

## Factor structure of the Posttraumatic Growth Inventory in a Spanish sample of adult victims of interpersonal violence in childhood

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**Abstract:** Research interest in trauma as a possible cause of growth has increased in recent decades. The Posttraumatic Growth Inventory (PTGI) is widely used to measure growth after traumatic events. The present study aimed at validating the Spanish version of the PTGI in a sample of 243 young adults (age range from 18 to 35 years old,  $M = 21$  years,  $SD = 2.5$ ) who experienced interpersonal victimization during their childhood and/or adolescence. Preliminary analyses showed acceptable reliability for the PTGI subscales (Cronbach's  $\alpha$  ranging from .61 to .89). Exploratory factor analysis revealed a four-factor structure that included «new perception of life», «relating to others», «personal strength», and «spiritual change». All types of victimization correlated significantly with PTGI scores. These findings provide support for the factorial validity of the PTGI and the use of the PTGI in future research examining posttraumatic growth among Spanish victims of interpersonal violence in childhood.

**Keywords:** Victimization; Posttraumatic Growth Inventory; trauma; growth.

### Estructura factorial del Inventario de Crecimiento Post-traumático en una muestra española de víctimas adultas de violencia interpersonal durante la infancia

**Resumen:** El interés científico en el trauma como posible fuente de crecimiento ha aumentado en las últimas décadas, siendo el Inventario de Crecimiento Post-traumático (PTGI) uno de los instrumentos más usados para medirlo. El estudio pretende validar la versión en castellano del PTGI en una muestra de 243 adultos jóvenes (entre 18 y 35 años,  $M = 21$  años,  $DT = 2.5$ ), víctimas de violencia en la infancia y/o adolescencia. Los análisis mostraron una fiabilidad aceptable para todas las subescalas ( $\alpha = .61-.89$ ). El análisis factorial exploratorio reveló una estructura de cuatro factores: «nueva percepción de la vida», «relación con los demás», «fuerza personal» y «cambio espiritual». Todos los tipos de victimización correlacionaron significativamente con las puntuaciones del PTGI. Los resultados aportan evidencia sobre la validez de la estructura interna del PTGI y el uso del PTGI en futuras investigaciones que examinen el crecimiento post-traumático en víctimas españolas de violencia interpersonal durante la infancia.

**Palabras clave:** Victimización; inventario de crecimiento post-traumático; trauma; crecimiento

## Introduction

Victimization, especially in childhood and adolescence, is associated with disruptions in development (Finkelhor, 2007), increasing the risk of lifetime physical and psychological disorders (Norman et al., 2012). Occasionally, victims report an increased sense of their own capacities after surviving and overcoming a traumatic event (Calhoun & Tedeschi, 2004). Some studies have

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suggested that survivors of various forms of victimization, such as intimate partner violence (Cobb, Tedeschi, Calhoun, & Cann, 2006), sexual assault (Frazier, Conlon, & Glaser, 2001), physical assault, theft with violence (Kunst, 2010), and sexual abuse during childhood (Saltzman, Easton, & Salas-Wright, 2015), may also experience positive changes in their lives, and growth at a cognitive and emotional level (Tedeschi & Calhoun, 2004). These positive outcomes are referred to as posttraumatic growth (Tedeschi, Park, & Calhoun, 1998).

In the last decade, posttraumatic growth has attracted considerable interest (Jayawickreme & Blackie, 2014). Hence, the psychological factors and strategies contributing to it have been examined (e.g. Prati & Pietrantonio, 2009; Tedeschi & Calhoun, 2004), leading to the development of assessment tools to evaluate such changes. The Posttraumatic Growth Inventory (PTGI) is the most widely used instrument (Tedeschi & Calhoun, 1996). It assesses posttraumatic growth by means of five different dimensions: (i) feelings of closeness and compassion to others; (ii) new possibilities, interests, and opportunities; (iii) personal strength and feelings of self-reliance; (iv) spiritual change regarding a better understanding of spiritual matters and with stronger religious beliefs; and (v) a new appreciation of life and priorities.

The PTGI has been widely used across Europe (Mack et al., 2015; Prati & Pietrantonio, 2014), North America (Cadell, Suarez, & Hemsworth, 2015; Kaur et al., 2017; Palmer, Graca, & Occhietti, 2012), South America (Leiva-Bianchi & Araneda, 2015; Medeiros, Couto, Fonseca, da Silva, & Medeiros, 2017), Asia (Aslam & Kamal, 2019; Cheng, Ho, & Rochelle, 2017; Ho, Chan, & Ho, 2004), and Oceania (Morris, Shakespeare-Finch, Rieck, & Newbery, 2005).

Most studies validating the translated versions of the PTGI have found a five-factor structure, consistent with the original dimensions (Aslam & Kamal, 2019; Brunet, McDonough, Hadd, Crocker, & Sabiston, 2010; Lee, Luxton, Reger, & Gahm, 2010; Ramos, Leal, Marôco, & Tedeschi, 2016; Silverstein, Witte, Lee, Kramer, & Weathers, 2018). However, some studies conducted in China (Ho et al., 2004), Japan (Taku, Cann, Calhoun, & Tedeschi, 2008) and Spain (Costa-Requena & Gil Moncayo, 2007) have found a four-factor structure, while others supported a three-factor structure (Anderson & Lopez-Baez, 2008; Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003; Weiss & Berger, 2006). Higher order factor structures have also been reported (Cheng et al., 2017; Konkoly Thege, Kovács, & Balog, 2014). Some studies observed a single-factor structure when validating the instrument in different populations,

such as university students (Joseph, Liney, & Harris, 2005) or adults with a history of cardiovascular disease (Seikh & Marotta, 2005). In fact, as we can see, there is some instability with respect to the factor structure of the PTGI, as different number of factors have been extracted.

Research on posttraumatic growth in general, and the PTGI in particular, is scarce in Spain. Costa-Requena and Gil Moncayo (2007) applied it in a Spanish sample of cancer patients, reporting four factors that explained 71% of the positive changes observed after cancer diagnosis or treatment. Using confirmatory factor analysis, they reported a single-factor structure as the best fit. Rodríguez-Rey, Alonso-Tapia, Kassam-Adams, and Garrido-Hernanzais (2016) also explored the factor structure of the PTGI in a sample of parents of children that underwent intensive pediatric care, supporting a three-factor structure. Garrido-Hernanzais, Rodríguez-Rey, and Alonso-Tapia (2017) reported good validity and reliability, and Pérez San Gregorio et al. (2018) confirmed a five-factor structure similar to the original version in a sample of liver transplant recipients. Nonetheless, adapting and validating an instrument with such range-restricted clinical samples may lead to attenuated relationships with criterion variables and a reduction in its generalizability (Lakes, 2013).

The psychometric properties of the Spanish version of the PTGI have also been tested outside Spain. A study with college students (Cárdenas, Barrientos, Ricci, & Páez, 2015) in Chile reported a good fit of the original five factor model, whereas a study with earthquake survivors in the same country proposed a three-factor model (Leiva-Bianchi & Araneda, 2015). This last finding is consistent with a study performed with Latina immigrants in the US (Weiss & Berger, 2006).

Interestingly, the structure of the PTGI in a non-clinical sample has not yet been addressed. Posttraumatic growth after interpersonal violence has not been explored either, although it may be relevant to adequately treat the needs of the victims and promote their growth.

The main purpose of this study was to adapt the PTGI into a Spanish context and provide the scientific community with a useful and reliable tool for future research on the positive outcomes of child and youth victimization. The study aims to measure the validity and reliability of the Spanish version of the PTGI by examining its factor structure, internal consistency, construct validity and criterion validity in emerging adults who had experienced interpersonal violence during their childhood.

## Method

### Participants

We used a convenience sampling strategy to examine the psychometric properties of the Spanish version of the PTGI. From the 297 emerging adults from the University of Barcelona, who agreed to anonymously and voluntarily participate in the study, we selected those who have reported at least one experience of interpersonal victimization during their childhood ( $n = 250$ ). Seven of them were excluded because of missing data. Consequently, 243 students aged between 18 and 35 years ( $M = 21$ ,  $SD = 2.5$ ; 70% women) were included in the final sample.

### Instruments

*Juvenile Victimization Questionnaire* (JVQ; Finkelhor, Hamby, Ormrod, & Turner, 2005). We used the Spanish self-report retrospective version of the JVQ (Pereda, Gallardo-Pujol, & Guilera, 2016) to identify those individuals who have experienced interpersonal victimization during their childhood. The JVQ obtains information on six modules of victimization: «conventional crimes» (9 items), «caregiver victimization» (4 items), «peer and sibling victimization» (6 items), «sexual victimization» (6 items), «witnessing and indirect victimization» (9 items), and «electronic victimization» (2 items). The questionnaire scores the number of incidents suffered on a 6-point scale, with 0 = «I have never experienced this situation» and 5 = «I have experienced this situation five times or more». The JVQ is the gold standard in victimization research (Pereda, Guilera & Abad, 2014) and shows adequate psychometric properties (e.g. internal consistency reliability:  $\alpha = .80$ ) (Finkelhor et al., 2005).

*Posttraumatic Growth Inventory* (PTGI; Tedeschi & Calhoun, 1996). The instrument consists of 21 Likert-type items rated on a 6-point scale ranging from 0 = «I did not experience this change as a result of my crisis» to 5 = «I experienced this change to a very great degree as a result of my crisis». The original PTGI divides posttraumatic growth into five different dimensions obtained by principal component analysis (Tedeschi & Calhoun, 1996): «relating to others» (7 items), «new possibilities» (5 items), «personal strength» (4 items), «spiritual change» (2 items), and «new appreciation of life» (3 items). The authors of the original version reported a high degree of internal consistency ( $\alpha = .93$ ).

### Procedure

The original PTGI version was adapted using the back-translation method, a judgmental procedure for

investigating the conceptual equivalence of the original and translated versions, necessary for valid cross-cultural comparisons (Berry, 1980). After the first researcher translated the original English version into Spanish, a native English speaker, who has lived in Spain for more than 15 years and speaks Spanish fluently, translated it back into English. The comparison between the original and the back-translated version of the PTGI showed no significant differences. We administered the Spanish version of the PTGI to undergraduate students within their classroom time. If any form of interpersonal victimization included in the JVQ had been experienced during their childhood, they were asked to complete the PTGI based on their most distressing experience. All respondents were informed that the data would only be used for research purposes.

### Overview of analyses

Statistical analyses were organized into four parts. First, descriptive analysis was conducted. Since women are more likely to experience posttraumatic growth than men (Vishnevsky, Cann, Calhoun, Tedeschi, & Demakis, 2010), possible differences in the PTGI results between genders were tested by Cohen's  $d$ . Second, construct validity was examined. We followed a mixed strategy, combining exploratory and confirmatory approaches. We randomly split the sample in two halves, so we conducted an exploratory analysis on the first sample (calibration sample), and a confirmatory one on the second sample (validation sample). With respect to the exploratory analysis, previous research showed an intercorrelation between the growth factors (Hooper, Marotta, & Lanthier, 2007), hence the data were analyzed by principal component analysis (PCA) with oblimin rotation, without specifying the number of components for the extraction. To classify an item into one of the factors, the item had to load over 0.5 for the component and less than 0.4 for the other components, following the criterion used in previous validation studies of the PTGI (Tedeschi & Calhoun, 1996; Weiss & Berger, 2006). We then tested the original five-factor model fit on the data, and we compared it with the model we found on the exploratory sample. This fit was assessed by means of confirmatory factor analysis and was conducted using polychoric correlations with maximum likelihood estimation with robust standard errors and a Satorra-Bentler scaled test statistic (MLM) as implemented in lavaan package for R (Rosseel, 2012). For model identification, factor loadings of the first item for each factor were fixed at 1. Factors were allowed to intercorrelate. Different factor models were compared by means of goodness-of-fit statistics,

Akaike's Information Criteria (AIC), and Bayesian Information Criteria (BIC, Jackson, Gillaspay, & Purc-Stephenson, 2009):  $\chi^2$ , comparative fit index (CFI), Tucker and Lewis index (TLI), root mean squared error of approximation (RMSEA), and root mean squared residuals (RMSR) using conventional thresholds (Marsh, Hau, & Wen, 2004).

Third, internal consistency was evaluated using Cronbach's alpha coefficients. Finally, criterion validity was tested by exploring the correlation between victimization in childhood and the new factors of posttraumatic growth emerging from the PCA. Statistical Package for Social Science (SPSS) and R 3.6.2 were used to analyze the data.

## Results

### Descriptive statistics

The descriptive analysis of interpersonal victimization in childhood showed that 94.2% of participants experienced some form of victimization in more than one module of victimization ( $M = 3.71$ ,  $SD = 1.34$ ). «Conventional crimes» was the most prevalent form of victimization (92.2%), while «sexual victimization» (29.2%) was the least prevalent (see Table 1).

Descriptive analysis of the original factors of the PTGI showed that «new possibilities» presented the

largest mean score ( $M = 9.72$ ,  $SD = 9.17$ ), while «spiritual change» displayed the lowest mean score ( $M = .97$ ,  $SD = 1.99$ ). No significant differences were found between sexes ( $d$  values ranged from  $-.062$  to  $.159$ ) (see Table 2).

### Construct validity

We first tested sample adequacy for factor analysis, by means of the Bartlett's test of sphericity (Bartlett's  $\chi^2_{(210)} = 1.929.3$ ;  $p < .001$ ) and the KMO test (KMO = .93), showing that previous requirements were fulfilled. Four components emerged from the data through PCA as the best solution in a trade-off between parsimony and interpretability, which explained 56.20% of the total variance<sup>1</sup>. Fifteen out of the 21 items could be classified into one of the four new factors (see Table 3). New Factor I included items from the original factors «new possibilities» and «appreciation of life», and just one item from the original factor «relating to others». This new factor was named «new perception of life». Cronbach's alpha coefficients ranged from .89 for «new perception of life» (7 items) to .61 for «spiritual change» (2 items).

<sup>1</sup> A five-factor solution was also evaluated. It explained 73.38% of the variance, but after close inspection of the factor loadings, 10 out of 21 items could not be classified in any of the original factors because they did not meet the inclusion criteria.

Table 1. Descriptive statistics of the JVQ ( $n = 243$ )

	Percentage	$M$	$SD$	Median	25 pct	75 pct
C. Conventional crime	92.2%	7.39	6.92	6.00	2.00	10.00
M. Caregiver victimization	47.7%	2.58	3.81	0.00	0.00	4.25
P. Peer and sibling victimization	88.5%	6.46	5.02	5.00	2.00	10.00
S. Sexual victimization	29.2%	0.74	1.69	0.00	0.00	1.00
W. Witnessing and indirect victimization	83.1%	4.70	4.72	3.00	1.00	7.00
INT. Electronic victimization	30%	0.78	1.60	0.00	0.00	1.00

Table 2. Descriptive statistics of the original PTGI

Original PTGI factors	Total ( $n = 243$ ) $M (SD)$	Male ( $n = 73$ ) $M (SD)$	Female ( $n = 170$ ) $M (SD)$	$t$ (sig.)	Cohen's $d$
New possibilities	9.72 (9.17)	9.33 (8.93)	9.89 (9.25)	0.44 (.659)	-0.062
Relating to others	7.84 (7.79)	8.48 (7.97)	7.56 (7.72)	-0.84 (.402)	0.117
Personal strength	7.88 (6.40)	8.26 (6.39)	7.72 (6.42)	-0.61 (.546)	0.085
Spiritual change	0.97 (1.99)	1.11 (2.12)	0.91 (1.94)	-0.73 (.466)	0.100
New appreciation of life	4.80 (4.99)	5.07 (4.82)	4.28 (5.08)	-0.55 (.581)	0.159

Table 3. Loading of the four new factors of the Spanish PTGI with oblimin rotation

	Original factor	I	II	III	IV
<b>New factor I: New Perception of Life</b>					
14. New opportunities are available which wouldn't have been otherwise	NP	.818			
7. I established a new path for life	NP	.788			
2. I have a greater appreciation for the value of my own life	AL	.787			
1. I changed my priorities about what is important in life	AL	.771			
3. I developed new interests	NP	.755			
16. I put more effort into my relationships	RO	.684			
17. I am more likely to change things which need to be changed	NP	.544			
<b>New factor II: Personal Strength</b>					
10. I know better that I can handle difficulties	PS		.838		
19. I discovered that I'm stronger than I thought I was	PS		.757		
4. I have a greater feeling of self-reliance	PS		.708		
12. I'm better able to accept the way things work out	PS		.537		
<b>New factor III: Spiritual Change</b>					
18. I have a stronger religious faith	SC			.926	
5. I have a better understanding of spiritual matters	SC			.701	
<b>New factor IV: Relating to Others</b>					
21. I better accept needing others	RO				.656
15. I have more compassion for others	RO				.596
<b>Items failing to load differentially</b>					
11. I'm able to do better things with my life	NP	.448	.424		
9. I am more willing to express my emotions	RO		.452		
13. I can better appreciate each day	AL			.448	
20. I learned a great deal about how wonderful people are	RO			.424	.421
6. I more clearly see that I can count on people in times of trouble	RO		.473		.637
8. I have a greater sense of closeness with others	RO				.431
<b>Cronbach's alpha coefficient</b>		.89	.85	.61	.88

Note. RO = «relating to others», NP = «new possibilities», PS = «personal strength», SP = «spiritual change» and AL = «new appreciation of life»

Intercorrelations among the new factors (see Table 4) ranged from  $r = .28$  («relating to others» and «personal strength» with «spiritual change») to  $r = .56$  («new perception of life» and «personal strength»).

With respect to the confirmatory analyses, we fitted the original PTGI five factor model and we obtained a fair fit (see Table 5). We then fitted the model we obtained in the calibration (PCA) analysis and we found a better fit, as indicated per all goodness-of-fit measures, but especially relevant when we look at AIC which is lower in our alternative model. Factor loadings ranged between .54 and .94, but the majority

were between .75 and .85. This model is depicted in Figure 1.

Table 4. Intercorrelations between factors

New factors	NF I	NF II	NF III	NF IV
NF I: New perception of life	–			
NF II: Personal strength	.56	–		
NF III: Spiritual change	.35	.28	–	
NF IV: Relating to others	.41	.33	.28	–

Note. NF = «New Factor»



Table 5. Goodness-of-fit indices for the original and alternative factor structures

	c <sup>2</sup>	df	CFI	RMSEA	TLI	RMSR	AIC	BIC
Alternative model (4 factors)	151.88	84	.92	.08	.91	.06	6152.40	6253.34
Original model (5 factors)	339.47	179	.89	.09	.87	.07	8396.33	8542.14

Note: CFI = comparative fit index; TLI = Tucker and Lewis index; RMSEA=root mean squared error of approximation; RMSR=root mean squared residuals; AIC=Akaike’s Information Criteria; BIC=Bayesian Information Criteria.

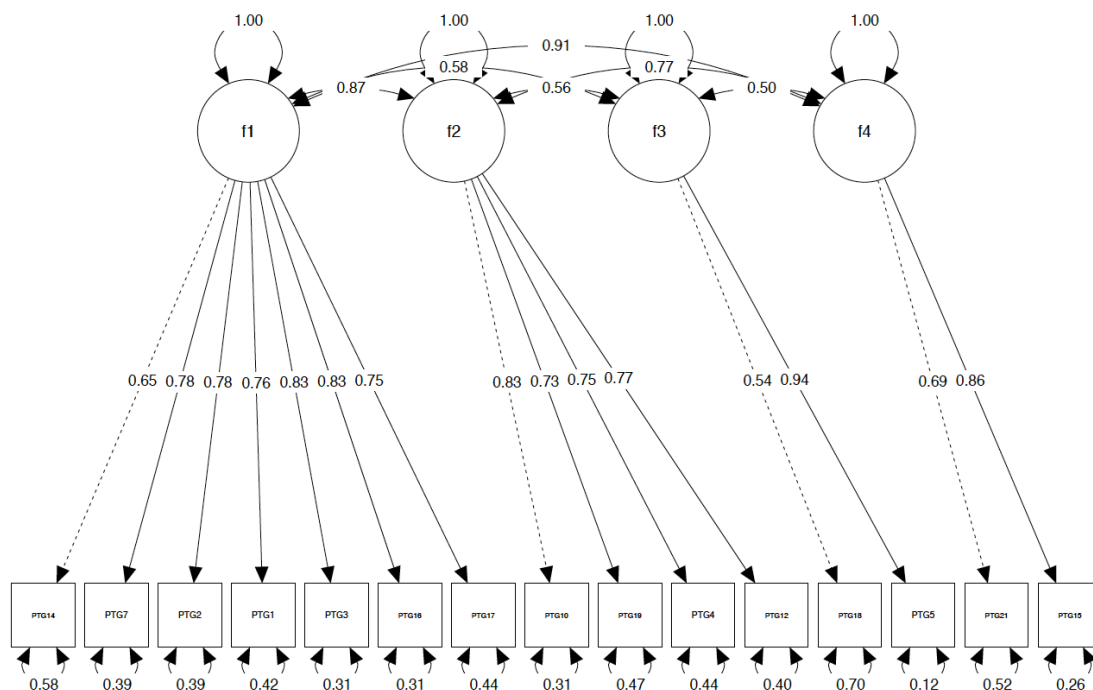


Figure 1. Factor structure of the PTGI alternative four factor model. f1 = New perception of life, f2 = Personal strength, f3 = Spiritual change, f4 = Relating to others

Criterion validity

The correlation analysis between the modules of victimization and posttraumatic growth showed that all modules presented significant and positive correlations with the new factors, with the exception of «sexual victimization» and «spiritual change» (see Table 6).

All modules of victimization strongly correlated with «new perception of life», especially «caregiver victimization» ( $r = .40$ ). «Sexual victimization» presented the weakest correlations with all posttraumatic growth factors (ranging from .06 to .21).

Discussion

This is the first study reporting the dimensionality of the PTGI in a Spanish sample of adults that suffered victimization in their childhood. Victimization patterns were similar to previous findings in the same context

Table 6. Correlations between the new factors of the PTGI and the different modules of interpersonal victimization

	NF I	NF II	NF III	NF IV
C. Conventional crime	.32**	.24**	.29**	.28**
M. Caregiver victimization	.40**	.23**	.18**	.35**
P. Peer and sibling victimization	.36**	.24**	.25**	.34**
S. Sexual victimization	.21**	.17**	.06	.17**
W. Witnessing and indirect victimization	.31**	.18**	.19**	.22**
INT. Electronic victimization	.24**	.19**	.13*	.19**

Note: NF = «New Factor» \*  $p < .05$ , \*\*  $p < .01$ .

(Pereda, Guilera, & Abad, 2014). Consistent with previous studies (e.g. Gottlieb, Still, & Newvy-Clark,

2007; Shakespeare-Finch & Dassel, 2009), the highest amount of growth was reported for «new possibilities», while the lowest amount of growth was observed for «spiritual change». The low result for «spiritual change» could be explained by the small number of items in this factor. This was noticed by the authors of the original PTGI, who revised and recently modified the «spiritual change» scale to address this issue (Tedeschi et al., 2017).

We did not find any significant differences between the genders. As a previous meta-analysis (Vishnevsky et al., 2010) found that women were more likely to report more posttraumatic growth as they grew older, our findings could be due to the age range of our sample. It is possible that more time is needed for posttraumatic growth to occur fully. It could also be that posttraumatic growth develops equally in males and females when it comes to violence (Barlow & Hetzel-Riggin, 2018).

#### *Construct validity*

Four out of the five original PTGI factors were replicated. Our results are consistent with those of studies using translated versions of the PTGI in Chinese (Ho et al., 2004), German (Maercker & Langner, 2001) and Japanese (Taku et al., 2008). Adapted items were grouped into factors in a similar way as in the original PTGI (Tedeschi & Calhoun, 1996). The factor «new perception of life» appeared to be a combination of two of the original factors («new possibilities» and «appreciation of life»). The structure obtained in this study explained around 60% of the total variance, slightly lower than the original English version (Tedeschi & Calhoun, 1996), but within the range of other adaptations (Ho et al., 2004; Jaarsma, Pool, Sanderman, & Ranchor, 2006). One important finding is that our alternative four factor shows a better fit to the data in the CFA. Interestingly, six items were difficult to place in factors according to the original criteria, although they were close to the thresholds. This deserves further investigation in cross-cultural research.

A comparison with previously published validations conducted in Spain revealed that our results were similar in factorial structure to those found in a sample of cancer patients (Costa-Requena and Gil-Moncayo, 2007). Studies conducted in Spain with HIV patients or parents of critically ill children reported a three-factor structure (Garrido et al., 2017; Rodríguez-Rey et al., 2016). Studies performed with Spanish versions of the instrument in non-clinical samples abroad also supported a three-factor structure (Leiva-Bianchi & Araneda, 2015; Weiss & Berger, 2006). The differences between those samples and ours may indicate that posttraumatic

growth in Spanish populations progresses differently depending on the type of trauma experienced, or that we found attenuated correlations due to range restriction.

#### *Internal consistency*

The four factors obtained in this study presented substantial internal consistency. Cronbach's alpha coefficients ranged from .61 to .89, and were comparable to those of the original PTGI, which ranged from .67 to .85 (Tedeschi & Calhoun, 1996), and to those of other Spanish validations of the instrument (Costa-Requena & Gil-Moncayo, 2007; Garrido et al., 2017).

#### *Criterion validity*

According to Tedeschi & Calhoun (2004), posttraumatic growth is a result of struggling with highly challenging life circumstances; the event must be stressful enough to shatter the cognitive schemes. As expected, we found positive correlations with posttraumatic growth for all forms of victimization, but the strength of these correlations varied among the types of victimization. «Caregiver victimization» and «peer and sibling victimization» correlated the most, with both forms of victimization perpetrated by someone close to the child. According to Finkelhor (2007), in these cases, the event is more stressful and involves a greater emotional component. Such a combination of both emotion and stress can promote the development of posttraumatic growth (Tedeschi & Calhoun, 2004). These findings are consistent with previous research showing a higher prevalence of posttraumatic growth when the perpetrator is someone close to the child (Lev-Wiesel, Amir, & Besser, 2005). However, despite being one of the most stressful forms of victimization (Finkelhor, Ormrod, & Turner, 2009), sexual victimization presented the lowest correlation with PTGI scores, suggesting that it is harder for these victims to grow after the trauma. This could be explained by the inverted-U relationship between the severity of the experience and the development of posttraumatic growth (Zoellner & Maercker, 2006).

Regarding the new factors emerging from the translated instrument, «new perception of life» presented the strongest correlation with all types of victimization. Some studies support the idea that changing the perception of one's life and considering the traumatic event as a turning point are determinant factors for posttraumatic growth (Wright, Crawford, & Sebastian, 2007). «New perception of life» probably best describes these aspects, which could explain their high correlation.

Finally, one issue that should be considered in the future should be addressing measurement issues related to the PTGI. So far, even though there have been some explicit calls to this issue (Ho, 2015), there is no research that addresses whether the meaning of the items is the same in different cultures. To this end, only narrative, but insightful reviews of -emic approaches have been published (Vázquez, Pérez-Sales, & Ochoa, 2014). Thus, it is important to adapt and validate this questionnaire to non-clinical samples.

#### *Limitations of the study*

This study had some methodological limitations. First, university students do not represent the whole society as their sociodemographic characteristics and mean age differ from those of the general population. Nevertheless, some studies consider that such differences are not significant (Wiecko, 2010), meaning that university students form a relatively homogeneous group that can better remember the experiences they suffered in their childhood and adolescence compared to other groups (Henry, Moffitt, Caspi, Langley, & Silva, 1994). Another limitation of the study sample was the overrepresentation of female participants. While this is a reflection of Spanish university trends (Hernández & Pérez, 2017), it also means that some sex differences may not have been identified. Further research is needed to test the psychometric properties of the PTGI by looking for differences between male and female participants.

#### *Practice implications*

Studies identifying psychological, personal, and social factors as promoters of personal growth in adults who have experienced childhood violence are scarce. More research is needed to equip professionals with specific and reliable knowledge that could help provide tailored treatment to victims to promote posttraumatic growth. Importantly, pre- and post-treatment PTGI measures may test the efficacy of these therapies. This would improve treatment programs and, most notably, the therapy that victims receive after a traumatic event.

Researchers in the area of violence and trauma should consider measuring posttraumatic growth routinely along with the usual negative outcomes when studying survivors of traumatic events. This would yield relevant data to help fully understand recovery and more accurately portray the experiences of those whose wounds are evident, but whose wisdom and contributions to social change have too often gone unrecognized (Calhoun & Tedeschi, 1999).

#### *Conclusions*

In conclusion, the Spanish PTGI is a valid and reliable instrument for measuring posttraumatic growth in adults who have experienced childhood victimization, with a four-factor structure suitable for this population. While victims of sexual violence may find it harder to grow after trauma, our findings suggest that victims of all types of childhood victimization have the potential to experience growth after interpersonal violence.

#### **Conflict of interest**

The authors have no conflicts of interest to declare.

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