The Resilience Scale: A study in a Portuguese adult sample

Maria do Rosário Pinheiro[a]*, Ana Paula Soares Matos[a], Cátia Patrícia Abreu Pestana[a], Sara Atalaia Oliveira[a], José Joaquim Costa[a]

[a] *Faculty of Psychology and Educational Sciences, Research Centre of Cognitive and Behavioural Studies and Intervention (CINEICC), University of Coimbra, Rua Colégio Novo, 3000-115 Coimbra, Portugal*

Abstract

The Resilience Scale (RS25) is an instrument developed by Wagnild and Young (1993) to assess resilience levels in adults. In Portugal, the RS25 was studied in adolescent samples by Felgueiras, Festas and Vieira (2010) that performed its translation and adaptation and obtained inconsistent results relating the replication of the original unifactorial structure of the scale suggested by Wagnild e Young (2009a). Pinheiro & Matos (2013a, 2013b) redefined some items of the scale and studied the construct validity of RS for the adolescent population, creating the Portuguese long version, composed by 23 items, and the short version with only 13 items. The present research intended to verify, in a sample composed by adults, the unidimensional structure proposed by original authors, and confirmed by Pinheiro e Matos (2013a) and Oliveira, Matos, Pinheiro and Oliveira (2015). The sample consisted of 580 parents, mostly female, who participated in the study "Prevention of adolescent depression: efficacy study of an intervention with adolescents and parents" (PTDC/MHC-PCL/4824/2012). An Exploratory Factor Analysis and a Confirmatory Factor Analysis were performed to test the factorial structure of the RS25 and the internal consistency of the scale was studied. A unifactorial structure was obtained consisting of 23 items. The obtained Cronbach's alpha revealed excellent internal consistency, with a value of .943. Based on the psychometric properties obtained, it is concluded that RS23, long version, is a reliable measure to assess the resilience of the Portuguese adult population.

* Corresponding author. Tel.: +351 965 854 032; fax: +351 239 851452.
  E-mail address: mrpinheiro@fpce.uc.pt

1. Introduction

The term Resilience is used to describe an individual's ability to overcome, with success, adverse conditions or situations that involve risk to their well-being, development and mental health (Reppold, Mayer, Almeida & Hutz, 2012). It is a transactional process mediated by the interaction between the individual and the environment (Reppold et al., 2012) that ranges throughout life, since an individual who is resilient in an adverse situation, may not be in another situation (Windle, 2010),

Based on literature, we can affirm that resilience is a term that has been explored in various areas, although in the area of psychology, its use is still recent. Moreover, its conceptualization has not been clear and has created some controversy (Pesce et al., 2005).

Rutter (1987) suggests that resilience arises from many processes of interaction, including interpersonal relationships and social support that go beyond individual characteristics.

Literature has shown that it is important to develop reliable and valid measures able to assess this construct (Windle, Bennett & Noyes, 2011), in different age groups and contexts (Felgueiras, Festas & Vieira, 2010).

Within the scales developed to assess the perception that an individual has of himself as able (or not) to deal with any difficult situations and/or unforeseen circumstances, to be perseverant, autonomous and have a positive perception of himself, the Resilience Scale stands out, developed by Wagnild and Young, in 1993, in the United States. Wagnild and Young (1993) define resilience as the ability to deal with change or adversity, effectively, or even as a positive feature of personality, which promotes individual adaptation (Wagnild, 2009a).

The RS25 is a self-report instrument developed from a qualitative study carried out in 1987, with 24 women who demonstrated normative and successful adaptation in the presence of life events considered disturbing to the normal functioning of the individual (Wagnild & Young, 1990, 1993). In this study, these women were encouraged to describe how they reacted when faced with a negative life event (Wagnild, 2009b; Wagnild & Young, 1990, 1993).

The first resilience scale consisted of 50 items. After an initial factor analysis, the scale was reduced to 25 items that reflected five basic characteristics of resilience: Perseverance, Self-confidence, Serenity, Meaning and Existential Loneliness (Wagnild & Young, 1990, 1993).

The scale is rated on a 7-point Likert Scale, being 1. "Totally disagree", 2. "I disagree a lot", 3. "Disagree", 4. "I do not agree nor disagree", 5. "I agree", 6. "I agree a lot" and 7. "Totally agree". The total score ranges between 25 and 175 points. Scores exceeding 161 indicate a very high degree of resilience, among 146-160 a high resilience degree, between 131-145 a moderate degree of resilience, between 116-130 a low degree of resilience and scores below 100 indicate a very low degree of resilience capacity (Wagnild, 2009a).

The authors of the scale applied it in a sample consisting of 810 middle-aged adults. Results obtained from a principal component analysis (PCA with Oblique rotation), indicated the existence of two main factors, referred to as I-Personal Competence, and Factor II- Acceptance of Themselves and of Life. These factors explained 44% of the total variance (Wagnild & Young, 1993). Factor I was composed of 17 items that reflected self-confidence, independence, mastery, resourcefulness and perseverance. Factor II, with 8 items, represented the ability to adapt, balance, flexibility and a balanced perspective on life.

In an extensive literary review, carried out by Wagnild (2009b), about the Resilience Scale, the existence of translations and adaptations for more than a dozen countries was noted and the scale

had already been applied to various population groups in different ages: adolescents, adults and the elderly, including risk populations and mothers with children in pre-school age. These studies have found Cronbach's alphas between .72 and .94, which attested the good internal consistency of the RS25, demonstrating that this was a good scale to apply in different age groups and ethnicities (Wagnild, 2009b). However, Wagnild (2009a), in the user's guide of the scale, highlighted the existence of a unifatorial scale structure and recommended that its quote should take into account a total score.

Other authors have studied the factorial structure of the scale and its internal consistency, having found good values of Cronbach's alpha (e.g., Girtler et al. 2010 in Italy; Losoi et al., 2013 in Finland; Nishi, Uehera, Kondol, Matsuoka, 2010 in Japan and Ruiz, Vega, Poveda, Rosado & Serpa, 2012 in Spain). As for the factorial structure, Girtler et al. (2010) found six dimensions. Losoi et al. (2013) obtained inconsistent results for the factorial structure of the RS, obtaining both a bifatorial solution and one of 5 factors. Ruiz et al. (2012) found a bifatorial structure. Nishi et al. (2010) found a unifatorial structure for the RS and RS14, with a value of Cronbach's alpha of, respectively, .90 and .88.

The first cross-cultural adaptation to Portuguese of the Resilience Scale from Wagnild and Young, was conducted by the study group of Pesce et al. (2005) in a sample of Brazilian adolescents. In this cross-cultural adaptation, in a factor analysis, the authors found a three-factor solution, with a Cronbach's alpha of .80, and kept the 25 original items.

In Portugal, studies of adaptation and validation of the Resilience Scale of Wagnild and Young (Felgueira, Festas & Vieira, 2010; Oliveira & Machado, 2011; Pinheiro & Matos, 2013a, 2013b), showed a good internal consistency of the instrument, with Cronbach's alphas among .80 and .94. However, there still remains some controversy regarding its factorial structure.

Felgueiras et al., (2010), in a sample of adolescents, and Oliveira & Machado (2011) on a sample of university students, found a multidimensional structure of five factors, which presented good psychometric properties.

Later, and using an exploratory factor analysis, Pinheiro and Matos (2013a, 2013b) redefined some items and studied the construct validity of the RS for a sample of Portuguese adolescents. This investigation gave rise to a long version, of 23 items, and a short version, of 13 items, with unifatorial structures. With regard to reliability, excellent internal consistency was found for RS23 (Alpha equal to .95) and for RS13 (Alpha equal to .93) (Pinheiro & Matos, 2013a, Pinheiro & Matos, 2013a, 2013), in line with the values already found in other studies (Abiola & Udofia, 2011; Felgueiras et al., 2010; Pesce et al., 2005; Wagnild & Young, 1993).

Later, the short version for adolescents was subject to a confirmatory analysis that led to the construction of the scale with only 12 items and that corroborated the unifatorial structure of the RS. This analysis found a Cronbach's alpha of .87, indicator of good internal consistency (Oliveira et al., 2015).

2. Objective

This study comes integrated into the project I&D, funded by FCT, entitled "Prevention of depression in Portuguese adolescents: efficacy study of an intervention with adolescents and parents" (PTDC/MHC-PCL/4824/2012).

The present study aims to explore the factorial structure of RS25 from an Exploratory Factor Analysis (EFA) and a Confirmatory Factor Analysis (CFA). The aim is to study the dimensionality and reliability of the scale.

3. Method

3.1. Participants

The total sample consisted of 580 parents, who voluntarily agreed to participate in the Research Project "Prevention of depression in Portuguese adolescents: efficacy study of an intervention with adolescents and parents" (PTDC/MHC-PCL/4824/2012).

Sample 1: An exploratory factor analysis was used on a sample composed by 193 parents, 62.7% females and 37.3% males, aged between 30 and 67 years old ($M = 43.09$; $SD = 5.31$). It was found that 32.1% of the sample belongs to a low socio-economic level, 58.5% to a medium level and 6.2% to a high level.

Sample 2: consists of 387 parents and was used in the scale's confirmatory factor analysis. It was found that the majority belonged to the female gender (64.9%) and 35.1% to the male gender. Ages ranged between 28 and 69 years of age ($M = 42.69$; $SD = 6.231$). With regard to the socio-economic level, 30.5% belonged to a low-level, 57.1% to a medium level and 9.8% to a high level.

3.2. Instruments

Resilience Scale - long version (RS-Resilience Scale Wagnild & Young, 1993; Portuguese version of Pinheiro & Matos, 2013, based on the translation of Felgueiras, Festas & Vieira, 2010). RS's long version aims to assess the level of resilience of the individual as a positive feature of the personality that promotes individual adaptation (Wagnild & Young, 1993). It consists of 25 items, each item rated on a 7-point Likert scale (Wagnild & Young, 1993). Total score ranges between 25 and 175 points (Wagnild & Young, 1993).

The RS indicated good psychometric properties, with respect to internal validity and content validity. A Cronbach's alfa of .91 was found and item-total correlations ranged between .37 and .75 (Wagnild, 1993). It is composed of a unifatorial structure that includes items referring to aspects related to self-esteem, independence, mastery, resourcefulness, perseverance, adaptability, balance, flexibility and a balanced perspective on life (Wagnild, 2009a, 2009b; Wagnild & Young, 1993). In this study a Cronbach's alpha of .943 was obtained.

3.3. Methodological Procedure

Data collection was conducted in the center of the country. A set of questionnaires, including the Resilience Scale-25 was delivered to students who were integrated in the Research Project "Prevention of Depression in Portuguese Adolescents: Study of the effectiveness of an intervention with adolescents and parents" (PTDC/MHC-PCL/4824/2012). These protocols were completed by parents and later handed over to the project. Participants were informed of the overall objectives of the research, as well as about the anonymity of the results by providing us their signed consent for participation in the study.

To evaluate the ability of resilience of parents, the Resilience scale was used (RS25, Wagnild, 2009; Wagnild & Young, 1993; Portuguese version: Pinheiro & Matos 2013). Before starting the infill, the following description could be read: "Please carefully read each of the following statements and answer them about you, the way you think, feel and act". Individuals should respond according to the degree to which they considered the items to better describe them.

3.4. Statistical Procedure

On a sample of 580 adults, 33% of the cases were used to carry out the Exploratory Factor Analysis and 67% of the cases were used to perform the Confirmatory Factor Analysis. With respect to descriptive analysis, the minimum and maximum values, as well as means and standard deviations were yield for the total sample, consisting of 580 participants.

In the analysis of dimensionality of the 25 items of the Resilience Scale (RS25), an exploratory factor analysis (EFA) was conducted, using the computer program SPSS (Statistical Package for the Social Sciences – version 22.0 for Windows (SPSS Inc, Chicago, IL).

The RS25 was studied using a principal components analysis, followed by an oblimin rotation (Tabachnick & Fidel, 2007), similarly to the original study. Selection of the number of factors to be rotated was based on the Kaiser criterion of eigenvalue greater than 1 and from analysis of the scree plot. Items were kept based on the values of factorial weights, commonalities, item-total correlations and alfa values if the item was to be deleted. To ensure the adequacy of the data, the Kaiser-Meyer-Olkin (KMO) test was used, which ranges between 0 and 1, being .60 the minimum value to consider the analysis good (Tabachnick & Vivek, 2011). Pestana & Gageiro (2005) reported that values below .50 are unacceptable, between .50 and .60 are considered bad, from .60 to .70 acceptable, between .70 and .80 medium, from .80 to .90 good and values above .90 are considered very good. The Bartlett's Test of Sphericity was also used to test the adequacy of the data to perform a factor analysis.

The internal consistency (reliability) of the scale was calculated using Cronbach's alpha (values between 0.70 and 0.80 are considered reliable according to Pestana and Gageiro, 2003). With regard to item-total correlations, values below 0.30 suggest that it may be more suitable to eliminate the item (Osborne & Castello, 2005).

Gender differences were studied using Student's t-tests, in which statistically significant differences were considered when p values less than or equal to .05 were presented (Maroco, 2010).

To perform the confirmatory factor analysis (CFA) the computer software SPSS AMOS, version 20 for Windows (SPSS Inc, Chicago, IL) was used.

Firstly, the assumptions underlying this analysis were verified, considering the absolute values of skewness (*sk*) and kurtosis (*ku*). *Sk* values > $|3|$ and *ku* values > $|10|$ indicate violations of principles of normality (Kline, 2005). Mahalanobis distance (MD^2) was analyzed to identify possible outliers. The quality of adjustment of the model was evaluated based on a number of measures: the Chi-square (χ^2/df), Goodness-of-Fit Index (GFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Parcimony comparative fit index (PCFI), Parcimony Goodness-of-Fit Index (PGFI) and Root Mean Square of Approximation (RMSEA). In order to evaluate the adjustment of the model, the following values were considered: χ^2/df inferior to 2 was considered good, TLI and CFI were considered good when superior to .90 (Kline, 2005; Maroco, 2010). GFI varies between 0 and 1, considering that the closer to 1, the better the adjustment of the model (Maroco, 2010). PNFI was considered good if superior to .60 and very good if higher than .80. For the PGFI and PCFI, the indexes are considered good when between .60 and .80, and very good if over .80 (Maroco, 2010). When it comes to RMSEA, values between .05 and .10 were considered good and values lower than .05 were considered very good (Maroco, 2010; Meyers, Gamst, & Guarino, 2013).

After the CFA was conducted, the adjustment indices, the factorial weights ($\lambda \geq .50$) and individual reliabilities ($R^2 \geq 0.25$) were analyzed (Maroco, 2010).

4. Results

4.1 Exploratory factor analysis (EFA)

The exploratory factor analysis (EFA) aimed to test the factorial structure proposed by the original authors, Wagnild & Young (1993), and consequently validate it for adults of the Portuguese population. For this purpose we used a sample of 193 adults.

In the first principal component analysis, the viability of EFA was guaranteed using the KMO test (.933), considered acceptable, and Bartlett's Sphericity Test [χ^2 (300) = 2687.237; *p*<.001], which proved to be significant. All individual items presented values which, according to Kline (2005), do not overly differ from the values considered appropriate, allowing to affirm that there was no violation of normality principles.

The set of 25 items from the RS was subjected to a principal component factor analysis, using an oblique rotation. In the initial free solution, a structure of five factors that explained 62,852% of the total variance was found. However, it was found that, except for factor I, which explained 44.03% of the variance (eigenvalues 11), the remaining factors individually explained a variance of less than 5%.

Later, and similarly to the original authors, a solution with two factors was analyzed, concluding that only two items, 12 and 13, represented the factor II. Having in count that a factor with less than three items is generally considered unstable (Costello & Osborn, 2005), it was decided to force the analysis to just a factor.

In order to consolidate this decision, a Scree Plot of Cattell (1996) was used, which confirmed a sharp descent between factor I and factor II, with a visible flattening of the curve in factor II. Bearing in mind that generally the number of factors to retain should be above the point of flattening, not including the point where the flattening occurs (Costello & Osborn, 2005), we continue the analysis with only one factor (Figure 1).
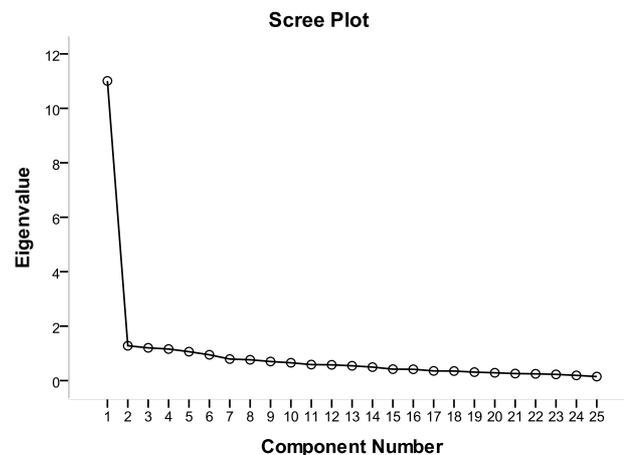

Figure 1. Eigenvalues distribution by the number of factors

After a new principal component analysis, it was concluded that a unifatorial solution would be the most appropriate. The solution with one factor explains 44.03% of the variance (eigenvalues 11), factorial weights exceeding .340 (item 20) and low commonalities in items 12 (.164) and 20

(.116). According to Child (2006), low commonalities are the ones that present values below .20. It was considered that items with factorial weight below .40 would be excluded (DeVellis, 2003).

By analyzing the correlations between the items and the total score, results showed moderate and strong correlations (.30 to .70). However, it was found that items 12 and 20, with correlations of .375 and .318 respectively, when removed from the scale, the value of alpha increased.

Items 12 and 20 were eliminated, which had the following contents, respectively, "*I take things one day at a time*" and "*Sometimes I make myself do things whether I want to or not*". Afterwards, a final unifatorial solution was found, which explains 46.73% of the total variance (eigenvalues 10.74), with factorial weights exceeding .495 and commonalities above .245.

It should be noted that commonalities under .40 can be accepted, if the mean of commonalities is greater than .40 (Stevens, 1986), which was the case in this analysis.

Therefore, the unifatorial solution, consisting of 23 items, was considered as more appropriate. Factorial weights and commonalities are presented in table 1, as well as the eigenvalues and percentage of variance explained.

Table 1. Factorial Weights and Commonalities (h^2)

Item	Factor	h^2
1. When I make plans, I follow through with them.	.693	.480
2. I usually manage one way or another.	.628	.394
3. I am able to depend on myself more than anyone else.	.508	.258
4. Keeping interested in things is important to me.	.694	.482
5. I can be on my own if I have to.	.640	.409
6. I feel proud that have accomplished things in life.	.714	.510
7. I usually take things in stride.	.502	.252
8. I am friends with myself.	.715	.511
9. I feel that I can handle many things at a time.	.711	.506
10. I am determined.	.744	.554
11. I seldom wonder what the point of it all is.	.495	.245
13. I can get through difficult times because I've experienced difficulties before.	.549	.301
14. I have self-discipline.	.742	.551
15. I keep interested in things.	.828	.686
16. I can usually find something to laugh about.	.533	.284

17. My belief in myself gets me through hard times.	.778	.605
18. In an emergency, I'm someone people can generally rely on.	.691	.478
19. I can usually look at a situation in a number of ways.	.749	.561
21. My life has meaning.	.827	.684
22. I do not dwell on things that I can't do anything about.	.529	.280
23. When I'm in a difficult situation, I can usually find my way out of it.	.745	.555
24. I have enough energy to do what I have to do.	.819	.670
25. It's ok if there are people who don't like me.	.702	.493
Eigenvalues	10.74	-------
Variance Explained (%)	46.73	-------

Note. h^2 = Commonalities; items 12 and 20 were eliminated from the initial solution to the final solution.

The properties of the items and internal consistency were studied through the analysis of the means and standard deviation of the item, the item-total correlations and Cronbach's alpha value if the item was to be deleted. Item-total correlations found were greater than .40 (Hill & Hill, 2009) (see table 2).

Table 2. Properties of the items and internal consistency of the final factorial

Item	*M*	*SD*	*r*	*α*
1. When I make plans, I follow through with them.	123.23	304.51	.662	.940
2. I usually manage one way or another.	123.34	310.94	.591	.941
3. I am able to depend on myself more than anyone else.	123.41	309.92	.478	.943
4. Keeping interested in things is important to me.	122.70	312.05	.657	.940
5. I can be on my own if I have to.	122.72	309.0	.599	.941
6. I feel proud that have accomplished things in life.	122.65	311.37	.669	.940
7. I usually take things in stride.	123.26	315.87	.476	.942
8. I am friends with myself.	122.90	304.99	.685	.939
9. I feel that I can handle many things at a time.	122.93	309.674	.660	.940

10. I am determined.	122.83	307.71	.703	.939
11. I seldom wonder what the point of it all is	123.68	310.22	.463	.943
13. I can get through difficult times because I've experienced difficulties before.	123.22	311.11	.503	.942
14. I have self-discipline.	123.05	307.65	.698	.939
15. I keep interested in things.	122.87	307.70	.792	.938
16. I can usually find something to laugh about.	123.21	312.50	.494	.942
17. My belief in myself gets me through hard times.	123.02	304.49	.744	.939
18. In an emergency, I'm someone people can generally rely on.	122.42	312.31	.649	.940
19. I can usually look at a situation in a number of ways.	122.96	307.75	.708	.939
21. My life has meaning.	122.69	302.58	.796	.938
22. I do not dwell on things that I can't do anything about.	123.56	310.69	.494	.942
23. When I'm in a difficult situation, I can usually find my way out of it.	123.31	308.19	.706	.939
24. I have enough energy to do what I have to do.	123.02	303.65	.781	.938
25. It's ok if there are people who don't like me.	123.03	305.26	.668	.940

Note. Means (*M*) and standard deviation (*SD*) of the items, Item-Total Correlations (*r*), Cronbach's alpha when the item is deleted (α).

4.2. Confirmatory factor analysis (CFA)

In order to get more evidence to corroborate the one-dimensionality of scale, a confirmatory factor analysis (CFA) was conducted. The RS23 presented a χ^2/df =3.399, *p* < .001, which may be regarded as acceptable. Quality adjustment indices were acceptable, GFI=.843; NFI=.815; TLI=.848; CFI=.861; PNFI=.741; PGFI=.783; RMSEA=.079 (Maroco, 2010).

Regarding the quality of local adjustment, all factorial weights (λ) were statistically significant and different from zero ($p < 0.001$). Factorial weights greater than .33 were found, which can be considered acceptable (Maroco, 2010). With respect to the reliability of each item, values below the recommended (.25) were found for the following items: item 3 ($R^2 = .22$), item 7 ($R^2 = .18$), item 11 ($R^2 = .16$), item 13 ($R^2 = .11$) and item 22 ($R^2 = .12$) (see Figure 2). In an attempt to improve factorial weights and the individual reliabilities obtained, some items were eliminated and outliers were
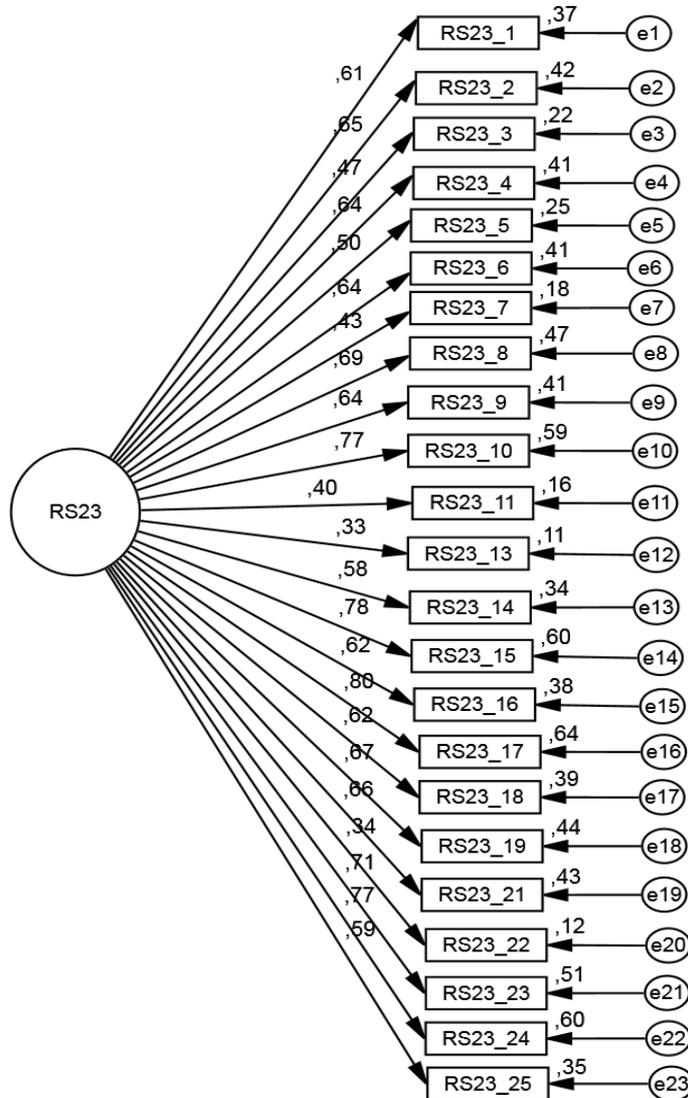
removed. However, the adjustment of the model proved to be poor, leading to the decision to maintain these items on the scale.

Figure 2. Weights and reliabilities for the 23 items. GFI=.843; NFI=.815; TLI=.848; CFI=.861; PNFI=.741; PGFI=.783; RMSEA=.079

With respect to descriptive statistics of the scale, minimum and maximum values, mean and standard deviation for the unifatorial structure can be found in table 3. The total mean obtained was 128.08 (SD = 17.43).

Table 3. *Minimum (Min.), Maximum (Max.), Mean (M) e Standard Deviation (SD) (N=580)*

	N	Min.	Max.	M	SD	N
RS23	580	23	161.00	128.08	17.43	580

It should be noted that no statistically significant differences were found in relation to the gender of the participants for the total score of the RS23, t (465.28) =. 111, p = .911 (table 4). In the final solution of the scale a value of Cronbach's alpha of .943 was obtained, which indicates great internal consistency.

Table 4. *Gender differences for the total score of the RS23 (N = 580)*

	Males (n = 208)		Females (n = 372)			
	M	SD	M	SD	t	p
RS23	127.97	16.32	128.13	18.04	.111	.911

Note. M = Mean; SD = Standard Deviation; $p < .05$

5. Discussion

The present study's main objective was to explore the psychometric properties of the long version of the Resilience Scale – RS25 developed by Wagnild & Young (1993), in a population of portuguese adults. This study is considered an important contribution to the study of the Resilience Scale, given the inconsistency which has been found in several studies concerning the factorial structure of the RS (Felgueiras et al., 2010; Pesce et al., 2005; Pinheiro & Matos, 2013a; Wagnild, 1993), and due to the lack of studies involving samples of adults since this scale has been primarily applied in samples of adolescents (Aher, Kiehl, Sole & Byers, 2006; Oliveira et al., 2015) and young adults (Oliveira & Machado, 2011).

The resilience scale aims to assess the ability to deal with change or adversity effectively. Resilience may also be seen as a positive feature of personality, which promotes individual adaptation (Wagnild, 2009).

In the present investigation a unifatorial structure was found, consisting of 23 items, which differs from the original proposal by Wagnild and Young (1993), but is in line with what was proposed by Wagnild (2009a). This scale is composed by one factor that explains 46.73 % of the total variance. From original scale, items 12 items ("*I take things one day at a time*") and 20 ("S*ometimes I make myself do things whether I want to or not*") were eliminated, due to its weights and/or commonalities and because its removal increased the internal consistency of the scale. Therefore, the factorial structure obtained corroborates the unifatorial structure and the elimination

of item 20, found by Pinheiro & Matos (2013a, 2013b), in the long version of the Resilience Scale for adolescents.

Analyzing the content of each item, we can understand the reason why these two items were removed from the scale. Item 12, with the content ("*I take things one day at a time*"), refers in some way to experiencing life moment by moment. Since target population consisted of adolescents' parents, and considering their high level of responsibility, particularly family and labor responsibilities, it is expected that their thoughts are more future directed, preventing them from fully living one day at a time.

Regarding item 20, with the content "*Sometimes I make myself do things whether I want to or not*", it was found that, in resemblance of the study conducted by Pinheiro & Matos (2013a, 2013b), this item did not contribute adequately to the factorial structure of the scale. Analysis of the content revealed that the item could be sensitive to social desirability. So, there could be a tendency for these parents to respond in accordance with what is culturally expected, maintaining a posture that they think to be the most appropriate.

The factorial structure obtained showed appropriate values in relation to item-total correlations and its respective Cronbach's alfa values. Item-total correlations found were greater than .40 and Cronbach's alpha were indicators of great internal consistency, i.e., superior to .93. The full scale obtained great internal consistency, with a value of Cronbach's alpha of .943, higher than the values found in previous studies, (Abiola & Udofia, 2011; Felgueiras et al., 2010; Heilemann, Lee & Kury, 2003; Nishi et al., 2010; Pesce et al., 2005; Wagnild & Young, 1993), which found Cronbach's alphas between .80 and .91.

After the exploratory factor analysis, a confirmatory factor analysis was held, in order to confirm the unifatorial structure. Although the adjustment indices indicated an acceptable adjustment of the tested model (Maroco, 2010), some items revealed factorial weights and individual reliabilities lower than recommended. However, we decided to keep these items (3, 7, 11, 13 and 22). This decision was based mainly on the contents of each item and also because when removing these items, the model's indices of adjustment proved to be negatively altered.

Item 13 was carefully analyzed since it was the item with lower factorial weight and individual reliability values. This item proved to be unstable in the study of Pinheiro & Matos, 2013b, for which it was removed from the long version of the scale for adolescents. However, in the present study, we considered that this item ("I can get through difficult times because I've experienced difficulties before.") should be maintained in the RS23 scale. Since the scale here studied is addressed to the adult population, we considered that this item might provide relevant information regarding going through difficult experiences and the perception of the individual as able to circumvent the adversities of life, factors that are associated with the concept of resilience (Anaut, 2002; Windle, Bennett & Noyes, 2011).

It is important to consider some limitations of this study. One limitation relates to the composition of the sample, as it was clearly skewed in terms of gender, since the majority of the respondents belong to the female gender. This is due to the fact that, in schools, mothers volunteer more often to participate in research (also participating more in their children's school life and in initiatives organized by schools). Another weakness to be pointed is that neither convergent, divergent validity, nor the temporal stability of the scale were analyzed.

It would be important that future research replicates these data in larger samples, with greater representation of the male gender. Convergent and divergent validity, as well as temporal stability of the RS23, should be analyzed in future studies.

Given the exploratory nature of the study and the choice to keep the scale as reliable as possible to the original structure, therefore being conservative on withdrawing items, it is considered that this structure should be reviewed, analyzing carefully the way that the items removed behave and

assessing the possibility of eliminating other items that may be compromising the psychometric quality of this measure.

In short, data obtained in this research, though preliminary, allows support the adequacy of the factorial structure of the resilience scale to assess levels of resilience in adults of the Portuguese population, as well as its good internal consistency.

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