
The Satisfaction with Life Scale (SWLS): Psychometric Properties and Observed Scores in University Students

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Abstract: Satisfaction with life is a wide studied component of well-being, largely documented along the recent decades. Also, it constitutes one of the most relevant variables within the positive and social psychology to study outcomes in different spheres of the life. Regarding the scholar context, it has been documented through several research experiences that the psychological well-being and, concretely the life satisfaction, has a broad importance on academically performance and behaviors observed within the scholar environment, as well as the achievement of academic goals. Satisfaction With Life Scale is one of the most used questionnaires to asses this factor. For this reason, the general objective of this study was to examine the psychometric properties of the SWLS in Colombian university students. This study used a sample composed by 150 university students of Colombian higher education institutions with a mean of 19.64 years of age, and belonging to seven different fields of knowledge or careers. The questionnaire consisted in two sections: In the first section, university students were asked about demographic variables such as age, gender, relationship status and coursing career. For the second section, it was used Diener's Satisfaction With Life Scale (Likert scale - 5 items). The results of this application show a relatively high satisfaction with life among Colombian university students. Although not gender differences were found, it has been established a set of differences according to career. Regarding psychometric properties, it was found a good factorial solution, and a set of favorable internal consistency coefficients. Satisfaction with life is an essential variable to be considered as part of the approach to well-being and quality of life of people. This study constitutes a significant effort taking into account that it allows to learn more about this phenomenon in a population of which (in the Colombian context, and even others) it has been done very little in terms of research of Subjective Well-Being and its relationship to outcomes in different spheres of life.

Keywords: Satisfaction with Life, Life Satisfaction, Subjective Well-Being, SWLS, University Students, Public Health

1. Introduction

Satisfaction with life is a cognitive component of well-being [1], which has been largely explored along the recent decades [2]. Satisfaction with life has also been one of the variables with more weight and depth within recent developments in the field of positive and social psychology. According to recent revisions, satisfaction with life could be considered as a reliable construct in several areas of research on well-being, involving the cross-cultural comparisons and international researches performed on this field of knowledge [2, 3]. According to the empirical evidence, the concepts of subjective well-being (SWB) and psychological well-being

(PWB), although very similar and, besides, often confused, under the scope of various approaches are different constructs, and can predict -and be predicted by- differential external variables [4, 5].

The importance of subjective well-being extends to other spheres of life of individuals, such as health, relationships and performance in different areas and times of the life cycle [6, 7]. According to Altun et al. and Kobau et al., in general, the subjective well-being concerns peoples' self-reported assessment of their own wellbeing, namely both health and quality of life [8, 9]. Commonly, the most frequent approach towards happiness use to refer to pleasure, meaning and engagement. However, some studies have concerned happiness as a concept more related to life satisfaction [10,

11]. Therefore, and considering its impact on the quality of life of population, satisfaction with life represents an important issue that needs to be researched in the field of social sciences [12, 13].

1.1. Life Satisfaction, Scholar Performance and Personal Welfare

Satisfaction with life must be understood as a comprehensive and multidimensional construct. Regarding variables in many spheres that may influence life satisfaction, some scientific experiences have shown that life satisfaction could be predicted through individual factors such as emotional intelligence [14], having a protective effect regarding life stress and its cope [15, 16], and social variables such as the social capital at living space [17]. In addition, satisfaction with life is usually associated with experimentation and expression of positive emotions and affect [18-20].

Regarding scholar outcomes, it has been documented through several research experiences that the psychological well-being has a broad importance on students' academically performance and behaviors observed within the scholar environment [12, 21, 22], as well as the achievement of academic goals [2].

Besides the scholar field, and referring to young population in general, satisfaction with life has been correlated with social factors such as poor problem solving and resilience abilities [23, 24], violent and delinquent behaviors [25, 26], misbehaviors using internet and information technologies and devices (e.g. smartphone' addictive behaviors) [16, 23], adverse peer-relationships, and victimization experiences [27]. Complementarily, in a recent research, Tercan [20] found that life satisfaction and family functioning are related constructs.

1.2. Relationship Between Life Satisfaction and Health

Satisfaction with life has been associated, in several studies, with the health outcomes of people, including university students, in which life satisfaction plays an important role [28]. Piko has found that youngers' psychosocial health should have an important role in the of life satisfaction, particularly referring to psychosomatic symptoms, depressive disorders and health behaviors, such as the food and tobacco consumption, factors which may impair the quality of life and health of this population [29]. Furthermore, some prospective studies have stated that positive well-being influences the risk of presenting adverse medical events and, even, the mortality of the individual [30, 31]. Although the relationship between psychological variables and health changes with age [30, 32], in the case of young adults it has been identified a set of differential impact indicators in life satisfaction, taking into account that it is for excellence a change age especially considering that at this stage, generally, the course of professional studies takes place. Furthermore, some studies with university students and academics have found a link between how satisfied they

are with life and some habits of self-care and protection [33].

In accordance with recent studies that have found significant relations between emotional intelligence, well-being, and health factors, being always the well-being positively associated with better outcomes in physical and mental health [14, 34].

Regarding demographical characteristics of persons, it has been also found relevant differences in rates of life satisfaction, according to some individual variables. For example, Toker has found that female academicians were more satisfied with their life than their male counterparts in the university field [12].

1.3. Purpose of the Study

The general objective of this study was to examine the psychometric properties of the Satisfaction With Life Scale (SWLS) and its observed results in Colombian university students.

This study also pursued the following specific objectives: First, to determine the levels of life satisfaction of college students participating, according to the SLWS. Second, to comparisons according to various demographic variables to determine whether there are differences in satisfaction with life according to variables such as sex and the area knowledge of the university students. And third, to provide a framework for the use of SWLS in groups of college students and Spanish-speaking population.

2. Methods

2.1. Sample

The sample was composed by $n=150$ Colombian university students (69 men - 46%, and 81 women - 54%), between 16-27 years of age, with a mean of $X=19.64$ ($SD=1.803$) years. Regarding to the careers or areas of knowledge that participants were studying, it was found the following distribution in seven different fields of knowledge: Arts ($n=15$; 10%), biology ($n=30$; 20%), laws ($n=15$; 10%), industrial design ($n=30$; 20%), economics ($n=15$; 10%), industrial engineering ($n=15$; 10%), mechanical engineering ($n=15$; 10%), and medicine ($n=15$; 10%).

2.2. Procedure, Design and Ethics

Participants have completed the questionnaire, designed in a paper version, through a series of visits to classrooms in different faculties or departments of higher education institutions. The survey was conducted guaranteeing at all times the anonymity of the participants, and emphasizing on the fact that the data would only be used for statistical and research purposes. For this type of study, a consent statement should be required. For this reason, it was used an informed consent statement, signed by both parties before the participant answered the questionnaire. In this document, the rights of the respondent and the corresponding description of the purpose of research and issues related to the processing of personal data were recorded.

The importance of answering honestly to all the arisen questions was emphasized, as well as the non-existence of wrong or right answers. Surveys were completed for 150 persons of a total of approximately 180 delivered questionnaires; so, the response rate was around 85%; as it was a study dealing with a high interest social matter, the vast majority of people were willing to collaborate. There were approximately a 15% people who did not wish to participate in the research.

Description of the questionnaire

The questionnaire was composed by two sections, described as follows: In the first section, the following it were asked the age, gender, relationship status and career, in order to develop a brief socio-demographic characterization of participants.

The second part of the instrument was composed by the Satisfaction with Life Scale (SWLS). This scale is a short questionnaire designed to measure global cognitive judgments of satisfaction with one's life [6, 35]. The SWLS is a unifactorial life satisfaction scale, and consists of 5 items or statements. Participants should indicate the degree of agreement with each presented statement, using a Likert scale of 7 levels (from 1=strongly disagree, to 7=strongly agree). Total scores can range from 5 to 35 points, meaning the higher scores a greater life satisfaction. According to Diener [1, 6, 7], the final scores of the scale can be understood as: (5–9) Extremely Dissatisfied; (10–14) Dissatisfied; (15–19) Slightly below average in life satisfaction; (20–24) Average score; (25-29) High score; (30–35) Very high score, or “highly satisfied with life”. The used version (in Spanish language) was obtained from the public database of the original author, in which the scale is in different languages [6].

Regarding to the internal consistence reliability coefficients of the instrument, several studies have documented high Cronbach's alpha coefficients in different populations, such as the following studies referred: $\alpha=0.79$ [36]; $\alpha=0.87$ [37]; $\alpha=0.88$ [35]; and $\alpha=0.90$ [38].

2.3. Data Processing

In the case of this study, descriptive analyzes (frequencies and central tendency measures) were conducted, in order to describe and characterize the participating sample. Furthermore, basic psychometric analyzes were performed to determine the properties of SWLS in the reference population. In this sense, factorial and reliability (internal consistence) analyzes were performed. Moreover, it was also assessed a set of complimentary relevant psychometric measures and indicators. In addition, Chi-Square tests (for categorical crossings), and comparative Analysis of Variance (ANOVA), Brown-Forsythe tests and Post-Hoc (Tukey) analyzes were performed to discriminate the results according to the socio-demographical characteristics of university students. Once the data was obtained, statistical analyses were performed using ©IBM SPSS (Statistical Package for Social Sciences), version 22.0.

3. Results

First of all, the measures of central tendency resulting from the application of the instrument (SWLS) to the sample of university students were obtained. Table 1 shows the mean scores observed in each item of the scale, and the total (sum) of the entire instrument.

Table 1. Descriptive statistics for Satisfaction with Life Scale.

item		Mean	SD
1	In most ways my life is close to my ideal.	5.23	1.17
2	The conditions of my life are excellent.	5.95	1.08
3	I am satisfied with my life.	5.82	1.20
4	So far I have gotten the important things I want in life.	5.41	1.36
5	If I could live my life over, I would change almost nothing	5.23	1.56
Total (full scale)		27.65	5.06

Confirmatory factorial analysis

For the conduction of the confirmatory factorial analysis, and taking into account that once conducting the Kolmogorov-Smirnov test (to determine whether Satisfaction with Life was -or not- normally distributed) the result showed that the sample was not normally distributed in terms of this variable (K-S=0.129; $p<0.001$). For this factorial analysis, it was used as estimation method the maximum likelihood, with broad error standards and Chi-square correction for its mean and asymptotic variances.

Table 2. Component Matrix for the SWLS.

Item		Component 1
1	In most ways my life is close to my ideal.	0.836
2	The conditions of my life are excellent.	0.734
3	I am satisfied with my life.	0.824
4	So far, I have gotten the important things I want in life.	0.771
5	If I could live my life over, I would change almost nothing	0.801

Extraction Method: Principal Component Analysis. 1 component extracted.

With the obtained factor solution, resulting from the Principal Component analysis, it was reached the 63.05% of total explained variance. Factor loading coefficients range from 0.734 (minimum) and 0.836 (maximum), with items 1 and 3 show those who best fit the only factorial component obtained, as shown in Table 2.

Internal consistency

Regarding the internal consistency reliability coefficient of the SWLS in Colombian university students, it was found a Cronbach's alfa of $\alpha=0.848$ for the full-scale, whereas when performing the reliability analysis using the methodology of "two halves", it was found a Cronbach's alpha coefficient of $\alpha=0.793$ for part 1 (items 1, 2 and 3), and a Cronbach alpha coefficient of $\alpha=0.707$ for part 2, (items 3, 4, and 5) with a correlation within forms of $r=0.709$. Throughout Hotelling's T-Squared test, it was found a coefficient of $F_{(4,146)}=23.11$; $p<0.001$.

Interval-based analysis

The interval-based analysis, in accordance to the criteria of the author of the scale, established that, in terms of the gross sample, 3,4% of the participants are dissatisfied or extremely dissatisfied with their life. Regarding the mild-low and mean scores of the scale, 14.6% of participants are located within the “slightly below average” or “average score” levels. Meanwhile, 40.7% of the sample show a high score, and the 41.3% of university students are “highly satisfied” with their lives, as presented in Table 3.

Table 3. Cross-tabulation of interval-based analysis, with total scores and discriminating by gender.

Interval	Count	Gender		Total
		Man	Woman	
Extremely dissatisfied	Count	0	1	1
	% within Gender	0,0%	1,2%	0,70%
Dissatisfied	Count	1	3	4
	% within Gender	1,4%	3,7%	2,7%
Slightly below average	Count	2	3	5
	% within Gender	2,9%	3,7%	3,3%
Average score	Count	11	6	17
	% within Gender	15,9%	7,4%	11,3%
High score	Count	27	34	61
	% within Gender	39,1%	42,0%	40,7%

Table 4. Significant differences obtained by Tukey's Post-Hoc analysis.

(I) Career	(J) Career	Mean Diff. (I-J)	Std. Error	Sig.	95% CI	
					Lower	Upper
Arts	Mechanical Engineering	-6.067*	1,798	0.02	-11.601	-0.532
Biology	Arts	4,265*	1,551	0.05	-0.501	9.01

* The mean difference is significant at the 0.05 level.

Specifically, significant mean differences were found in the comparisons between students of Arts and Mechanical Engineering (being the average scores significantly lower for the first), and between and Arts versus Biology students, with identical tendency than the aforementioned. In Figure 1, graphical differences among all careers can be appreciated.

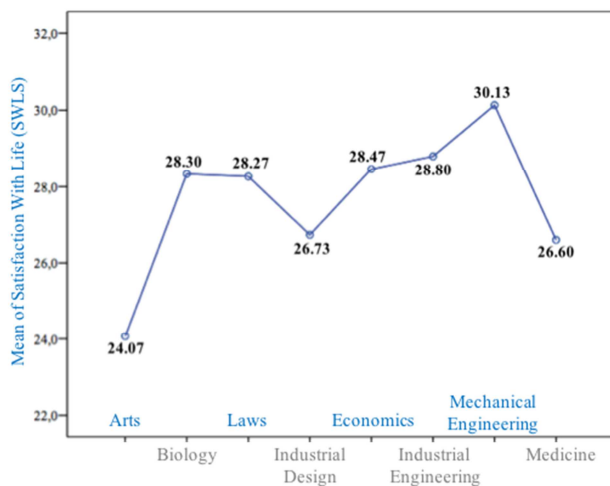


Figure 1. Total scores of SWLS according to career.

4. Discussion

Satisfaction with life is an essential variable to be

Interval	Count	Gender		Total
		Man	Woman	
Highly satisfied	Count	28	34	62
	% within Gender	40,6%	42,0%	41,3%
Total	Count	69	81	150
	% within Gender	100%	100%	100%

In regard to the potential existence of gender-based differences in terms of the total score of satisfaction with life obtained, no significant differences were found through Chi-Square tests ($X^2_{(1,150)}=4.121$; $p=0.532$).

Differences in life satisfaction according to studying career

In contrast to comparisons according to gender performed with Chi-Square statistic, contrasts conducted with Analysis of Variance (ANOVA) and Brown-Forsythe tests to compare the total score of SWLS, allowed to establish significant differences in this factor ($F_{(7,142)}=2.216$; $p<0.05$ for ANOVA, and $F_{(7,85.925)}=2.268$; $p<0.05$ for Brown-Forsythe). Furthermore, Tukey's Post-Hoc test showed significant differences between groups of students of specific careers, as shown in Table 4.

considered as part of the approach to well-being and quality of life of people. This is an assumption that may seem self-evident, but it has been supported by various studies and efforts to increase the existing scientific evidence in the regard [39, 40]. Furthermore, the study of happiness and subjective well-being are broadly useful in explaining part of health and performance outcomes and the strengthen the human development and the efforts to improve the quality of life of the population [41, 42].

As other highly relevant studies in the area, this research has sought to characterize a key segment of the population in terms of life satisfaction and some related variables, emphasizing on important individual characteristics, which play an important role in explaining "why are more satisfied people than other, with respect to their life?" [43-45].

With respect to its psychometric and adjustment to the sample properties, it should be said that the SWLS is a useful tool for research and psychosocial diagnosis. It is, in other words, a highly consistent and simple (parsimonious) scale, which has very few biases for the study of subjective welfare issues [46], besides being widely used worldwide for the study of this phenomenon [1, 21].

Although there were no gender differences in specific terms, as has been done in some other studies [45] that have been able to establish these differential relations, other interesting differences have been found, such as some significant differences according to the area of knowledge (or coursing career), fact which strengthens the need to create

designs and interventions in this field that should take into account the construct of life satisfaction [21, 35, 47].

Regarding the benefits of designing interventions towards the improvement of the subjective well-being issues, and without taking into account the specific characteristics of each of them, different models of intervention based on subjective well-being have been documented with favorable results in different areas of people's lives, such as, concretely, the enhancement of optimism and sleep quality and decreases in diastolic blood pressure and depressive symptoms [47, 48], as well as improving coping with stress and behavioral components of the lifestyle, such as restorative health behaviors [49, 50].

In the specific case of university students, this research attempts to contribute to the field of knowledge presenting the psychometric properties, descriptive data and internal comparisons of the Satisfaction With Life Scale (SWLS) of only a fraction of them. However, it constitutes a significant effort considering that it allows to learn more about this phenomenon in a population of which (in the Colombian context, and even others) it has been done very little in terms of research of Subjective Well-Being and its relationship to outcomes in different spheres of life, something that can always be improved, as recent studies in the area have raised [51, 52].

5. Conclusion

The SWLS constitutes a simple, fast, discriminative and parsimonious scale with good psychometric properties that can be used to measure Life Satisfaction with an exploratory emphasis. In the case of university students, and taking into account the language used within the items, the responding format (Likert scale) and the results obtained in aforementioned applications, this scale results in an optimal questionnaire to study this cognitive component of well-being.

Limitations of the study

Finally, we should mention the most relevant limitations of this study, in order to improve future research experiences related to the study of these kind of factors in populations of university students:

First, this study only self-report measures were used. Although the questionnaires used have good levels of reliability and are widely used in the international context, there are biases that are inherent in this methodology. For example, people can often bias their answers to be found in the workplace, believing that provided responses can affect their relationship with researchers, or failure to comply with a preset expectation. Therefore, it is essential to emphasize in the rigorous treatment of the data and the non-existence of right or wrong answers.

Second, as part of the study it has been conducted collective application of questionnaires. Although most students have responded easily and willingness to the survey, it should be mentioned that a part of this population has no

major previous interaction with Likert scales, so they required more assistance and explanation of the items when was requested.

Third, the study sample was composed entirely by students of private university. It should imply potential biases on the reported scores, regarding that socio-economic status could potentially vary in function of the type of the higher educational institution (in Colombia, access to private educational institutions use to be more expensive, for instance). As a recommendation for future research, we suggest to take this variable into account for the design of the study and the collection of the data.

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