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Adaptation of Rosenberg's Self-esteem scale and EBEPS-A© Self-esteem Subscale on Portuguese students

Marta Tagarro^{a*}, Sónia Galinha^a

^a *Escola Superior de Educação de Santarém, Complexo Andaluz, Apartado 131 - 2001-902 Santarém, Portugal*

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Abstract

Research relating to the study of personal factors of students is currently of great importance especially those focusing on students' self esteem. The goal of this research is to analyze the psychometric properties of Rosenberg's Self-esteem scale and the Psychosocial Wellbeing Scale (EBEPS-A©) subscale of Self-esteem by studying the scales from two aspects which are whether the psychometric qualities of the instruments of self-esteem measures are appropriate for Portuguese students and if the instruments are one-dimensional or bi-dimensional. To understand this issue, two studies were developed for the psychometric validation of the instruments relating to self-esteem. One study investigated the Rosenberg Self-Esteem Scale (Rosenberg, 1979) on a sample of 588 students comprising 70.7% females and 29.3% males. Another study looked at the Psychosocial Wellbeing Scale (EBEPS-A©) (Galinha & Loureiro, 2005; 2006) subscale of Self-Esteem on a sample of 605 students comprising 63.3% females and 36.7% males. A Factorial analysis created a 14-item Self-esteem subscale. The Factor analysis confirmed previous studies with one factor; high saturations, a variance of 49.657 and Cronbach alpha =0.88. For the EBEPS-A©, the subscale results point to a variance of 4.53% and Cronbach alpha =0.90 which validated the appropriateness of the psychometric characteristics of both scales. The studies conclude that these instruments have proven useful in the study of self-esteem with students and may be used in future investigations.

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* Corresponding author. Tel.: +351 243 309 180 | Fax: +351 243 309 187.

E-mail address: marta.tagarro@ese.ipsantarem.pt



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1. Introduction

The study of students' self esteem is of great importance, as the level of self esteem influences the wellbeing of the students, the choice of courses, academic acquisitions and the achievement of curriculum goals (Marsh, 2005; Tagarro & Veiga, 2014). Having gained increasing attention globally, self-esteem studies aims at improving the understanding of the self in different contexts, to comprehend and predict behavior and create measures to provide better interventions (Marsh & Craven, 1997). A picture of oneself involves cognitive, emotional and behavioral attitudes and this seems to reflect in the motivation, commitment, pleasure and creativity that students demonstrate in their academic life (Tagarro, 2012; 2013). Hence, it is important that self esteem is studied using appropriate tools.

Coopersmith (1967), Garcia (1998) and Peixoto (2003) define self-esteem as the assessment that the individual makes of himself, expressing an attitude of approval or disapproval and that shows the competence that the subject possesses to believe in himself, his capabilities and value. Additionally, the way others see us seems to have a great importance on self-esteem. Oñate (1989) states that how others see us influences our conception of actual self and ideal self that is used as a reference according to social and family expectations. Peixoto (1998) states that it is the distance between the actual self and the ideal self that defines self-esteem. Alcantra (1990) defines self-esteem as an attitude about oneself while Vallés and Vallés (1995) define it as the feeling of liking oneself, taking pride in what one does, thinks or feels, being responsible, expressing emotions, accepting difficulties, and getting along with others. Due to this, self-esteem is considered a one-dimensional construct by some authors (Andrews, 1998; Hattie 1992 cited by Peixoto, 2003).

2. Purpose of the Study

The purpose of this study is to analyze the psychometric properties of two instruments; Rosenberg's Self-esteem scale (Rosenberg, 1979) and the Psychosocial Wellbeing Scale - EBEPS-A© (Galinha & Loureiro, 2005; 2006) subscale of Self-esteem on two samples of Portuguese students.

The research questions that guided the study were as follows:

Q1. Will the psychometric qualities of the self-esteem measures be appropriate for Portuguese students?

- Q2. Are the instruments one-dimensional or bi-dimensional?
Q3. What are the psychometric characteristics of the instruments?

To understand this issue, two investigations were conducted for the psychometric validation of these instruments relating to self-esteem.

3. Methodology

3.1 Study 1: Rosenberg's Self-Esteem Scale (1979)

3.1.1 Instrument

Rosenberg's Self-Esteem Scale (1979) consists of 10 items and measures the feelings of respect for and acceptance of oneself. Half of the items are positive and the other half are negative, organized in a Likert scale of four points ranging from *strongly agree = 4, agree = 3, disagree = 2 and strongly disagree = 1*. Romano, Negreiros and Martins (2007) obtained, in a sample of 501 teenagers, a Cronbach's alpha of 0.63 for the items that saturate in factor 1 (which measures negative self-esteem) and 0.74 for the items that assess positive self-esteem (factor 2). Regarding the validity, they found in factor 1 an eigenvalue of 3.33 and 1.29 in factor 2 which explained 46.03 % of total variance. The study by Albo, Nuñez, Navarro and Grijalvo (2007) found just one factor of the instrument with an acceptable internal consistency (0.88) and temporal stability. The differing results from these studies as related to the factor number underscores the importance of a deeper investigation of the factor analysis of this instrument.

3.1.2 Sampling

Before the instrument was applied on a larger sample, it was deemed necessary to first conduct a pilot study on a sample of 19 university students in order to identify any weaknesses of the instrument particularly in its translation into Portuguese, or characteristics of the application process. The respondents in the pilot test did not have any problems with understanding and responding to the translated version. In order to identify any errors, the collected results were entered in Excel and exported to *Statistical Package for Social Sciences (SPSS 20)*. There were no statistical errors detected in the instrument. Several teachers and directors of different higher education institutions were contacted for permission to apply the instrument in their classes. The

study was explained to the subjects and anonymity guaranteed. After the data was collected, it was entered into Excel and transferred to SPSS 20, for analysis.

Given that the population of students in higher education is very wide, it was considered appropriate to collect a convenience sample. Thus, because accessing a varied sample of subjects was considered relevant to this study, students from different years of study, from different institutions of higher education and different discipline areas were selected as the sample. After gathering data from students of 13 colleges and 34 different courses, a sample of 588 students was obtained. The sample ranged between the ages of 17 and 57 years, of whom 416 (70.7%) were female and 172 (29.3%) were male.

3.1.3 Scale fidelity and analysis of items

To study the fidelity of Rosenberg's Self-Esteem Scale, SPSS 20 was used to reverse items, in order to find the mean and standard deviation, analyze the internal consistency, and determine the alpha indices in subgroups. To start the analysis, the inverse items (2, 5, 6, 8 and 9) were recoded and then through reliability procedure, the average and standard deviation values for each item were found (Table 1). The lower average is in item 8 ("I wish I could have more respect for myself") and the top average is in item 9 ("All in all, I am inclined to feel that I am a failure."). In its set range, it has an average of 30.51, a standard deviation of 5.48 and a percentage of the total variance explained by the scale of 49.657.

Table 1. Mean and standard deviation of the results in items, considering the total sample (N = 588)

Item	M.	S. D.
1 On the whole, I am satisfied with myself.	3.10	.63
2 At times I think I am no good at all.	2.82	.94
3 I feel that I have a number of good qualities.	3.20	.59
4 I am able to do things as well as most other people.	3.23	.66
5 I feel I do not have much to be proud of.	3.10	.80
6 I certainly feel useless at times.	2.98	.92
7 I feel that I am a person of worth, at least on an equal plane with others.	3.14	.60
8 I wish I could have more respect for myself.	2.66	1.01
9 All in all, I am inclined to feel that I am a failure.	3.54	.68
10 I take a positive attitude toward myself.	3.11	.72

In Table 2, this analysis also found other relevant statistical data through the procedure reliability: mean, variance and internal consistency coefficient if each item is eliminated. Items with higher discriminative power are 6 ("I certainly feel useless at times ") with an $r = .72$ and 10 ("I take a positive attitude toward myself.") with an $r = .70$. And the item with less power is 4 ("I am able to do things as well as most other people ") with an $r = .49$. The item-total correlation is strong and statistically significant.

Table 2. Average, variance, item-total correlation and Alpha EAR scale if item deleted (N = 588).

Item	M.	Var.	r	Alfa
1	27.78	24.02	0.64	0.87
2	28.06	21.55	0.68	0.86
3	27.68	24.84	0.54	0.87
4	27.66	24.72	0.49	0.88
5	27.79	23.10	0.60	0.87
6	27.90	21.42	0.72	0.86
7	27.74	24.41	0.61	0.87
8	28.22	22.17	0.55	0.88
9	27.34	23.65	0.65	0.87
10	27.77	23.05	0.70	0.86

Cronbach's alpha was used to estimate the internal consistency which was determined in two subgroups: women (alpha = 0.88) and male (alpha = 0.88). Since RAS is an univariate scale, we determined the total alpha (0.88). Alpha values in the overall sample and in both subgroups are high 0.88 reflecting good internal consistency (Hill & Hill, 2009).

3.1.4 Internal validity

To study the internal validity of the scale, factorial analysis was applied. Initially, an analysis indicating two factors was made, since it is stated that there are two factors in this instrument in some recent studies (Romano et al., 2007). However, the results point to a single factor which confirms most studies of this scale (Albo et al., 2007). Thus, a new principal component analysis

with *varimax* rotation was performed, indicating one factor using the Factor - PA1 procedure of SPSS 20. The saturation of each item of the scale are presented in Table 3.

Table 3. Items and saturation of the same obtained in the rotation

Items	Saturations
10 I take a positive attitude toward myself.	.781
6 I certainly feel useless at times.	.775
2 At times I think I am no good at all.	.746
1 On the whole, I am satisfied with myself.	.735
9 All in all, I am inclined to feel that I am a failure.	.725
7 I feel that I am a person of worth, at least on an equal plane with others.	.716
5 I feel I do not have much to be proud of.	.678
3 I feel that I have a number of good qualities.	.648
8 I wish I could have more respect for myself.	.626
4 I am able to do things as well as most other people.	.591

3.2 Study 2: Psychosocial Wellbeing Scale (EBEPS-A©)

3.2.1 Instrument

Psychosocial Wellbeing Scale (EBEPS-A©) consists of 76 items, organized in a Likert scale of five points ranging from always= 5, often = 4, sometimes = 3, rarely =2 and never =1. In which the internal consistency, measured by *Cronbach's* alpha, obtained the value of .96. The consistency of the factors were: factor 1 – Motivation, a variance 24.17% and a *Cronbach's* alpha .93; factor 2 - Self-esteem with 14 items (table 4), a variance 4.53% and a *Cronbach's* alpha of .90; factor 3 - Interpersonal Wellbeing with 16 items, a variance of 3.66% and a *Cronbach's* alpha of .89; factor 4 - Self-Efficacy with 14 items, a variance 2.41% and a *Cronbach's* alpha of .85; and finally, factor 5 - Social Support with 6 items and a variance of 2.38%, the *Cronbach's* alpha, this same factor greater than .75. These five factors explain 37.15% of the variance. This study focused on subscale 2 of self-esteem.

The initial 100 items considered for factor exploratory analysis yielded 21 factors with orthogonal eigenvalues greater than 1. An attempt was made to maximize the explained variance of the main factors previously selecting five factors, and translating the statistical grouping of items. It

is noted that in this analysis, a number of items of the initial 100 were not considered (1, 3, 6, 8, 18, 31, 32, 34, 35, 36, 41, 42, 44, 47, 53, 58, 63, 65, 78, 83, 84, 85, 89 and 95) since they present themselves below the defined cut-off value (.40).

3.2.2 Sampling

The validity study of EBEPS-A© considered the random application of EBEPS-A© scale to 605 students (N= 605; 63.3% female and 36.7% male) in Portugal. The data showed that 92.7% were Portuguese and 7.3% were of other nationalities.

3.2.3 Scale fidelity and analysis of items

The objective of this study was to comply with the psychometric qualities of EBEPS-A© focusing on the subscale of self-esteem (items 14; variance 4.53%; alpha. 90; $\mu = 54.41$; SD = 7.80).

As for gender, there are significant statistical differences with regard to factor 2 - *Self-esteem*. In subscale 2 - *Self-esteem*, males posted higher values ($\mu = 56.70$; SD = 7.17, $t = 5.650$, $p = .000$) than females. With regard to nationality, it is evident that there are no significant statistical differences at the global scale. However, in the subscale *Self-esteem*, Portuguese participants posted a higher average ($\mu = 67.14$; SD = 27.99; $t = 2.746$, $p = .006$).

3.2.4 Internal validity

The results highlight the internal consistency, which was measured by *Cronbach's* alpha, (= .97), to 100 items considered, with the value pointed in the literature as excellent (Hill & Hill, 2002; Maroco, 2003; Pestana & Gageiro, 2003). After testing these criteria, as well as the central tendency of data and correlation item-total, factorial validation of EBEPS© using the principal component analysis (PCA) was performed in order to "identify the underlying factors that explain the inter correlations observed in the original variables" (Maroco, 2003, p. 292).

Table 4. Items and saturation of the Subscale 2, *Self-Esteem* EBEPS-A©, obtained in the rotation

Items	Saturations
1 I like myself as I am.	0.726
46 I like myself.	0.703
63 I like my physical appearance.	0.691
60 I am a confident person.	0.659
69 I like my way of being.	0.621
68 I recognize me physically.	0.557
64 Although others may feel discouraged, I am optimistic.	0.553
9 I feel good about myself and control my emotions.	0.546
49 I feel accomplished.	0.511
31 I am glad not being drawn to solitude.	0.482
40 I maintain calm in the most stressful situations.	0.476
41 I consider myself successful in life.	0.473
51 When I cannot achieve my goals, I'm sure I'll have a good solution.	0.436
16 I know my strengths.	0.426

3. Conclusion

The study of self-esteem is becoming increasingly important in order to better understand students. Literature has pointed out the lack of consensus between the bi-dimensional or one-dimensional self-esteem scales. The importance of better understanding of this issue led us to the development of two studies with Portuguese students. After statistical analysis using SPSS 20, it was possible to validate the tools to establish their properties. The results of factorial analysis confirmed the one-dimensionality in Rosenberg's Self-Esteem Scale (1979) with good internal consistency (0.88) and an explained variance of 49.657. In addition, the EBEPS-A© subscale of Self Esteem factor analysis was also shown to be one-dimensional with an explained variance of 4.53 and good internal consistency (0.90).

The Rosenberg's Self-Esteem Scale (1979) and the EBEPS-A© subscale of Self Esteem are therefore, strong and can be applied collectively or individually in different institutions with educators who are professionally trained in the application of instruments of this nature. This study is intended as a further contribution to the development of measures to help better understand students' self-esteem. Investigators are now becoming more and more aware of the importance of studying psychosocial factors associated with education that determine or influence the way students see themselves (Stocker & Faria, 2009). Through the knowledge of self-esteem, researchers and teachers can better understand their specificity and better plan possible interventions (Machargo, 1996; Garcia, 1998; Tagarro & Veiga, 2012).

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