

Validity and reliability of the Greek version of the Satisfaction with Life Scale (SWLS): Evidence from physically active college students

Theodoropoulou, E., Karteroliotis, K.

18th Annual Conference of the European College of Sport Science, Barcelona, Spain, 26-29 June.

Faculty of Physical Education and Sport Science, University of Athens, Athens, Greece

Introduction

Physical activity has been found to be positively related to life satisfaction (McAuley et al., 2006; 2008). Such studies frequently used the Satisfaction with Life Scale (SWLS) to assess life satisfaction, which is one of the most widely used instruments. Although this five-item scale has been established to have sound psychometric properties, the validity of this instrument has not been examined in Greece. Therefore, the aims of the current study were to examine the factorial validity and reliability of the SWLS.

Methods

Participants were 340 volunteers that attended physical education classes at the University of Athens. To test the factorial validity of the scale, two samples were used. The first sample were 77 men and 73 women (24.28±6.32 yrs), whereas the second sample consisted of 86 men and 64 women (22.85±5.64 yrs). An exploratory factor analysis (EFA) was conducted with the first sample. The extraction method employed was a principal axis factor followed by promax rotation (Russell, 2002). A confirmatory factor analysis (CFA) was performed with the second sample to confirm the goodness of fit of the model found in EFA. The CFA was conducted using the AMOS 16.0 statistical software (Arbuckle, 2007). Assessment of model fit was based on χ^2 , χ^2/df , CFI, GFI, IFI, TLI and RMSEA indices (Kline, 2005). To test the internal consistency of the SWLS, the Cronbach's alpha coefficient was used. Finally, for the examination of the test-retest reliability, 40 students, (men=21, women=19, 28.78±5.65 yrs) completed the SWLS twice with an interval of 15 days between the two assessments.

Results

➤ Skewness (-1.09 - -0.31) and kurtosis (-0.74-0.36) values were acceptable, indicating that the distribution of the scores did not depart from normality. The Kaiser-Meyer-Olkin test was 0.86 and the Bartlett's Test of Sphericity was statistically significant ($\chi^2=474.93$, $df=10$, $p=0.00$). EFA yielded one factor accounted for 71.81% of the variance of the model. The item factor loadings ranged from 0.68 to 0.90, whereas the Cronbach's alpha was 0.90.

➤ For CFA, skewness (-1.11 - -0.29) and kurtosis (-1.07-0.16) values were acceptable. CFA showed that the proposed model had a good fit to the data (Table 1). The item factor loadings ranged from 0.75 to 0.92, whereas the Cronbach's alpha was 0.93. An alternative model was tested to examine the hypothesis of a two-factor solution. However, this model was rejected because it did not fit well the data.

Table 1. CFA's results of the SWLS

Model	χ^2	χ^2/df	CFI	GFI	IFI	TLI	RMSEA
Model 1 (1 factor)	6.214, p=0.184	1.554	0.996	0.983	0.996	0.991	0.062

χ^2 =chi-square test, χ^2/df =Satorra-Bentler ratio, CFI=comparative fit index, GFI=goodness of fit index, IFI=incremental fit index, TLI=Tucker and Lewis index, RMSEA=root mean square error of approximation

➤ The intraclass correlation coefficient of the SWLS was 0.77 (0.61-0.87 95% CI), indicating acceptable test-retest reliability properties.

Discussion & Conclusion

The results of the study demonstrated that the Greek version of the SWLS was a valid and reliable instrument in physically active students. These findings are consistent with those of previous studies. Future studies need to be conducted in other physical activity settings in order to increase the knowledge about the validity and reliability of the SWLS.

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Validity of self-reported anthropometric values used to assess Body Mass Index in physically active adults

Theodoropoulou, E., Karteroliotis, K.

18th Annual Conference of the European College of Sport Science, Barcelona, Spain, 26-29 June.
Faculty of Physical Education and Sport Science, University of Athens, Athens, Greece

Introduction

Large scale studies frequently used self-reported weight and height to assess Body Mass Index (BMI). However, self-reported anthropometric values were subject to measurement errors (Spencer et al., 2002; Stommel & Schoenborn, 2009). Specifically, men and women underreported their weight, overestimated their height and consequently, underestimated their BMI. Thus, the purpose of the current study was to examine the differences between self-reported and measured anthropometric values in a sample of Greek physically active adults.

Methods

Participants were 684 volunteers, 206 men and 478 women, ranging in age from 18 to 65 years (39.2±13.5 yrs), who regularly participated in various exercise programs in the Sport Facilities of the Municipality of Athens. First, participants completed questions about their body weight and height. Second, anthropometric measurements were carried out by trained personnel in accordance with Heyward and Stolarczyk recommendations (1996). Weight was measured to the nearest 100 gr by a calibrated scale and height in bare feet to the nearest cm by a stadiometer. BMI was calculated as weight (kg) divided by height (m) squared. A series of paired t tests were conducted to explore the differences between self-reported and measured anthropometric values.

Results

- Table 1 presents participants' obesity levels, according to self-reported and measured BMI.
- Men underestimated their weight ($t_{(203)}=-11.2$, $p<0.01$) and overestimated their height ($t_{(202)}=18.5$, $p<0.01$).
- Women underreported their weight ($t_{(476)}=-18.6$, $p<0.01$) and BMI ($t_{(475)}=-7.8$, $p<0.01$) and overestimated their height ($t_{(475)}=30.2$, $p<0.01$).
- The overweight subgroup underestimated weight ($t_{(212)}=-11.7$, $p<0.01$) and BMI ($t_{(213)}=-12.7$, $p<0.01$) and overestimated height ($t_{(212)}=20.0$, $p<0.01$).
- The obese subgroup underreported weight ($t_{(50)}=-6.5$, $p<0.01$) and BMI ($t_{(50)}=-10.9$, $p<0.01$) and overestimated height ($t_{(50)}=10.2$, $p<0.01$).

Table 1. Sample's obesity levels, according to self-reported and measured BMI

BMI	BMI GROUPS	N	%
SELF-REPORTED BMI M=23.51, SD=3.35 (kg/m ²)	Underweight	17	2.5
	Normal weight	469	69.3
	Overweight	160	23.6
	Obese	31	4.6
MEASURED BMI M=24.64, SD=3.60 (kg/m ²)	Underweight	8	1.2
	Normal weight	401	58.6
	Overweight	216	31.6
	Obese	57	8.3

Participants were stratified into four BMI groups, according to Heyward and Stolarczyk recommendations (1996)

Discussion & Conclusion

The results of this study demonstrated significant differences between self-reported and measured anthropometric values, showing that self-reported data were subject to measurement errors. Large scale studies should use more valid procedures for assessment of overweight and obesity levels.

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THE ASSOCIATION BETWEEN HEALTH-RELATED QUALITY OF LIFE AND ANXIETY IN A GREEK ADULT POPULATION

Theodoropoulou, E., Stavrou, N.A., & Karteroliotis, K.

Faculty of Physical Education and Sports Science, National and Kapodistrian University of Athens, Greece

17th Annual Scientific Conference of the International Society for Quality of Life Research, London, United Kingdom, 27-30 October

Introduction

Anxiety is inversely associated with Health-Related Quality of Life (HRQoL) (1), which has been defined as an individual's perceived physical and mental health over time. However, the association between anxiety and HRQoL in the Greek general population has not been previously examined. Thus, the aim of the present study was to examine the hypothesis that trait anxiety is a significant predictor of HRQoL in a sample of Greek adults, after controlling for various socio-demographic variables.

Methods

- Participants (N=327): 105 men & 222 women, 30-50 years (mean age 39.57±6.68 years).
- Age, gender, family status, number of children, level of education, kind of work and income were recorded.
- HRQoL was assessed with the Greek version of SF-36 health survey, which consists of the physical and psychological health factors (2). The physical health factor is composed of the physical functioning, physical role, bodily pain and general health subscales. On the other hand, the vitality, social functioning, emotional role and mental health subscales estimate the psychological health factor.
- Anxiety was estimated with the State-Trait Anxiety Inventory (STAI) (3), which consists of the state and trait anxiety factors. However, only the trait anxiety factor was assessed.
- A series of hierarchical regression analyses were conducted to examine the study's hypothesis.
- The socio-demographic independent variables were entered firstly into the regression equation, whereas the trait anxiety factor was entered secondly. The factors and the subscales of the SF-36 health survey were the dependent variables.

Results

- As it is shown in Table 1, trait anxiety was a strong negative predictor only of the psychological health factor ($F_{(8,310)}=24.035, p=.000$).
- Trait anxiety negatively predicted the physical health subscales, whereas it highly predicted the psychological health subscales.

Table 1. Significant predictor of HRQoL, adjusted for the socio-demographic variables

HRQoL DEPENDENT VARIABLES	INDEPENDENT VARIABLE: THE TRAIT ANXIETY FACTOR			
	R ² change	b	t	Sig.
Physical functioning	.033	-.188	-3.604	.000
Physical role	.053	-.237	-4.345	.000
Bodily pain	.049	-.228	-4.173	.000
General health	.146	-.394	-7.434	.000
Psychological health factor	.335	-.597	-12.968	.000
Vitality	.212	-.475	-9.570	.000
Social functioning	.116	-.351	-6.635	.000
Emotional role	.155	-.406	-7.705	.000
Mental health	.349	-.609	-12.952	.000

Discussion / Conclusion

The results supported the negative association between anxiety and HRQoL, a finding that should be taken into account in improving the quality of life of Greek adults. One limitation of this study was that the sample size was relatively small and the results could not be generalized to the entire Greek population.

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