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Self esteem levels vs global scores on the Rosenberg self-esteem scale

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Abstract

Background: The Rosenberg Self-esteem Scale (RSS) is the most widely used instrument to measure this trait. Although the test offers results by levels (low, medium & high), the mean of global scores it is the indicator mostly used in scientific studies. The purpose of this study is to compare self-esteem levels with the global scores as criteria for contrasting self-esteem in subjects with and without a History of Childhood Sexual Abuse (HCSA).

Method: RSS was administered to 74 subjects between 17 and 60 years, half of them with a HCSA, 20 men and 54 women; subjects without a HCSA were used as a comparison group.

Results: Using the mean of the global scores as a criterion to compare the two groups, no significant differences were observed. However, when using self-esteem levels as a criterion, the findings indicate significant differences between subjects with and without HCSA.

Conclusions: The study shows that self-esteem levels are more accurate than global scores to describe this trait and to make comparisons between groups of subjects.

Keyword: Psychology

1. Introduction

1.1. Self-esteem and childhood sexual abuse

Self-esteem is defined as a positive or negative attitude toward him/herself (Rosenberg, 1965); it can also be defined as an individual's sense of self-worth. Two main aspects of self-esteem are recognized: Self-esteem trait, or typical level of self-esteem; and self-esteem status, or momentary experience of self-esteem (Crocker and Wolfe, 2001).

Self-esteem, as a concept was developed thanks to the contributions of authors of the stature of William James, Gordon Allport and Carl Rogers. It is a fundamental aspect in the personality of individuals that develops in the first years of life from self-concept; that is, the personal conception of oneself (Schultz and Schultz, 2002). It is possible to associate self-esteem with almost any aspect of the experience and behavior of individuals (Mann et al., 2004).

As a natural pattern, and regardless of culture, individuals tend to have positive self-esteem (Schmitt and Allik, 2005); which in Rosenberg's language equals high self-esteem. He leaves no doubt as to this when expressing it as follows: *"It can hardly be disputed that, as a rule, people would prefer to have a favorable opinion of themselves rather than an unfavorable opinion"* (Rosenberg, 1965, p. 9). The presence of deficient or negative self-esteem suggests both traumatic experiences, psychological and behavioral problems (Cantón and Justicia, 2008).

Childhood Sexual Abuse (CSA) refers to all types of sexual activity involving an adult and a child; or a child and a minor with a considerable age difference. It may involve any type of sexual interaction, with or without the use of violence, in which the child is involved or exposed to sexual stimulation for which he/she cannot give consent and for which he/she is not at an adequate level of physical, psychological or emotional maturity (Cantón and Cortés, 2000).

CSA is one of the most common forms of abuse (Pereda and Forns, 2007; Speizer et al., 2008; Zagalsky and Zlotogora, 1999); With children and women being the most affected by this type of abuse. According to the World Health Organization (WHO, 2016), 1 in 5 women and 1 in 13 men report having undergone CSA. Hence, CSA represents a major social and health problem in many regions and the existence of a sub-registry of the phenomenon has been demonstrated (Martínez et al., 2004).

Given the general impact of CSA, its traumatic potential is very high and is often associated with multiple mental health problems (Almonte et al., 2002; Berkowitz, 1998; Cortés et al., 2011a,b; Echeburúa and Guerricaechevarría, 2000; Jumper, 1995; Rind et al., 1998), relational problems and sexuality disorders (Briere and Elliott, 2003; Brugger et al., 2006; Houck et al., 2010; Kelley and

Gydycz, 2015; Lemieux and Byers, 2008); and low self-esteem (Cantón and Cortés, 2000; Chu et al., 1999; Cantón and Justicia, 2008; Echeburúa and de Corral, 2006; Lamoureux et al., 2012; Roberts, O'Connor, Dunn & Golding, 2004).

Of these mentioned aspects, one of the most often combined with the rest is unsatisfactory self-esteem; understanding that within this category fall both low self-esteem and medium self-esteem, according to RSS. Considering that not only low self-esteem should be the subject of clinical care; being that the medium self-esteem also represents a mental health problem that tends to be associated with traumatic experiences (Cantón and Justicia, 2008).

Self-esteem problems seem to be the common factor that interconnects other sequels of CSA experience, such as poor interpersonal skills in adulthood, resilience resource constraints, vulnerability and increased exposure to psychological stress, sexual health risks and problems in intimate relationships (Cortes et al., 2011b; Lamoureux et al., 2012).

1.2. Rosenberg self-esteem scale and interpretation criteria

The Rosenberg Self-Esteem Scale (RSS) (Rosenberg, 1965), is a standardized resource widely known and applied in clinical and research practice. The scale consists of 10 items, 5 expressed in positive statements and 5 in negative statements. While designed as a Guttman scale (ibid.), the RSS is commonly scored as a Likert scale. Subjects can respond by checking one of four answer options: Strongly Disagree, Disagree, Agree, and Strongly Agree. The RSS has been scored in a range that goes from a minimum score of 10 and a maximum of 40. In other cases, depending on the study and how the response categories were coded and added, the range can go from 0 to 30 (Sinclair et al., 2010).

Although in most studies that apply the RSS, for example Baranik, Meade, Lakey, Lance, Hu, Hua & Michalos (2008); Martin-Albo, Nuñez, Navarro & Grijalvo (2007); Matud et al. (2003); Rojas-Barahona et al. (2009), use the mean of global scores as the main indicator; The RSS offers the results in three levels: Low, medium and high. In fact, Rosenberg himself (1965), from the first administration of the scale, used self-esteem levels as indicators to make comparisons between groups of subjects.

Most studies on the psychometric properties of RSS (Baños and Guillen, 2000; Fernandez, Celis & Vera, 2006; Hatcher and Hall, 2009; Martin et al., 2006; Pullman and Allik, 2000; Rizwan et al., 2012; Schmitt and Allik, 2005; Shapurian et al., 1987; Westaway et al., 2015) focus on the internal consistency, construct validity and temporal stability of the scale. They usually do not pay attention to the self-esteem levels.

Of the multiple studies reviewed that apply RSS, only two of them used self-esteem levels as criteria (Ancer et al., 2011; Canton and Justicia, 2008). Both studies have a clinical focus and use self-esteem levels to make comparisons between groups of subjects.

A different approach to the psychometric properties of RSS is proposed by Tafarodi and Milne (2002). They divided the scale into two main aspects: Self-Competence (SC) and Self-Liking (SL). The Self-Competence facet is understood as the individual's sense of instrumental value; while Self-liking is described as one's intrinsic value. Five of the items in the RSS correspond to each of the facets. This approach was also used more recently by Sinclair et al. (2010) in their study.

Another approach propose two poles of self-esteem in the RSS represented by the five positively worded items defined as indicators of a positive self-esteem facet, or positive self-image; and the five negatively worded items as indicators of a negative self-esteem facet, or negative self-image (Pullmann and Allik, 2000).

Roth et al. (2008) evaluated the differences in fit between this model (positive and negative self-esteem) and the global self-esteem model. A χ^2 difference test comparing both models revealed that the two poles model was superior. However, although the two-factor structure model has achieved some popularity (Goldsmith, 1986; Martin et al., 2006; Owens, 1993; Rizwan et al., 2012; Rotha et al., 2008), others claim that it is only an interpretation of the scale based on the positive and negative-wording (Greenberg et al., 2003; Thomas and Oliver, 1999).

Regarding the common way of interpreting the results of the RSS, the global score; that is, the total score, after adding the points corresponding to all the items in the scale (in a range between 10 and 40 points in our study), guides us to 3 possible levels of self-esteem: Low level (10–25), medium level (26–29) and high level (30–40). These self-esteem levels categorize the response patterns of individuals from the total scores (Echeburúa, 1995). Although, identifying at what level of self-esteem the subject is located is the main purpose of the scale (Rosenberg, 1965), the most common practice in scientific studies is using the mean of global scores as the main criterion for interpreting the results of the application of the RSS. This is because most of the approaches (as in Baranik et al., 2008; Martín-Albo et al., 2007; Martin et al., 2006) interpret the mean of global scores as a representation of the global self-esteem of the individuals that make up a sample or group.

It is well known practice to use global scores as the most important referent when applying RSS, not only when studying SA. Several studies (Ancer et al., 2011; Baños and Guillén, 2000; Martín-Albo et al., 2007; Shapurian et al., 1987; Vázquez et al., 2004) have used this measure to study self-esteem in different groups. Furthermore, some such as Shapurian et al. (1987); Pullman and Allik (2000), Rojas-Barahona et al. (2009) & Martín-Albo et al. (2007) have carried out

standardization studies of the instrument on population samples that have been constituted as regional references for validation of the instrument.

The problem with using the mean of global scores as a criterion in scientific studies is that it does not allow to differentiate how many subjects of a certain group are located in each of the self-esteem levels and, therefore, it does not provide an accurate description of the individuals to whom the scale is administered.

When the global score is taken as a reference, the clustering of data does not follow a normal distribution (Añer et al., 2011; Baños and Guillén, 2000; Martín-Albo et al., 2007; Pullman and Allik, 2000; Rojas-Barahona et al., 2009; Shapurian et al., 1987; Vázquez et al., 2004). What explains this phenomenon is very simple: The self-esteem scores in the RSS that are considered “normal” are those that are between 30 and 40 points in the global score; In other words, high self-esteem is synonymous with healthy or “normal” self-esteem. Therefore, it is understandable that the data are grouped on the right side of a frequency distribution chart (negative skewness). Since this tendency of the global score mean to high scores is statistically expected, then such score cannot be an accurate reference for describing the self-esteem construct in groups of subjects.

In this way, using the mean of global scores in the RSS fail to provide the most relevant results of the instrument in terms of knowing what proportion of subjects have or not self-esteem levels that requires attention from a clinical or research point of view; That is, low and medium self-esteem. The purpose of this study is to compare self-esteem levels with the mean of global scores as criteria for contrasting self-esteem in subjects with and without a HCSA.

We hypothesized that self-esteem levels are a more accurate criterion than the mean of global scores to compare self-esteem, using RSS, between the groups of subjects with and without a HCSA.

2. Method

2.1. Participants

The study population consists of 74 patients treated at the Institute of Human Sexuality of the Autonomous University of Santo Domingo (UASD) in the period 2013–2015. The ages ranged from 17 to 60 years, with a mean of 33.49 and a standard deviation of 10.02. Half of the participants (37 subjects) had HCSA (between 0–11 years), almost all individuals with those characteristics (40 cases) attended at said Institute in the indicated time period. The other 37 subjects formed the comparison group, with the same socio-demographic characteristics. These subjects (without HCSA) received treatment in the aforementioned center. They were randomly selected using their respective record numbers.

2.2. Instruments

Two instruments were used: 1) an interview designed by the researchers to describe the CSA and 2) the RSS, in Spanish.

The first instrument consists of 12 questions, open-ended and closed-ended, that describe in detail the CSA experience, taking into account the different variables of interest for the study (type of sexual abuse, age of onset of abuse, abuser, frequency of abuse, etc.). The questionnaire for the interview was validated by a pilot test applied to 10 subjects with CSA treated in the same center but during a period prior to 2013.

The RSS has been described in detail above. In our study we used the translation into Spanish made by [Echeburúa \(1995\)](#). The RSS has demonstrated its reliability and validity in Hispanic populations through different studies. For example, [Fernández et al. \(2006\)](#) conducted a study with a sample of 462 Chilean university students with the purpose of studying the psychometric properties of the instrument. The results showed a good internal consistency of the scale, evaluated by Cronbach's alpha coefficient, which was 0.81.

The scale has also shown high internal consistency and satisfactory temporal reliability in studies with heterogeneous clinical populations. For example, [Vázquez et al. \(2004\)](#) carried out a study with a sample of 533 patients treated in mental health centers of the district belonging to the Andalusian Health Service. The study yielded a score of 0.87 on Cronbach's alpha coefficient.

The validity and relevance of RSS for measuring self-esteem has been demonstrated in different cultures and languages. [Schmitt and Allik \(2005\)](#) evaluated the scale by translating it to 28 languages and administering it to 16,998 participants across 53 nations. They found that RSS was a reliable instrument for measuring self-esteem across different languages and cultures.

2.3. Process

Subjects participated voluntarily. Each of them signed an informed consent in which they were guaranteed their rights to confidentiality. For each group, an introductory session was held in which informed consent was signed, the nature and purpose of the study was explained and participants were informed as to what was considered SA. The administration of the instruments was carried out in two phases: the first with the subjects who had HCSA, the second with those without HCSA. For both groups, face-to-face interviews were conducted with individuals to address the CSA. The RSS was applied in small groups of around 10 subjects each. The study was approved by the Ethics Committee of the Autonomous University of Santo Domingo and the Institute of Human Sexuality.

2.4. Analysis

The information collected by means of the interview to measure the HCSA and the RSS was analyzed by variables applying the statistical package SPSS 24, taking into account frequency distribution, means, standard deviation and coefficient of variation. To measure the consistency of RSS the Cronbach's alpha coefficient was applied. Student's t-test was used to compare ages, and Mann-Whitney U test was used to compare the global scores between the groups of subjects with and without HCSA. The self-esteem levels were contrasted in both groups using the Chi Square and Odds ratio.

3. Results

3.1. Demographic characteristics

The age of the subjects who participated in the study corresponded to a normal distribution, according to the Kolmogorov-Smirnov test ($p = 0.03$); no significant differences were found in age relative to sex, according to Student's t-test ($p = 0.30$); 73% of the subjects in the sample are female, compared to 27% male.

3.2. Self-esteem levels in front of global scores in RSS

The global score mean in the RSS was 32.30 (corresponding to an average group level of high self-esteem, if we meet this criterion), with a standard deviation of 5.43 points; The Rosenberg test yielded a score of 0.75 on the Cronbach's alpha coefficient, corresponding to good reliability; No significant differences were found in the RSS score in relation to sex, according to the Mann-Whitney U test ($p = 0.59$); Respecting the global scores in the RSS in relation to the HCSA or No HCSA, no significant differences were observed, according to the same test ($p = 0.29$); However, there were statistically significant differences between the self-esteem levels in subjects with and without HCSA, showing a higher frequency of subjects with low and medium self-esteem among those with CSA experience, according to Chi square ($p = 0.025$) (See Table 1).

Table 1. Self-esteem levels in RSS according to CSA.

			Self-esteem levels in RSS			Total
			Low self-esteem	Medium self-esteem	High self-esteem	
Childhood sexual abuse	No	Count	3	2	32	37
		Expected count	5.0	5.0	27.0	37.0
		% without CSA	8.1%	5.4%	86.5%	100.0%
	Yes	Count	7	8	22	37
		Expected count	5.0	5.0	27.0	37.0
		% with CSA	18.9%	21.6%	59.5%	100.0%

Chi-square (Reliability rationale) 7.36 (p value 0.025).

Table 2. CSA & combined self-esteem levels.

Childhood sexual abuse		Self-esteem levels		Total
		Low & medium self-esteem	High self-esteem	
Yes	Count	15	22	37
	% with SA	40.5%	59.5%	100.0%
No	Count	5	32	37
	% without SA	13.5%	86.5%	100.0%

Chi-square value (continuity correction) = 5.55 (p value = 0.018).

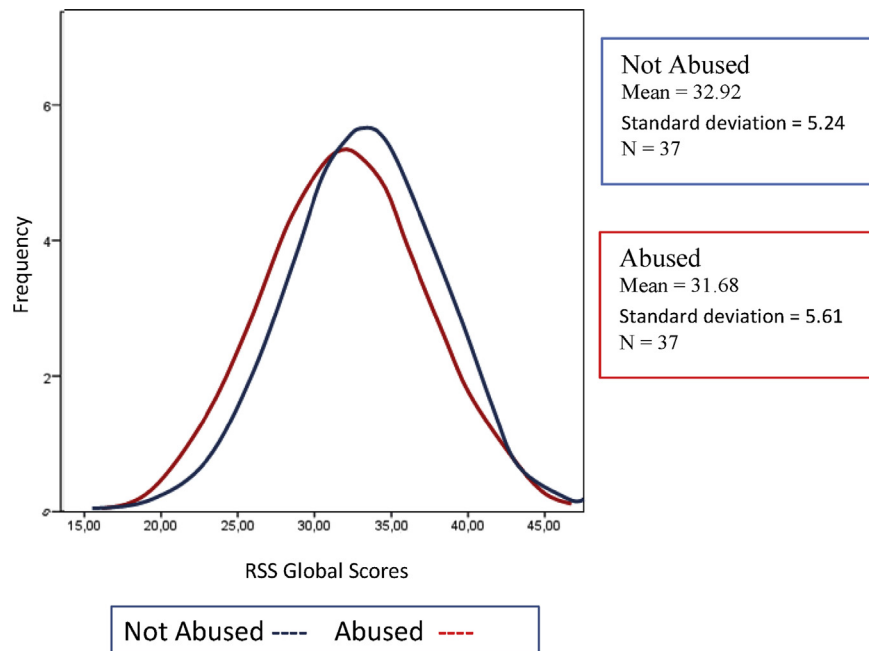
OR = 4.36 (C. I. 95% 1.38–13.76).

Following an integrated criterion, adding the medium level of self-esteem to the low level and considering them as a whole within the category of clinical levels of self-esteem, it is observed that 40.54% of subjects with HCSA fall within this category, compared to 13.51% of the subjects who were not victims of CSA (see Table 2). These percentages differ from those found by Cantón and Justicia (2008), 48.20% and 25.30%, respectively. A greater difference was observed in our study between subjects with and without HCSA. In fact, subjects with clinical levels of self-esteem without HCSA identified in our study are almost 50% less than the proportion found in the cited study.

As can be seen in Table 2, subjects with HCSA have a risk of presenting low and medium levels of self-esteem more than 4 times higher than those subjects who did not have CSA. The difference between both groups in the RSS depending on the criterion used (if global scores or self-esteem levels) can be better appreciated by observing Figs. 1 and 2. In the first figure the two groups are compared using the global scores while in the second figure the two groups are compared using the self-esteem levels. As noted above, in the first case there were no significant differences observed (Mann-Whitney U $p = 0.29$); while in the second figure there was (See the Chi-square reference $p = 0.025$ in Table 1).

Although there are differences between the two groups according to the global scores criterion (Fig. 1), they are not significant and both groups have high self-esteem means. On the other hand, when attending to self-esteem levels (Fig. 2); While the group without HCSA has a mean corresponding to the high self-esteem level, the group with HCSA has a mean that places them in the medium self-esteem level.

The contrast mentioned above in the results of our study according to the criterion to be used to compare the self-esteem between groups indicates a remarkable difference between both indicators. Which raises the limitations of global scores in the RSS as a reference to measure this trait and to establish comparisons among groups of subjects.



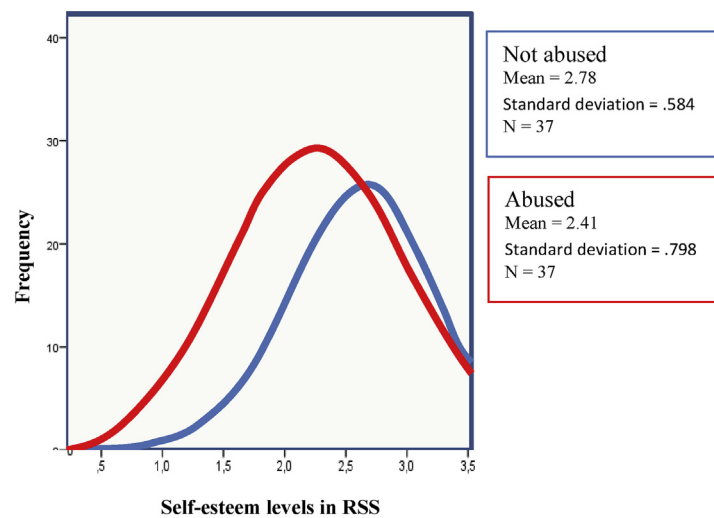
Mann-Whitney U (*p value* 0.29)

Fig. 1. Comparison of global scores according to CSA.

However, as the results of the statistical analysis in our study are striking, the global scores in RSS does not seem to be a suitable reference for measuring this trait, especially when comparisons are made between groups and to explore the association with other variables.

4. Discussion

In a validation study with general population performed by [Rojas-Barahona et al. \(2009\)](#) in Chile, the global score mean in the RSS was 32.47. Another study performed with a Mexican population showed an almost identical global score mean (32.58) ([Ancer et al., 2011](#)). These results are very close to the global score mean of the subjects without HCSA in our study (32.92) and less than one point above (0.79) of the subjects with HCSA (31.68) in the same one, taking as reference the study of [Rojas-Barahona et al. \(2009\)](#). In comparing these global means, we found that: Although there is a greater difference (1.24) between the global scores means in RSS from the subjects with and without HCSA of our study, than between the global score mean from [Rojas-Barahona et al. \(2009\)](#) study and the global score mean from subjects with HCSA in our study; We found no statistically significant differences between these groups (with and without HCSA) in our study, according to the Mann Whitney U test.



.5 - 1.5 = Low level; 1.6 – 2.5 = Medium level; 2.6 and up = High level

Fig. 2. Comparison of self-esteem levels according to CSA.

As already mentioned, if we take as a criterion the means of the global scores we note that not only are there no differences between the two groups, but that subjects without HCSA as those with HCSA present, as a group, a mean of global scores corresponding to high self-esteem; which differs markedly with the description of the subjects of both groups when the self-esteem levels are used as a criterion. In which case, the highest proportion of subjects with low and medium self-esteem among the group with HCSA is notable (see [Table 3](#)).

In populations with CSA global score means are usually high, as reported by [Cantón and Justicia \(2008\)](#) and [Cortés et al. \(2011a\)](#), with global score means of 30.19 and 29.87, respectively. It is noteworthy that the global score mean in the RSS of subjects with HCSA in our study (31.68) is closer to the global score means of subjects without HCSA in the studies cited (31.70 and 31.85) than in their peers with HCSA. This places the global score mean of this group substantially above expectations, starting from the referents mentioned. In fact, the global score mean of subjects with HCSA in our study is still slightly above that found in the validation study using the RSS performed by [Martín-Albo et al. \(2007\)](#) with a sample of Spanish university students, which was 31.55.

This helps to explain why the global scores in the RSS lack the precision to describe this construct in groups of subjects. Being that when combining the scores of all the subjects in a number, in a scale whose individual scores tend to be high; This determines that these high scores have a greater impact on the mean of the global scores, producing an imprecise description of the self-esteem in the group.

Table 3. Comparison of self-esteem levels and global scores in RSS.

CSA	Self-esteem level RSS	Count	Mean of global scores	Standard deviation	Coefficient of variation
No	Low self-esteem	3	19.33	3.51	18.2%
	Medium self-esteem	2	29.00	1.41	4.9%
	High self-esteem	32	34.44	3.12	9.1%
	Total	37	32.92	5.24	15.9%
Yes	Low self-esteem	7	24.14	0.90	3.7%
	Medium self-esteem	8	27.25	1.16	4.3%
	High self-esteem	22	35.68	3.18	8.9%
	Total	37	31.68	5.61	17.7%
Total	Low self-esteem	10	22.70	2.95	13.0%
	Medium self-esteem	10	27.60	1.35	4.9%
	High self-esteem	54	34.94	3.18	9.1%
	Total	74	32.30	5.43	16.8%

The dichotomy individualism-collectivism on self-esteem proposed by Triandis (1995), and reinforced by Tafarodi et al. (1999) in their study, contributes both to the explanation of the relatively high global score mean in the group of subjects with HCSA in our study, as well as in the limitations of the global scores means as a criterion to describe self-esteem in groups of subjects. An individualistic self-concept is defined as a set of traits in which the subjects see themselves as independent of collectives, prioritizing the person's own goals, needs, rights and preferences. Collectivism is a social pattern in which individuals see themselves as interdependent of social conglomerates (family, community, nation), prioritizing the group's goals and needs over individual interests (Triandis, 1995).

Schmitt and Allik (2005) found that self-esteem is generally higher in individualistic than collectivist cultures. And since the Dominican culture is definitely an individualistic culture, the high global scores means in our study, even in the subjects with HCSA, is a result that could almost be anticipated. In this way, the influence of the culture is clearly reflected in the description of the groups of subjects when using the global scores means of the RSS as a criterion; However, this indicator does not allow us to differentiate between the self-esteem of the individuals seen as particular entities, which is the main purpose of said instrument.

On the other hand, as it has been mentioned before, multiple studies (Goldsmith, 1986; Martin et al., 2006; Owens, 1993; Rizwan et al., 2012; Rotha et al., 2008) propose that in addition to the global self-esteem, RSS measures the self-esteem focused on two dimensions: Positive self-esteem (based on positive items), and negative self-esteem (based on negative items). However, this is a limited interpretation of the characteristics of the instrument and its practical application. In the first place, it is pertinent to point out that the global self-esteem has a utilitarian value to evaluate positive and negative thoughts and feelings about *oneself* which are related to the sense of worthiness *in individuals* (Rosenberg, 1965). Global self-esteem refers to

the final number or result of the scale (i.e. global score) and describes how the individual esteems him/herself in a general sense, from how he/she responded to the different aspects proposed in the 10 items on the RSS. The global self-esteem itself; that is, without a criterion that allows interpreting it, it cannot describe the self-esteem of the subjects. For such purposes, the self-esteem levels were determined as a differentiating criterion (ibid.). In other words, after knowing what the total score on the scale is, it is necessary to answer the question: How is this individual's self-esteem?

The above question cannot be answered accurately by saying that self-esteem is positive or negative based on negative or positive items-wording. To prove it, a simple explanation is enough: it is so negative for an individual to agree with a negative statement that he/she disagrees with a positive statement on the RSS. Therefore, the global self-esteem corresponds rather with a general pattern of response and not with a discriminative criterion that contrasts the items with each other. Hence the importance of a qualitative reference as that provided by self-esteem levels.

In conclusion, the best criteria to interpret the results of the RSS, and to compare groups of subjects, are the self-esteem levels since they allow to differentiate individuals from each other based on their characteristic pattern of response; Which cannot be noticed when the means of global scores are used as criteria.

Declarations

Author contribution statement

Jorge Acosta García: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Francisco Checa y Olmos: Contributed reagents, materials, analysis tools or data.

Manuel Lucas Matheu, Tesifón Parrón Carreño: Analyzed and interpreted the data.

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Competing interest statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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