. Nevertheless, future research should especially focus on the effects PA and AI programs on LS of university students with disabilities.

Several limitations of the current study should be taken into account when interpreting the results. One limitation pertains to the non-normality of the distribution of the data, which necessitated the use of non-parametric tests and prevented the implementation of more sophisticated analyses. Also, face-to-face data collection was not possible because participant contact information was not available to the research team. Data were collected online with the collaboration of university disabilities services. In future research, a longitudinal study that examines changes in LS and the variables that predict it over time would help to extend the current findings. Moreover, the current data can be complemented with qualitative analyses that delve deeply into understanding relationships among factors of interest.

Conclusion

This paper shows that university students with disabilities were slightly dissatisfied with their LS, and those with acquired disability, multiple disability, or chronic illness, and advanced in age reported lower perceptions of their well-being. Moreover, the positive association between LS and PA suggests that it may be helpful to enhance LS through PA among college students with disabilities. These results support most of the hypothesis initially proposed with the exception of gender since results do not show significant differences in this vulnerable population. The present findings provide insights that may be helpful for policy makers in elaborating specific public policies aimed at the promotion of PA among university students with disabilities, as the European Commission and Agenda 2030 proclaims (UN, 2015; WHO, 2015).

Conflicts of interest

The authors declare no conflict of interest.

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