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Measuring Subjective Resilience in Colombian Students in the Horizon of Social Adversity

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Abstract

To have instruments that allow the study of resilience in contexts of chronic social adversity (poverty, community violence, armed conflict, etc.), this study aims to adapt and validate the subjective resilience questionnaire and the questionnaire for the attribution of changes in resilience to teachers' work for their use with Colombian adolescents and to test the cross-cultural validity. A total of 532 students participated in the study. The comparison of different models using confirmatory factor analyses has shown that subjective resilience tends to generalize in the face of situations generated by colleagues, teachers, and family, but also that the context that generates the adverse situation modulates the reaction. These results replicate those obtained with the original Spanish sample. Besides, the route analysis indicates that resilience depends on the coping strategies used by the individual, but also on the work of the teachers since the students attribute to them a positive effect on their resilience. This fact suggests that if teachers promote problem-centered coping styles, they will promote resilience. Finally, the greater resilience of Colombian students compared to Spanish ones suggests the possibility that intermittent exposure to mild or moderate stressful situations allows the development of adaptive skills and promote resilience

Midiendo la Resiliencia Subjetiva en Estudiantes Colombianos en el Horizonte de la Adversidad Social

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Resumen

Para contar con instrumentos que permitan el estudio de la resiliencia en contextos de adversidad social crónica (pobreza, violencia comunitaria, conflicto armado, etc.), este estudio tiene como objetivo adecuar y validar el cuestionario de resiliencia subjetiva y el cuestionario para la atribución de cambios en la resiliencia a el trabajo de los maestros para su uso con adolescentes colombianos y para probar la validez transcultural. Un total de 532 estudiantes participaron en el estudio. La comparación de diferentes modelos mediante análisis factorial confirmatorio ha demostrado que la resiliencia subjetiva tiende a generalizarse ante situaciones generadas por compañeros, docentes y familiares, pero también que el contexto que genera la situación adversa modula la reacción. Estos resultados replican los obtenidos con la muestra española original. Además, el análisis de ruta indica que la resiliencia depende de las estrategias de afrontamiento que utilice el individuo, pero también del trabajo de los docentes ya que los estudiantes les atribuyen un efecto positivo en su resiliencia. Este hecho sugiere que si los maestros promueven estilos de afrontamiento centrados en el problema, promoverán la resiliencia. Finalmente, la mayor resiliencia de los estudiantes colombianos en comparación con los españoles sugiere la posibilidad de que la exposición intermitente a situaciones estresantes leves o moderadas permita el desarrollo de habilidades adaptativas y promueva la resiliencia.

Throughout the life cycle, people face stressful events that exceed their capacity to cope. Scientific literature has focused on the study of emotional, behavioral, and psychological problems produced by such traumatic events. However, in recent decades the interest of researchers has increased in studying the characteristics of those individuals who achieved an adaptation after going through highly stressful experiences, a capacity known as resilience (Luthar, 2006).

Luthar (2006) defines resilience as "the positive adaptation of individuals who have been exposed to significant adversities". There is consensus around this idea since resilience implies positive adaptation that allows the individual to recover the levels of functioning before the stress situation, and not to develop psychological and/or behavioral problems (Garrido-Hernansaiz et al., 2020). However, there are discrepancies as to what constitutes "significant adversity" (Yule et al., 2019). Some studies focus on the experience of specific events in life that can be chronic, intermittent, or unique, such as being a victim of sexual abuse (Luthar & Cicchetti, 2000), while others consider significant adversity broad characteristics such as the socio-economic level. An example of this situation would be living in conditions of poverty (Gartland et al., 2019). Murali and Oyebode (2004) consider that people from lower socioeconomic classes, under their life circumstances, are exposed to more stressors and have fewer resources to manage them.

For this work, we will adopt the perspective of Gartland et al. (2019), who propose the study of resilience in children exposed to "social adversity" understood as "exposure to trauma or difficulties as a result of social circumstances" such as poverty, intergenerational trauma, intrafamily violence, community violence, among others.

Within such perspective, what has awakened our interest in the study of resilience in the face of socially adverse situations is the scenario of Colombia and in particular of Bogotá. Colombia has a particular context that combines two types of violence. The first type is the violence resulting from the armed conflict experienced for more than four decades between guerrilla groups, paramilitaries, drug traffickers, and government armed forces (Chaux, et al., 2009). The second type is the community violence created by the situations of threat or interpersonal harm within the neighborhood as a result of common crime, micro-trafficking, and domestic violence, frequent in several of the

main cities of the country (Gaias et al., 2019). This scenario means that countless Colombians have been victims and/or witnesses of the violence produced by the armed conflict and/or by the community violence that takes place in their neighborhoods (Chaux et al., 2009). Therefore, many children and young people have grown up in contexts of "social adversity".

According to the report on high-impact crimes in Bogotá from the Ministry of Security, Coexistence, and Justice for the year 2020, in Colombia took place 1030 homicides, 35896 cases of domestic violence, 17200 personal injuries, 81516 thefts from people, 48431 cell phone thefts, 10694 bicycle thefts, among other crimes. A high percentage of these events are concentrated in the city's poverty belts, areas that are also the home of a high rate of population victims of the armed conflict that are forced to move to the country's capital (Mayor's Office of Bogotá, 2021).

The situation of social adversity just described produces highly negative consequences. Scientific literature indicates that exposure to various forms of violence is associated with a wide range of adverse impacts on mental health and psychosocial well-being in children and adolescents. These effects include psychological disorders, emotional and behavioral problems, substance use, delinquency, school failure, violence, among others (Taylor et al., 2018; Masten & Narayan, 2012; Baber, 2009). Therefore, it is particularly relevant to identify which people -children and adults- overcome such adversity.

Despite the negative impacts associated with prolonged political conflict and community violence, several studies have highlighted the resilience or adaptive functioning of children and adolescents after facing adversity associated with violence (Masten et al., 2015; Masten & Narayan, 2012; Tol et al., 2013). Identifying those people who overcome social adversity (poverty, violence) is essential to better understand the phenomenon of resilience and thus improve the formulation of prevention and care strategies in areas affected by such adverse situations. However, to achieve this "identification" it is essential to have the appropriate tools adapted to the context.

Given the interest in the study of resilience and its determinants when adversity is the product of situations of violence such as those described, the objective of this study is to identify, adapt and validate an instrument that

allows us to measure the resilience of adolescents in Colombia. However, it is necessary first to make explicit the assumptions from which to start such a task.

Resilience

According to Masten (2019), since the 1970s the meaning of the term resilience has evolved gradually, from the conception of it as a characteristic of the individual to a phenomenon emerging from the interaction of the individual's resources and the influence of the environment in a reciprocal relationship that allows the person to adapt despite adversity (Masten, 2019; Ungar et al., 2013).

The theory of dynamic systems in children's development states that the ability of a child to respond to challenges and adversities depends on the functioning and interaction of many sociocultural and ecological systems (individual, family, school, community, etc.) (Masten, 2019). Therefore, recovery (resilience) is not limited to the capacity of the person. It also depends to a large extent on the relationships and social support that other systems (family, school, community, religion, etc.) can offer. It is from this constant interaction between the different systems to cope with critical situations when personal factors emerge that facilitate positive adaptation and promote resilience.

There is a great amount of literature on the identification of protective factors that lead to positive adaptation after exposure to extreme adverse experiences faced by children and young people (Racine et al., 2020; Gartland et al., 2019; Yule et al., 2019; Masten & Barnes, 2018; Masten & Narayan, 2012). The knowledge of such factors arises from the study of resilience in children who experience cumulative adversity, adverse childhood experiences (ACE), and exposure to violence. Table 1 shows a summary of the main ones. In any case, to study the role of such factors in the resilience of adolescents living in the context of social adversity, it is necessary to have instruments for assessing their subjective resilience, a problem considered in the next section.

Table 1.
Factors contributing to resilience

Type	Factors
Person	Self-esteem Coping strategies Cognitive abilities Self-regulation of thoughts, emotions, and behavior Prosocial abilities Capacity for solving problem s Optimism
Family	Positive parenting practices Family support Family cohesion through close relationships and emotional security
School	Student's academic commitment Positive co-living climate (peer relations) Positive emotional climate (teacher' behavior related to students' emotions) Classroom academic-motivational climate created by teacher teaching patterns Classroom misbehavior management climate Security of school environment
Society	Participate in cultural activities Spirituality (religious participation) Security of Social environment

Instruments for Assessing Resilience

To design interventions aimed at promoting the resilience of adolescents in contexts of social adversity and to assess the intervention effects, it is necessary to be able to evaluate subjective resilience. However, there is no unanimity on which resilience assessment instruments are more appropriate. Table 2, prepared after examining different reviews of the existing scales

(Vannest et al., 2019; Windle et al., 2011) and related publications (Alonso-Tapia et al., 2013; Alonso-Tapia & Villasana, 2014; Gartland, et al., 2011; Prince-Embury, 2007), contains the list of scales found for adolescents and adults. Due to the evolution of the concept of resilience, the instruments included in the Table have been developed with a different focus, ranging from questionnaires that conceive resilience as a personal characteristic (RS, The ER 89, RASP, CD-RISC, ARS, RSCA), to scales that examine protection factors (YR: ADS, RSA, READ), even those that combine the evaluation of personal characteristics and environmental resources (CYRM, ARQ, READ, SRQ).

Table 2.
Instruments for assessing resilience and personal related factors (resiliency)

Year & authors	Instruments	Subjects
1993 Wagnild & Young	Resilience Scale (RS)	Adults
1996 Block & Kremen	The ER 89	Young adults
2001 Hurtes & Allen	The Resiliency Attitudes and Skills Profile (RASP)	Adolescents
2003 Connor & Davidson	The Connor-Davidson Resilience Scale (CD-RISC)	Adults
2003 Donnon & Hammond	Youth Resiliency: (YR: ADS)	Adolescents
2003/2005 Fribourg et al.	The Resilience Scale for Adults (RSA)	Adults
2003 Oshio et al.	Adolescent Resilience Scale (ARS)	Adolescents
2006 Hjemdal et al.	The Resilience Scale for Adolescents (READ)	Adolescents
2007 Cambell-Sills & Stein	The Connor-Davidson Resilience Scale (CD-RISC)	Adolescents
2007 Prince-Embury	The Resiliency Scales for Children and Adolescents (RSCA)	Adolescents
2008 Ungar et al.	The Child and Youth Resilience Measure (CYRM)	Adolescents
2008 Smith et al.	The Brief Resilience Scale (BRS)	Adults
2011 Gartland et al.	The Adolescent Resilience Questionnaire (ARQ)	Adolescents
2013 Alonso-Tapia et al.	*Subjective Resilience Questionnaire* (SRQ)	Adolescents

Windle et al. (2011) reviewed the psychometric quality of nineteen resilience scales -many of those mentioned in Table 2- and found that several of the measures showed a questionable conceptual and theoretical adequacy. Most were in the early stages of development, and only three scales for adults stood out for their psychometric characteristics (RSA, CD-RISC, and BRS).

Furthermore, most resilience instruments focus on the factors that favor positive responses to adversity but do not measure the phenomenon itself or the consciousness of acting in a resilient way. Only the Brief Resilience Scale for adults (BRS) and the Subjective Resilience Questionnaire for adolescents (SRQ) have been developed to assess resilience as a phenomenon (Luthar, 2006), The SRQ was developed by Alonso-Tapia, Nieto, and Ruíz (2013) as a direct measure of resilience, called "subjective" because it assesses the young people perception of how they cope usually with the adverse situations they face in relation with their parents, classmates, and teachers.

After analyzing the assumptions from which the resilience assessment is formulated and considering that the objective of this study is to identify, adapt and validate an instrument that allows us to measure resilience in adolescents in Colombia, it was decided to adapt and validate the "Questionnaire of subjective resilience" (SRQ) (Alonso-Tapia et al, 2013). The SRQ adapts very well to the school context because, unlike most scales that focus on the characteristics that favor resilience, it offers a direct measure of the perception of resilience, not its causes; besides, it is an instrument aimed at the adolescent population, and it focuses on the type of response -resilient or not- when they face adversity with teachers, classmates, and parents.

Once selected the questionnaire for assessing resilience to be validated, it is necessary to decide which information looking to test its external validity. For this purpose, the following facts were considered concerning external and personal factors that can influence resilience.

First, concerning external factors, Ungar, Russell, and Connelly (2014) pointed out that, in the study of resilience in educational contexts, the most analyzed factor is how students (especially from vulnerable populations) interact with their teachers and how this relationship promotes resilience. Along the same lines, Theron and Theron (2014) analyzed stories from resilient South African students and found that they credited the teachers for their resilience. Recognizing the importance of the teacher as a promotor of

resilience in the school and the assessment of resilience as the basis for the formulation of school intervention programs, the question arises: to what extent do students attribute changes in perceived resilience to the teacher performance? The answer to this question will contribute to the understanding of the phenomenon of resilience at school and, to the extent that there is an association between resilience and attribution, it will justify the implementation of intervention programs that impact the ways of acting of teachers, in favor of building resilience. Based on the facts just described, it was considered that the attribution of resilience to the work of teachers would be an index of the external validity of the SRQ. This type of students' attributions can be assessed using the *Questionnaire of attributing changes in resilience to teachers' work* (APCRT), developed by Alonso-Tapia et al., (2013). The APCRT has adequate reliability (α_{APCRT} = .83). However, there is no study of the validity of its structure. Therefore, it was decided to study its structural validity in this study before using it for validating the SRQ.

Second, concerning personal factors, the studies and revisions of Kato (2015), Villasana et al. (2016), and Alonso-Tapia et al (2019) have shown the importance of coping strategies and styles pointed out by Lazarus and Folkman (1984), According to these studies, the greater the use of problem-centered coping strategies and the lower the use of emotion centered ones, the higher is resilience. Therefore, it was decided to test whether resilience assessed with the SRQ showed the relationship found in the studies just cited. Whit this purpose, the *Person-Situation Coping Questionnaire for Adolescents* (PSCQA) (Villasana et al, 2016), previously adapted by Medina and Alonso-Tapia (2021) was used.

Method

Sample

A total of 532 students from Colombia, 322 girls and 210 boys from three public schools in Bogotá, participated in the study. Ages were comprised between 11 and 18 years (Mean: 13.87; SD: 1.75). By educational stages, they were distributed as follows: 6th course: 119; 7th: 137; 8th: 85; 9th: 80; 10th: 91; 11th: 20. The sample, chosen for convenience reasons, was randomly divided

into two subsamples for cross-validation analyses.

Materials

To test our hypotheses, the following instruments were used:

Subjective Resilience Questionnaire (SRQ) (Alonso-Tapia et al., 2013; Alonso-Tapia & Villasana, 2014). The adaptation and validation of this questionnaire to be used with Colombian Students is the objective of this study. It has a hierarchical structure. First, it includes three specific scales that assess the perceived degree of resilience shown in three different situations, namely, when facing adverse events that students confront in their relationships: a) with teachers (resilience in front of teachers, RT), b) with peers (resilience in front of peers, RP); and c) with family –parents– (resilience in front of family, RF). Second, it also has a general scale, Subjective Resilience (SR). It includes positive and negative items. The reliability indexes in the original sample were: SR: $\alpha = 0.85$; RT: $\alpha = 0.74$; RP: $\alpha = 0.64$; RF: $\alpha = 0.65$. A sample of items of this questionnaire is shown in Table 3.

Table 3.
Example of items of the two questionnaires validated in this study

Subjective Resilience Questionnaire

- If a *teacher* doesn't devote time to answer my questions or pay some attention to me when I'm faced with a difficulty, I get discouraged and stop striving to learn. (Negative).
- If my *classmates* don't consider me when they organize some event, I don't get too worried because I find other things to do.
- If my *parents* ignore me when I need them to help me with a problem, I get discouraged and stop striving to solve it. (Negative).
- If I love the content of a subject, although I notice that the *teacher* neither accepts me nor tries to help me, I don't get discouraged and I strive to learn it.
- The fact that my *classmates* usually don't listen to me as I would like them to -or that I feel ignored by them- makes me feel bad because I don't know what to do. (Negative).
- If I like an activity or I think I should do it, I find a way to go on with it without getting discouraged even though my parents don't support me.

Attribution of perceived change in resilience to teachers' work

- This teacher is achieving that I get less discouraged every time I face difficulties or failures in my studies.
- If my classmates sometimes ignore me or try to hurt me, I don't get discouraged and know what to do due to this teacher's work.
- We all sometimes have difficulties with our parents, but this teacher has achieved that I know how to face them without getting discouraged.
- If any teacher rejects me or ignores me, I seldom get discouraged thanks to the fact that this teacher helps us to face difficulties in a positive way.

Attribution of perceived change in resilience to teachers' work (APCRT) (Alonso-Tapia et al., 2013). This questionnaire, with only one scale whose structure is also to be validated in this study to be used for Colombian students, has eight items. Its reliability in the original sample was $\alpha = 0.83$. It has been included in the study to be used as a criterion of the external validity of the Subjective Resilience Questionnaire. A sample of items of this questionnaire is also shown in Table3.

c) Person-Situation Coping Questionnaire for Adolescents (PSCQA) (Villasana et al, 2016, adapted to the Colombian population by Medina & Alonso-Tapia, 2021). This questionnaire has a multitrait structure. It allows assessing to what extent the coping strategies used by adolescents vary depending on the kind of adverse situation they have to cope with or generalize to different situations. It has 40 items that refer to eight different kinds of coping strategies -Rumination, Thinking avoidance, Self-isolation, Help-seeking, Look for problem solution, Emotional expression, Self-blaming, and Positive thinking- grouped in two different general coping styles -Emotion centered Coping (EFC) and Problem-Solving centered coping- (PSFC). They also refer to one of five adverse situations -"problems with peers due to my fault", "problems with parents", "problems with teachers", "problems with pears because of their fault", and "problems of study and achievement"-. Items are answered on a 5-point Likert scale, in which the students declare their degree of agreement with the content. The Cronbach-α reliability indexes of the original questionnaire for each coping style were, in both cases, .81. This questionnaire has been included in the study as a potential moderator variable of resilience effects.

Procedure

The adaptation of the questionnaires to the language characteristics of Colombia was made by two researchers, one from each country. The University Ethical Committee of the authors' university approved the study. The Colombian students filled in the questionnaires online. Before starting, they received instructions on how to do it.

Data Analyses

To determine whether the SRQ factorial structure was similar or different from the structure originally found by Alonso-Tapia et al. (2013) and supported also by Villasana et al. (2014), or whether the structure of the PCRT was monofactorial or not, we proceeded as follows.

In the case of the Subjective Resilience Questionnaire (SRQ), before analyzing data, positive and negative formulated items were combined in

parcels of two items after testing for their correlations. Two reasons justified this grouping. First, previous studies had shown that answers in the original questionnaire were sensitive not only to the source of adversity but also to the positive or negative formulation of the item. Combining a positive and a negative item, after inverting the score in it, allowed avoiding the artifact created by the sign of the item formulation. Second, the use of item parcels allows estimating fewer parameters and diminish the chances for dual loadings to emerge and residuals to be correlated (MacCallum et al., 1999). As a consequence, this procedure allows specifying a clear latent construct (Little et al, 2002), which provides a simpler and potentially more useful interpretation.

Besides, the fit of data to three different models was tested: a) a mono-factor model (M1), in which all items were direct indicators of only one latent factor -Subjective Resilience-; b) a hierarchical model (M2), in which the effect of the general latent factor manifests in three intermediate latent ones -resilience in front of teachers (RT), resilience in front of peers (RP); and resilience in front of family (RF)-, each one indicated in the corresponding items; c) a bifactor model -"person by situation"- (M3), in which the general and specific latent factors have separated effects on each item, and in which the last ones do not act as a mediator of the effect of the general factor. These three models were tested in two steps. First, an analysis of each model was carried out using the first subsample and then, multigroup cross-validation analyses were carried out using both subsamples.

Moreover, after obtaining permission from the authors of the original study for using the Spanish data (N=471) (Alonso-Tapia et al., 2013), a multigroup confirmatory factor analysis by country was carried out to test whether differences between countries existed in the structure of the questionnaire. Besides, several ANOVAS between students of both countries to test for differences in their resiliency levels.

In the case of the Attribution of perceived change in resilience to teachers' work (APCRT), three different models were tested: a) a mono-factor model (M1), in which all items were direct indicators of only one latent factor, b) a hierarchical model (M2), in which the effect of the general latent factor manifests in three intermediate latent ones, and c) a bifactor model (M3), in which the variance of each item was determined by the effect of the general

factor and of the specific factors related to the different situations in front of which the students can act resiliently or not.

In all the analyses above mentioned, Maximum Likelihood was used to estimate the proposed models since, this estimation procedure is reasonably robust within the context of structural equations even if multivariate normality is not fulfilled (West et al., 1995). To assess model fit we used absolute fit indexes ($\chi2$, $\chi2/df$,), the comparative fit index (CFI), the Tucker-Lewis Index (TLI), the root mean square error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). CFI and TLI values greater or equal to .90 indicate acceptable fit (Hu & Bentler, 1999), RMSEA and SRMR values between .05 and .08 represent an acceptable fit (McDonald & Ho, 2002); also, $\chi2/df$ values ≤ 5 are considered as indicators of good model fit according to Hair, Black, Babin, and Anderson (2010). To compare the fit of different models, the Akaike Information Criterion (AIC) was also used.

Third, to determine the reliability of the scales, the Cronbach's α and the McDonald's ω coefficients were used.

Forth, to do a first test of the external validity of the SRQ, a path analysis was carried out. The scores in the Subjective Resilience Questionnaire (SRQ) and the Person-Situation Coping Questionnaire for Adolescents were used as predictors of the Attribution of perceived change in resilience to teachers' work (APCRT). Considering the results of previous studies (Villasana et al., 2016), the model tested supposes direct effects of the SRQ, and direct and indirect effects of the PSCQA through the SRQ, on the APCRT.

CFA and path analyses were carried out using the AMOS program, version 26. For ANOVA, SPSS version 26 was used.

Results

Confirmatory Factor Analyses

Subjective resilience questionnaire. Figures 1, 2, and 3 show the standardized estimates of the confirmatory models. All estimated weights (λ) are significant (p < 0.001). Besides, Table 4 shows the fit statistics obtained for each model. As it can be seen, in all cases the statistic χ^2 is significant probably due to sample size, but the ratio χ^2/df and the remaining fit indexes

are well inside of the limits that allow the model to be accepted. The three models have a very similar fit. The hierarchical model (M2) is slightly better according to the AIC index if the initial analyses are considered. However, in the case of the cross-validation analyses, the Monofactor model (M1) is slightly better also according to AIC, but the Hierarchical model (M2) is better according to TLI and CFI indexes.
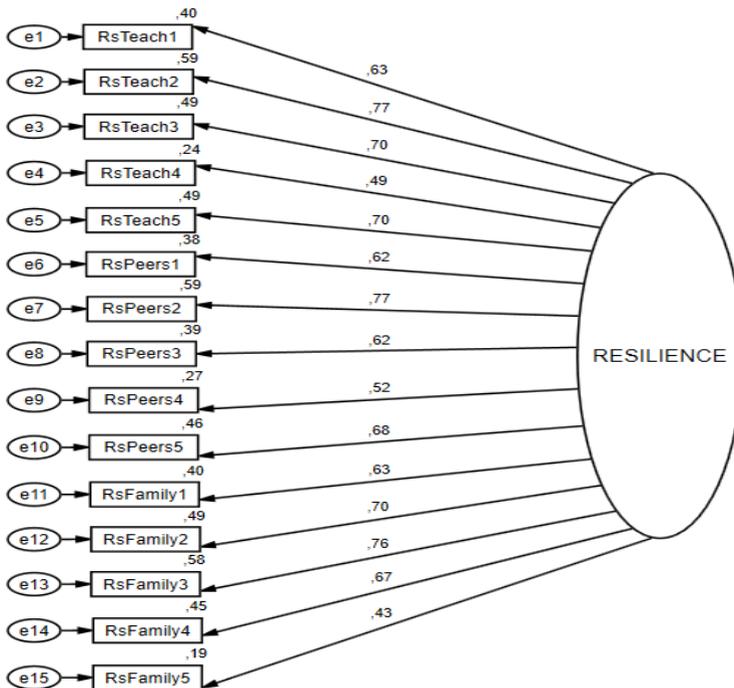

Figure 1. Subjective Resilience for Adolescents Questionnaire (SRA-Q). Monofactor model (M1). Confirmatory standardized solution.
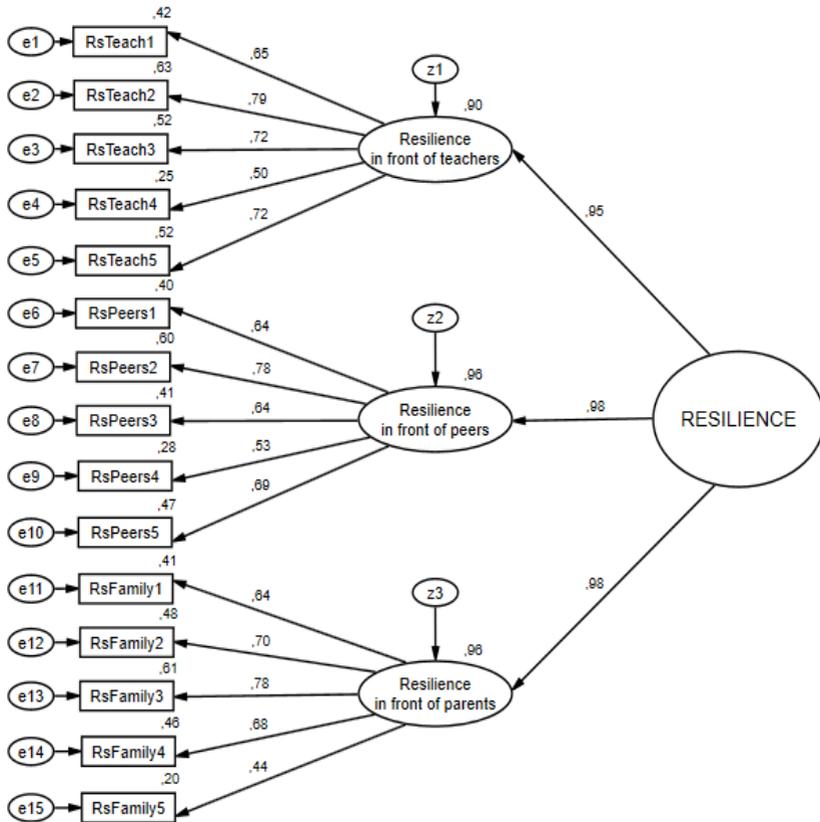
Figure 2. Subjective Resilience for Adolescents Questionnaire (SRA-Q).
Hierarchical model (M2). Confirmatory standardized solution. (Includes:
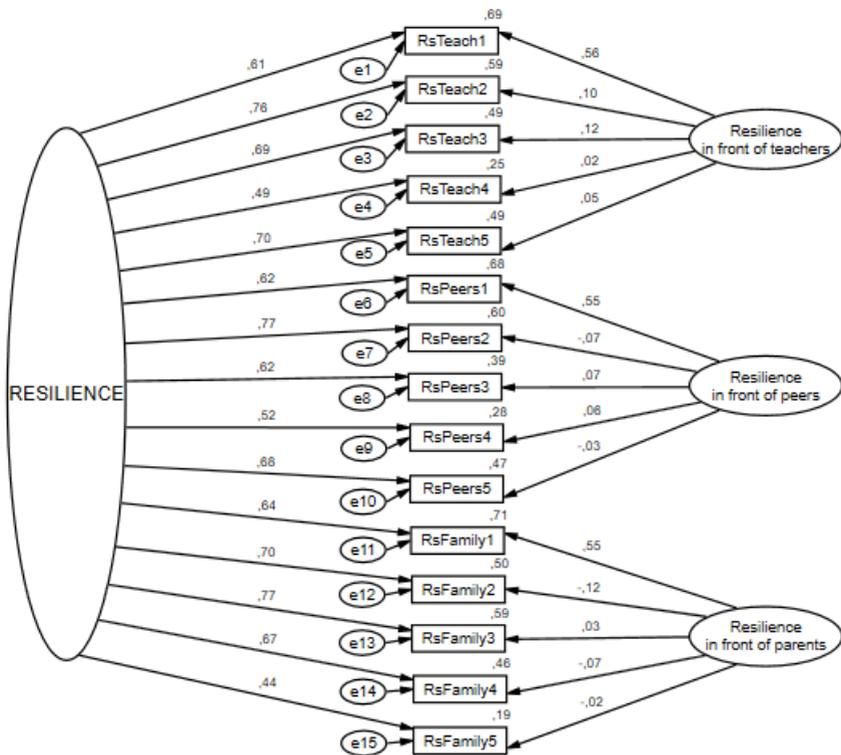measurement and structural weights)

Figure 3. Subjective Resilience for Adolescents Questionnaire (SRA-Q). Bifactor "Person by situation" model (M3). Confirmatory standardized solution.

Table 4.
Subjective Resilience for Adolescents Questionnaire (SRA-Q): Goodness of fit of CFAs of models 1, 2, and 3 of cross-validation analyses, and path analysis on resilience.

Questionnaire	χ^2	df	p	χ^2/df	TLI	CFI	RMSEA	SRMR	AIC
M1 Mono-factor	182.34	90	.000	2.02	.94	.95	.062	.042	242.34
M2 Hierarchical	177.68	89	.000	1.99	.94	.95	.061	.042	239.68
M3 Bifactor	170.29	78	.000	2.18	.93	.95	.067	.041	254.29
M1 Mono-factor CV	435.13	210	.000	2.07	.94	.94	.045	.052	495.03
M2 Hierarchical CV	529.11	190	.000	2.78	.94	.94	.041	.038	629.11
M3 Bifactor CV	393.49	183	.000	2.15	.94	.94	.047	.052	507.49
M2 MG analysis by country	490.11	190	.000	2.58	.93	.94	.040	.038	
PATH on attributions to teacher	1060.62	425	.000	2.49	.89	.90	.053	.056	

[1] CV: Cross-validation; MG: Multi-group

As all models have a similar fit and there is not a clear superiority between models, we have chosen the hierarchical model (M2) in line with previous studies to carry out the multigroup analysis (MG) by country and to test the external validity of the questionnaire.

The fit indexes of the MG are shown in Table 4. The statistic χ^2 is significant, probably due to sample size, but the ratio χ^2/df and the remaining fit indexes are well inside of the limits that allow the model to be accepted.

ANOVAS. Table 5 shows the results of Anovas comparing differences between Colombian and Spanish students in subjective resilience. Results are always significant and show that the resilience of Colombian students is always greater than the resilience of Spanish.

Table 5.
Subjective resilience: ANOVA of differences between Colombia and SPAIN

Focus of resilience	Country	Mean	Sd	F	P
In front of teachers	Colombia	39.24	7.05	106.25	<.0001
	Spain	34.73	6.74		
In front of peers	Colombia	39.03	6.83	116.89	<.0001
	Spain	34.63	5.95		
In front of families	Colombia	38.12	6.18	62.47	<.0001
	Spain	34.84	6.76		
General resilience	Colombia	165.70	38.70	77.01	<.0001
	Spain	146.79	31.91		

Attribution of perceived change in resilience to teachers' work. Figures 4, 5, and 6 show the standardized estimates of the confirmatory models. All estimated weights (λ) are significant ($p < 0.001$). Besides, Table 6 shows the fit statistics obtained for each model. As it can be seen, several of the indexes corresponding to the Monofactor model (M1) and the hierarchical model (M2) do not reach the standard limits of acceptance. On the contrary, in the case of the bifactor model (M3), all the indexes reach adequate levels, which allows this model to be accepted.
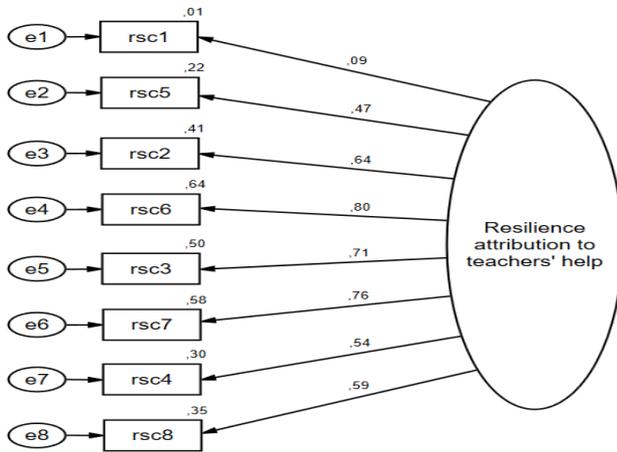
Figure 4. Attribution of perceived change in resilience to teachers' work. Monofactor model (M1). Confirmatory standardized solution
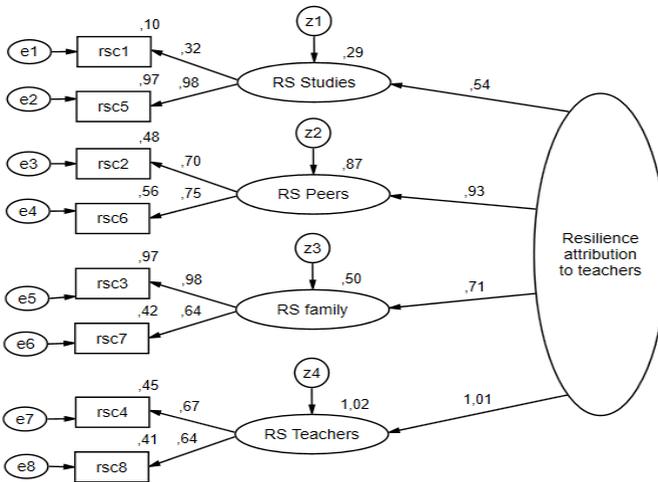

Figure 5. Attribution of perceived change in resilience to teachers' work. Hierarchical model (M2). Confirmatory standardized solution.
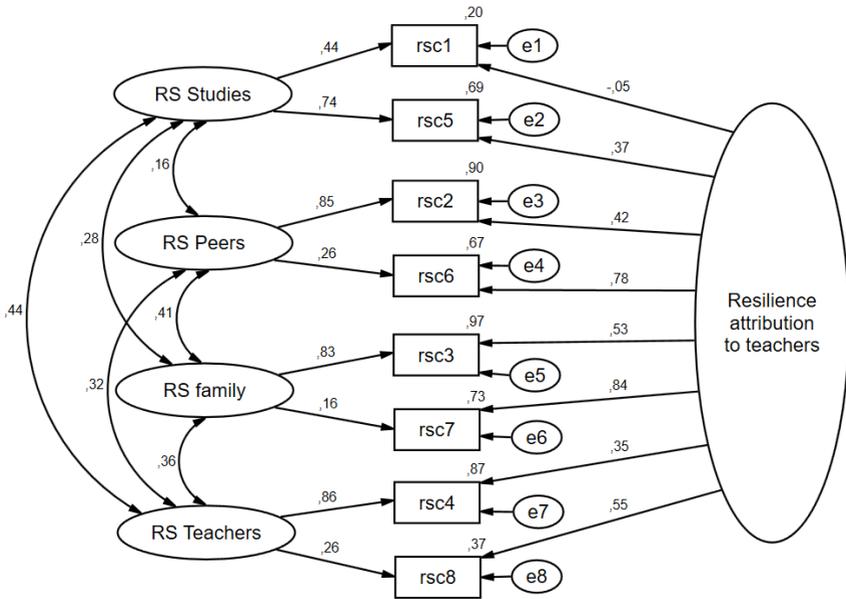
Figure 6. Attribution of perceived change in resilience to teachers' work. Bifactor "Person by situation" model (M3). Confirmatory standardized solution.

Table 6.
Attribution of perceived change in resilience to teachers' work questionnaire. Goodness of fit of CFAs of models 1 and 2, and cross-validation analyses

Questionnaire	χ^2	df	p	χ^2/df	TLI	CFI	RMSEA	SRMR	AIC
M1 Mono-factor	108.12	20	.000	5.41	.81	.87	.129	.071	140.12
M2 Hierarchical	137.30	18	.000	7.62	.71	.82	.158	.085	173.30
M3 Bifactor	16.71	11	.116	1.52	.98	.99	.044	.026	66.71
M1 Mono-factor CV	212.42	40	.000	5.31	.83	.88	.090	.074	276.42
M2 Hierarchical CV	238.40	54	.000	4.42	.86	.87	.080	.085	274.90
M3 Bifactor CV	26.57	22	.228	1.20	,99	.99	.020	.026	126.57

Reliability

Table 7 shows the reliability indexes α and ω of the scales of both questionnaires. As it can be seen, the indexes of the SRQ general scale are > .90, and of the APCRT >.80. The rest SRQ scales have indexes > <79. Therefore, the reliability of both questionnaires is good enough,

Table 7.

Reliability indexes of the Subjective Resilience for Adolescents (ARQ) and of the Attribution of perceived change in resilience to teachers' work (APCRT) questionnaires and average variance extracted

First-order & second-order scales	Average Variance Extracted (%)	Cronbach α	McDonald ω
SRQ			
Subjective resilience - General	52.80	.92	.96
Subjective resilience in front of teachers	46.80	.82	.87
Subjective resilience in front of peers	43.32	.79	.79
Subjective resilience in front of family	43.42	.80	.89
APCRT	68.00	.81	.87

Path Analysis

This analysis was carried out to test whether the attribution of perceived change in resilience to teachers' work can be predicted, first, from the level of students' resilience and, second, by coping strategies and styles, as these variables seem to affect the students' resilience. Figure 7 shows the standardized estimates of the confirmatory model. All weights (λ) were significant (p < 0.001). Concerning the degree of fit, the indexes are shown in Table 4. The chi-square statistic was significant, probably due to the sample size, but the ratio χ^2/df and the remaining indexes were well inside the limits that allowed the model to be accepted. The only exception was TLI = .89,

which fell slightly short of the standard limit of acceptance. Nevertheless, in path analysis, the main points are the amount of variance explained of the criterion (28%) and the regression coefficients quantifying the relation between predictors and criterion. The Resilience regression weight was significant (.24), as was the effect of the Problem-Centered coping style (.36). The direct effect of the Emotion-Centered copying style was non-significant (.12). Besides, the Problem-Centered coping style has an indirect effect of .12 through resilience, which implies that its total effect is .48. That means that if students attribute to teachers their resilience improvement, this is likely because they help the students to use problem-centered instead of emotion-centered coping strategies.
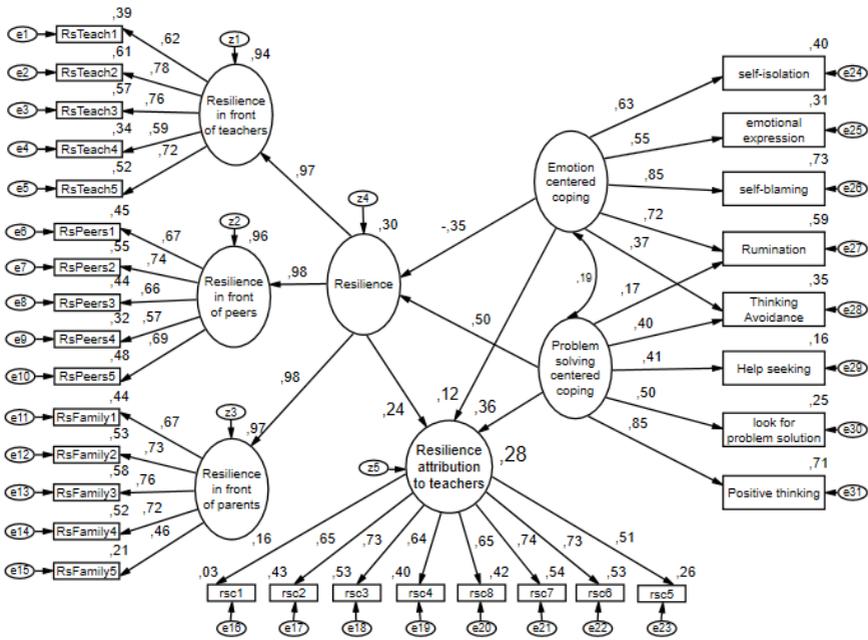

Figure 7. Subjective Resilience for Adolescents Questionnaire (SRA-Q). Path-analysis with Latent Variables. Standardized measurement and regression weights, and percentage of explained variance.

Discussion and Conclusion

The objective of this study was to adapt and validate the subjective resilience questionnaire (SRQ) and the questionnaire for attributing changes in resilience to teachers' work (APCRS) for their use with the Colombian adolescent population to have instruments that allowed, in subsequent studies, to study the effects of being subjected to long-lasting situations of social adversity, such as those due to armed conflicts and community violence. What have been the most relevant findings and what implications do they have?

To interpret and assess the results related to the Subjective Resilience Questionnaire, we must remember that its items assess the awareness that students have of a phenomenon, the resistance to and the recovery from difficulties (Leipold & Greve, 2009). "Despite the difficulties, I have not (or I have) been discouraged", all the items come to say. This fact raises several questions to which our results have contributed to answer.

The first of these is whether this awareness shows that the phenomenon occurs in a generalized way in all situations or if the phenomenon varies depending on the context in which the adverse experience occurs. Concerning this question, the evidence provided by the results has shown, when comparing the different models of the structure of the questionnaire, that resilience tends to generalize, but also that the context that generates the adverse situation -in this case, the performance of the teacher, classmates or parents- moderates the degree to which such generalization occurs. The results reliably support this conclusion, as the hierarchical model has obtained the best fit. These results are in line with those obtained in previous studies that assessed the internal validity of the questionnaire, as well as its reliability (Alonso-Tapia et al, 2013; Alonso-Tapia & Villasana, 2014). This double fact raises questions about which the results offer some answers. However, before discussing them, we must highlight an important implication of the results. If the context that generates the adverse situation moderates the results, although in this case the situations were limited to the three that we have just indicated, it is expected that other characteristics of the adversity -the type of adverse experience (for example, war, loss of a loved one, natural disasters) (Luthar, 2006), the degree of exposure, the moment in development when it is

experienced, etc. (Luthar et al., 2015; Masten & Barnes, 2018) will moderate the resilient response.

The second question, connected with the fact that what is being evaluated is the consciousness of a subjective experience - a phenomenon-, is which factors the differences in the phenomenon of which one is aware depend on. What has led the student to be resilient? The answers can be found in the characteristics of the student himself, or in the support he receives from abroad. The results of the route analysis shown in Figure 7 offer clues about both possibilities.

As can be seen, in the aforementioned analysis, resilience is positively associated with the use of coping strategies focused on the problem, and negatively with the use of strategies focused on the adverse emotional experience. This fact focuses the attention when looking for the reasons for resilience on the personal characteristics of the student, in line with the work of Leipold and Greve (2009) and Villasana et al. (2016), according to which resilient behavior depends on underlying psychological processes, such as the use of coping strategies. Other authors (Alonso-Tapia et al., 2019; Masten, 2007) also point out the role of personality factors. However, the result found raises a question of primary educational importance: how can the activity of educators promote the ability to cope with adverse experiences using one type of strategy and not others? The same analysis offers clues to answer this question. However, since this analysis uses the second of the questionnaires validated in this study - the Attribution Questionnaire for Improved Resilience to Teacher Work (APCRS) -, before continuing we must make a brief reference to its nature and the results concerning it.

According to the results, students generally attribute to teachers a positive effect on the degree to which they have learned to face different situations in a resilient way, although the adjustment indices suggest that this effect is moderated by the type of situation, as shown by the model shown in Figure 6. The content of the attributions, however, suggests the awareness of a "perceived causal relationship". And if so, we can expect a positive association between awareness of resilience and awareness of the role that students attribute to teachers in promoting it. This expectation leads us back to the route analysis, in which we find evidence about whether this supposition is correct or not.

In Figure 7, as previously mentioned when presenting the results, it can be seen that resilience is positively associated with the degree to which students attribute a positive role to the teacher in promoting it and that this attribution is also associated with the type of strategies with which the student faces adversity, especially those that are focused on solving the problem. Although the path-analysis does not show a causal relationship, since it deals only with correlations between variables, the content of the attribution questionnaire reflects the "awareness of causal relationship", as mentioned above. Consequently, it can be said that the union of this fact and the results of this analysis suggests that the school -and especially the teachers- can promote the development of resilience in young people living in adverse contexts, especially insofar as that the use of coping strategies focused on problem-solving is supported (Neville et al., 2019; Liebenberg et al., 2016; Theron & Theron, 2014). Now, how can a positive influence on resilience be achieved?

Although answering the previous question has not been the object of this study, in a previous work Alonso-Tapia and Villasana (2014) showed that the motivational class climate (CMC), established from the student's assessment of the different patterns of their teachers' teaching, is positively associated to the development of resilience in young people. This evidence suggests that teachers who promote problem-solving skills, positive thinking, and seeking help, among other positive coping strategies focused on the problem, favor positive adaptation to adversity in their students. However, additional experimental studies are required to show what specific patterns of teaching action facilitate the development of coping strategies and the personality characteristics that support resilience.

A final result that deserves special reflection is that of the variance analyses in which the resilience awareness of students from Spain and Colombia has been compared. They have shown that awareness of resilience is greater in the latter than in the Spaniards, although Colombia has experienced an armed conflict and social violence in this country is greater than in Spain. Besides, it is known that people living in adverse conditions (poverty, violence, war) present a variety of psychological and behavioral difficulties. So, to what causes can this fact be due?

There are at least two possibilities. First, the students of the Colombian sample might have not experienced the adverse experiences attributed to the

entire Colombian population. Second, assuming that they have had such experiences, it is necessary to keep the following in mind. Resilience is influenced by the type, time of development, intensity, and duration of adversity (Luthar et al., 2015), but there is evidence showing that exposure to intermittent stressful situations (duration), mild to moderate (intensity), controllable but challenging, can lead to stress inoculation and promote resilience (Ashokan, Sivasubramanian, & Mitra, 2016; Masten et al., 2015). Consequently, likely the duration and intensity of the adverse situations experienced by the adolescents in the study allowed them to develop adaptive skills and show greater subjective resilience. This consideration is congruent with new approaches to resilience analysis in adverse contexts (Ellis et al., 2020) and opens the spectrum to the formulation of new questions: what type of adaptive skills can people who live in violent contexts develop -detecting threats, creative thinking, etc.-? Answering this question is important not only theoretically to understand the development processes that sustain resilience, but also to know how to guide the actions of educators in practice.

This study has limitations. First, the measures used were self-reports, which can be biased due to differences between what the adolescent thinks he is doing and the behavior manifested in the face of adversity. Second, the students were not asked to what extent they had gone through adverse experiences associated with violence, a fact that has influenced the difficulty of interpreting the results of the comparison between countries, a task that remains to be done.

In summary, this study has involved the development and validation of two questionnaires for use with the Colombian population. It has also provided evidence compatible with the idea that resilience depends, on a personal level, on the type of coping strategies of students, and with the idea that teachers, to the extent that they influence the development of these strategies, can contribute to the development of resilience. Finally, it has raised important questions for subsequent studies, especially which is the role of the specific characteristics of adverse situations in one's resilience.

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