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Construct Validity of the Portuguese Version of the Wagnild and Young Resilience Scale

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Background and Purpose: This study aims to validate the resilience scale developed by Wagnild and Young for the Portuguese population. Methods: The instrument validation was conducted with a sample of 313 adults attending the Higher Institute of Educational Sciences, of which 62.3% were female and 37.7% male, between 18 and 58 years old. Results: Three factors were decided upon: life satisfaction, planning-discipline, and independence, and there was a positive average correlation between the three factors. The confirmatory factor analysis showed excellent comparative fit index and root mean square error of approximation values, so we conclude that the model has an excellent fit. Also, Cronbach's alpha coefficient used for internal consistency values reported good values. Conclusions: Overall, the key global indicators of the model's fit and reliability analysis express their quality for Portuguese population.

Keywords: resilience; Wagnild and Young; scale validation; adults

This study aimed to evaluate the reliability and the construct validity of the Portuguese version of the Wagnild and Young Resilience Scale, based on the preliminary validation developed by Vara and Sani (2006). Considering the lack of research about this topic in our context, and doubts and inconsistencies about the structure of this measure, this research can contribute to a broader knowledge about resilience and contribute to the development and evaluation of health and resilience promotion interventions. The instrument validation was conducted from a sample of 313 adults attending the Higher Institute of Educational Sciences (Instituto Superior de Ciências Educativas, Portugal or ISCE).

We have started by conducting an exploratory factor analysis to identify the most significant dimensions of the scale, having afterward completed the confirmatory factor

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analysis study. It is expected that this study contributes to the evaluation of the resilience of the Portuguese population so that its analysis allows to develop and to enhance the social-emotional competencies of the adult population. The empowerment of resilience, from the development of their inherent skills, is a key factor in the educational and health sectors. Particularly for nursing research, this measure can be useful to evaluation of resilience not only in nurses, given the challenges of the current policies and workplaces, but also in research, for example, in the evaluation of community health nursing programs. We begin by presenting some theoretical foundations of the concept of resilience, and later, we present all the assumptions underlying the validation of the Wagnild and Young Resilience Scale for the Portuguese population.

THEORETICAL FOUNDATIONS

Resilience is a construct that describes an individual's capacity to overcome, with relative success, adverse conditions, or situations that involve risk to their well-being, development, and mental health (Reppold, Mayer, Almeida, & Hutz, 2012). Luthar (2006) shows that resilience is a process in which individuals adapt positively to a context which is considered unfavorable and that on adapting themselves, they show a notable and recognized capacity to overcome adverse conditions that could represent a real and significant threat to their well-being, their developmental process, or their mental health. In this sense, and according to Pesce, Assis, Santos, and Oliveira (2004), resilience is understood to be the set of social and intrapsychic processes that make the development of a healthy life possible, even while living in an unhealthy environment. To understand resilience is to accept it as a dynamic developmental process that involves intrinsic and extrinsic factors which contribute to individual differences (Lemery-Chalfant, 2010). Resilient people show a good capacity to rapidly rebalance themselves physically, psychologically, and in social relationships, at times when there are stressful events (Vara & Sani, 2006).

Resilience represents the art of adapting oneself to adverse situations (biological and sociopsychological conditions), developing capacities connected to internal (intrapsychic) and external (social and emotional environment) resources that enable one to unite an appropriate psychic construction and social integration (Anaut, 2005). In this sense, and according to authors Silva, Elsen, and Lacharité (2003), resilience is seen as an individual competence that is constructed based on interactions between the subject, their family, and their environment; and for others, it is a competence not only of the subject but also of some families and certain communities. Thus, resilience "is a multidimensional construct and has three basic requirements: need for a significant risk/adversity; presence of resources to cope with the effects of adversity; and positive adaptation or the impediment of a negative result" (Santana da Silva, Vieira da Silva, Santana da Silva, & Lodovici, 2015, p. 104). For Masten (2001), the concept of resilience takes into account processes of adaptation and risk factors. As far as processes of adaptation are concerned, some disagreements are evident between researchers on resilience. However, there seems to be a consensus regarding the relationship between resilience and risk factors (Cowan, Cowan, & Schulz, 1996).

For Luthar (2006), resilience is characterized by the existence of "adverse conditions" that represent risk factors (often associated with different phenomena of biopsychosocial imbalance) and by the existence of "positive adaptation patterns" of the individual to the risk factors to which they have been exposed. Therefore, there is a need to consider both these factors when analyzing the construct. Resilience therefore requires flexibility and

demands the maintenance of a balance in the life of a subject, considering the way he or she deal with and function in the stressful situations and the traumatic events that occur over his or her lifetime (American Psychological Association, 2016).

This brief review allows us to understand not only the enthusiasm but also some theoretical controversies regarding this process and as well the influence of the social and cultural context (Ungar, 2010; Zolkoski & Bullock, 2012). However, it is clear that resilience allows individuals to overcome adverse contexts maintaining positive outcomes (Masten, 2014). For example, in nursing research, literature points out the role of hope, self-efficacy, coping or cognitive reframing as characteristics and strategies that help professionals to maintain their resilience regarding the workload, multiple roles, challenging conditions, and demands from superiors and patients (Cusack et al., 2016; Hart, Brannan, & de Chesnay, 2014).

In the words of Rutter (1990), resilience is concerned with individual variations in response to risk factors being that protective factors enable modification of responses to the situations in accordance with the risk, reducing both the risk and the negative reactions. Therefore, once we understand resilience to be a product of the dynamic interaction of the individual with his or her environment, we have to consider the importance of risk and protective factors. Risk factors are understood to be negative events in life which, when present in the context, increase the probability of the individual developing physical, psychological, or social problems. Protective factors, on the other hand, translate as influences that modify, alter, or improve individual responses to the risks of maladaptation that the individual might suffer. Once we demonstrate that the different factors operate in a dynamic way, we can see that when they interact they modify the trajectory of the individual and may induce a stressful or protective situation.

In this sense, and in accordance with Simões (2008), resilience emphasizes the protective factors and processes that reverse the effects of the risk factors when the individual is exposed to situations that are adverse to healthy behavior.

We must therefore interpret resilience from a dynamic perspective because it is changeable through time and takes into account the circumstances the individual finds themselves in: It is the product of the balance established between protective factors, risk factors, and personality. Rutter, quoted by Pinheiro (2004), shows that to understand resilience, it is extremely important to know how the protective characteristics have developed and how they have modified the trajectory of the individual because the recognition that the existence of protective factors contributes to resilience encourages the development of preventive strategies, which aim at the growth of protective factors and adaptive levels of functioning.

According to Assis, Pesce, and Avanci (2006), the Wagnild and Young Resilience Scale is one of the few instruments used to assess levels of psychosocial adaptation in the face of significant life events, otherwise known as resilience. It considered 50 statements from a previous qualitative study with American woman identified as resilient considering (Wagnild & Young, 1990), from which the 25 items were written reflecting five dimensions (Wagnild, 2009)—self-reliance, meaningfulness, equanimity, perseverance, and existential aloneness—answered in a Likert-type scale. Results allow authors to find a bifactorial structure with good reliability and evidence of concurrent validity (Wagnild & Young, 1993) that has been studied in several countries and in cross-cultural studies (Hjemdal, Roazzi, Dias, & Friborg, 2015). In this sense, and recognizing the importance of resilience, this study serves to validate the psychometric resilience scale developed by Wagnild and Young for the Portuguese population based on a preliminary validation developed by Vara and Sani (2006) with some inconsistent data. Doubts about the internal structure of the measure in the Portuguese population must be overcome to use this measure in research and intervention studies.

METHODOLOGY

Design and Location of the Study

This instrumental and descriptive cross-sectional study, considering a nonprobabilistic sample, was developed in ISCE, a Portuguese higher education institution which offers courses in the fields of Education, Sports, and Tourism.

Sample Size

The sample was selected for convenience because the researcher was a teacher at the institution where the study was applied and because it was considered to guarantee a heterogeneous and reliable sample for the study.

The sample for this study was made up of 313 adults, regular attendees at ISCE located in Odivelas, Portugal, being 62.3% female and 37.7% male and with ages ranging from 18 to 58 years. The mean age of the respondents was 28.55 years, with a standard deviation of 8.72 years. The intersection of the variables age (in groups) and gender indicates that the greatest percentage difference between gender was in the group up to 22 years old: 62.3% of all respondents were females in this age group, and only 37.7% were males in this group. Interestingly, between the ages of 23 and 27 years, the gender distribution was equitable. On the other hand, the percentage of males reached its lowest point in the group of people older than 34 years: Males in this group represented only 6.7% of all respondents.

Measurement

The Wagnild and Young Resilience Scale (Wagnild & Young, 1993) was used in its version adapted for Portuguese population by Vara and Sani (2006). It is a scale of 25 items, written in Portuguese, positively positioned as opposed to a Likert scale of 7 points, 1 being (*common disagreement*) and 7 (*agreeing usually*). After analyzing the questionnaire, we decided to keep 10 variables that gave rise to three factors (life satisfaction, planning-discipline, and independence). The first factor (satisfaction with life) is described from the statements "I can usually find something to laugh about," "My life has meaning," "My belief in myself gets me through hard times," "I feel proud to have accomplished things in my life." The second factor (planning-discipline) is represented by the statements: "I have self-discipline," "I keep interested in things," "When I make plans I follow through with them," and the third factor (independence) represented by "I am able to depend on myself more than anyone else," "I can be on my own if I have to," "I usually manage one way or another."

A sociodemographic questionnaire was used to collect data that allow us to describe the sample, such as gender and age.

Data Collection

Following the approval from the Scientific Committee of the institution that ensures the ethical standards, the participants were selected and informed of the objectives of the study from the dispensing and signature of the respective informed consent to participate the study.

The application of the instrument was carried out in a favorable environment, in recognition of the need to guarantee the conditions of comfort for the respondents. In this sense, the questionnaires were filled in the classroom environment and/or in the library of the institution to enable a peaceful setting for the appropriate filling.

The psychometric validation of the Wagnild and Young Resilience Scale was carried out by processing and analyzing data with the statistical program SPSS Version 20.0 and developed in two phases. In the first phase, we carried out an exploratory factor analysis in which we sought to identify the most significant dimensions presented by the scale through the reliability study of that scale. To investigate the analysis of the construct, an exploratory factor analysis was carried out using Cronbach's alpha coefficient for assessment of the internal consistency of the scale.

Subsequently, in the second phase, we carried out a confirmatory factor analysis using the program Structural Equation Modeling Software (EQS) Version 6.0.

Data Analysis

The presentation of the results began with the reliability of Wagnild and Young's Resilience Scale and a corresponding assessment of the internal consistency of the scale, followed by the correlation between factors of the Young scale and finishing with the confirmatory factor analysis.

Reliability Test of the Wagnild and Young Resilience Scale. The reliability of the Wagnild and Young Resilience Scale was carried out through the sample of 313 respondents for the study. To analyze the validity of the construct, several exploratory factor analyses were carried out using Cronbach's alpha coefficient for assessment of the internal consistency of the scale (Table 1).

TABLE 1. Weight of Each of the Items in the Factor After Exploratory Factor Analysis With Varimax Rotation, Eigenvalues, and Explained Variance

	Factors		
Items	1	2	3
Young 16	.780		
Young 17	.732		
Young 21	.716		
Young 6	.594		
Young 14		.843	
Young 15		.726	
Young 1		.710	
Young 3			.743
Young 5			.718
Young 2			.684
Eigenvalues	2.195	1.991	1.748
Explained variance	21.950	19.907	17.482

In analyzing the questionnaire, we decided to keep the 10 variables that generated three factors, the first factor relating to *satisfaction with life*, the second factor *planning-discipline*, and the third factor *independence*. We demonstrated that together, they have a degree of variance explanation of approximately 60.1%.

It should be stressed that

> factor analysis produces factorial loads, which may be considered regression weights of the variables measured to predict the underlying construct. In cases where there is more than one factor underlying the data, the factor analysis also produces correlations between the factors.

Following validation of the scale, and to verify the correlations between the three factors, we present the respective correlation values in Table 2.

From analysis of Table 2, it can be verified that the factors of the scale present positive average correlation values.

Confirmatory Factor Analysis

Once the exploratory factor analysis and identification of the factors of the scale and its levels of internal consistency had been carried out and the correlation values of the factors had been determined, the study was completed with the confirmatory factor analysis. Excellent values were obtained, which improved with the correlation of the errors in Items 16 and 17.

As far as the comparative fit index (CFI) is concerned, taking the 10 variables under study into consideration, we obtained the high value of .988. As Thompson (2004) indicates, in making use of a noncentral chi-squared distribution that seeks to take account of the complexity of a model, it is assumed to be ideal if it presents a value above .95.

In relation to the root mean square error of approximation (RMSEA), the value of .025 was obtained, which enables us to say that the model has an excellent fit—given that, as Thompson (2004) suggests, values below 0.25 are considered excellent.

The analysis of the standardized root mean square residual (SRMR) index value obtained the excellent figure of .038. According to Kahn (2006), this value should be below .08 and is excellent if it is below .05.

It is therefore possible for us to state that as a result of the confirmatory factor analysis, the values of the main overall fit indicators surveyed for Young's resilience model demonstrate its quality.

To assess the internal consistency of the three dimensions found, the Cronbach's alpha coefficient was calculated. We obtained a value of .798 for the general scale, .747 in Factor 1 "satisfaction with life," .712 in Factor 2 "planning-discipline," and .632 in Factor 3 "independence." In this way, they correspond to the proposal by Nunnally (1978) that values above .70 should be accepted.

TABLE 2. Correlation Between Factors in the Young Scale

Factors	Correlation Value
"Satisfaction with life" (Factor 1) versus "Planning-discipline" (Factor 2)	.638
"Satisfaction with life" (Factor 1) versus "Independence" (Factor 3)	.625
"Planning-discipline" (Factor 2) versus "Independence" (Factor 3)	.549

DISCUSSION

In the exploratory factor analysis of the Wagnild and Young Resilience Scale, the 10 most representative items loaded in a three-factorial structure: Factor 1—satisfaction with life—included four items (Young 16, Young 17, Young 21, and Young 6) with an eigenvalue of 2.195. Factor 2—planning-discipline—involved three items (Young 14, Young 15, and Young 1) with an eigenvalue of 1.991, and Factor 3—independence—is represented by Young's Items 3, 5, and 2 with an eigenvalue of 1.748.

If we contrast the values obtained with the preliminary version of Vara and Sani (2006), we see that the factors obtained by us through the exploratory analysis are also focused on three factors, although their Factor 1 is made up of 14 items. We also see that both studies consider Items 16, 17, and 21, and that as far as Factor 2 is concerned, the preliminary version gives it 8 items, and Factor 3 is expressed in 4 items. So in this validation, none of the items obtained is concordant with those obtained by Vara and Sani. However, despite the divergence in the values presented from the mentioned validation scales, we infer that the Wagnild and Young validation scale, with the 10 variables assessed, was shown to be appropriate.

This procedure, with the elimination of some items to improve the validity of the measure has also been considered in other studies. Literature review allow us to find similar data in a paper from Damásio, Borsa, and da Silva (2011) in Brazil or Oliveira, Matos, Pinheiro, and Oliveira (2015) with a sample of Portuguese adolescents. Despite the existence of distinct definitions and measures, as we revised previously, these results might also highlight the need for further theoretical discussion and measure refinement. Some contributions to this debate can emerge from cross-sectional studies as the present one but also from cross-cultural studies where this same doubts emerge (Hjemdal et al., 2015). A tendency for the use of smaller measures, with items strongly directed to this construct with higher discriminant power should be considered (Aiena, Baczwaski, Schulenberg, & Buchanan, 2015; Losoi et al., 2013; Pritzker & Minter, 2014).

As far as the confirmatory factor analysis of the resilience scale was concerned, the main indicators of the model were analyzed (CFI, RMSEA, and the SRMR). We can infer that this is a noncentral chi-squared distribution whose complexity in our model is high (.988), that we have found an excellent fit index value for the model (.025), and that, as far as the SRMR index is concerned, our study attained a value of .035. In relation to the internal consistency of the three dimensions found, this was obtained through the Cronbach's alpha coefficient in which we obtained a value of .82. Despite the elimination of the items, no factor maintains a Cronbach's alpha lower than .7. Future studies should retest this solution and verify its impact of reliability of the measure. The development of new items considering this structure can be also considered.

As demonstrated and as result of the analyses carried out, we can conclude that the assessment of the Wagnild and Young Resilience Scale, through the 10 variables of the questionnaire, has shown itself to be appropriate. However, it is important to stress that, as Pesce et al. (2005) suggest, new studies will contribute to a better understanding and organization of the scale into factors, thus enabling further calibration and improvement of the instrument itself. It should be noted that, despite this instrument having presented suitable values for its validation, the main limitation of the study is considered to be the small size of the sample, which was made up mainly of a female population in a higher education institution. However, despite the constraints of the sample, this study is valued because we have obtained an adequate validation of the instrument, which can be translated into a better analysis and response on the interpretation of resilience for the Portuguese adult population.

In this sense, and considering the objectives of the study, it is considered that the Wagnild and Young Resilience Scale is valid for the Portuguese population. Future studies, with a broader and more representative sample, might cross-validate these results, allowing academics to know more about the resilience process in adults and its major predictors. Considering the stress and health challenges that nurses deal with, particularly pertinent research might be directed for a nursing context, exploring the role of inter- and intrapersonal characteristics predictors of resilience (Hart et al., 2014), but also organizational factors implied in this process (Cusack et al., 2016). Recent research also presented interesting results of intervention programs to promote resilience not only in new nurses (Chesak et al., 2015) but also in community settings (e.g., Dray et al., 2015; MacLeod, Musich, Hawkins, Alsgaard, & Wicker, 2016) that might be evaluated in our context with a measure with adequate properties. With sound measures, further interventions can be evaluated with deeper reliability.

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