# Individual and Collective Posttraumatic Growth in Victims of Natural Disasters

## A Multidimensional Perspective

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# Individual and Collective Posttraumatic Growth in Victims of Natural Disasters: A Multidimensional Perspective

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**ABSTRACT**

This study set out to incorporate the collective dimensions of posttraumatic growth and examined the construct and predictive validity of *The Individual and Collective Posttraumatic Growth Scale (ICPTGS)*. Participants were 332 volunteers who had experienced the earthquake on February 27, 2010, in Chile. Analysis allowed us to confirm a multidimensional structure composed of four dimensions: individual, spiritual, *communal growth, and societal growth*. Additionally, we identified association among ICPTGS, perceived emotional impact, and social well-being. This study emphasizes that positive changes resulting from the exposure to collective disasters can be perceived also at the collective or community level.

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Recent trauma literature showed that about two-thirds of people exposed to stressful events report positive personal and social-life changes (Helgeson, Reynolds, & Tomich, 2006; Prati & Pietrantoni, 2009). When the primary emotional response to a traumatic event is highly intense and negative and the traumatic event has been strong enough to challenge the basics beliefs of the victim, the experience could result in a positive reevaluation, namely posttraumatic growth (PTG; Tedeschi & Calhoun, 1996, 2004). Helgeson et al. (2006) suggested that posttraumatic growth is related to a decrease of distress and increase of well-being, especially as time passes (Zoellner & Maercker, 2006). Furthermore, Tedeschi and Calhoun (2004) identified five domains of PTG: relating to others and a greater sense of closeness, personal strength and increased self-reliance, new possibilities, spiritual change, and appreciation of life.

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This study explores the processes of PTG in the context of natural disaster; we propose a broader understanding of growth processes. Hence, we assess also individuals' perceptions of benefits for their community and society in the aftermath of trauma.

## Collective behavior in natural disasters

Natural disasters are events that affect a community or group, and are not attributable to human agents. Although natural disasters involve a community in a specific geographical location, their consequences often extend to other areas and provoke negative effects on well-being and mental health (e.g., posttraumatic stress disorder, PTSD) even among those who were not exposed to direct threat (Smith et al., 2014). Recent studies have pointed out that social relations and community interactions are an important predictor of reparation and of successful coping in the wake of a disaster (Bonanno, Brewin, Kaniasty, & La Greca, 2010; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008; Villagrán, Reyes, Wlodarczyk, & Páez, 2014; Wlodarczyk et al., 2016a). Thus, collective coping strategies, such as requesting and receiving help from friends, family, or government, social sharing, or participation in rituals and spiritual practices were acknowledged as potentially beneficial (Rhodes & Tran, 2012). Therefore, it is important to identify the processes associated with adaptive coping and perception of potential benefits for individuals (Tedeschi & Calhoun, 2004), but also for communities and a broader society (Poulin, Silver, Gil-Rivas, Holman, & McIntosh, 2009).

## Collectivistic culture, spirituality, and PTG

Importantly, culture may be one of the important determinants of PTG processes and their meanings (Helgeson et al., 2006; Weiss & Berger, 2006). However, recent studies have discussed the possibility of cultural differences in the PTG experiences and the subjective ratings of the indicators of PTG between individuals from individualistic and collectivistic cultures (Splevins, Cohen, Bowley, & Joseph, 2010). The five domains of PTG were generally found in Western, individualistic, and developed countries with an emphasis on self-determination and independence so that people give more importance to intrapersonal emotional experience (Linley, Andrews, & Joseph, 2007; Taku, Cann, Calhoun, & Tedeschi, 2008). Furthermore, it has been found that the religious-spiritual dimension of PTG is more pronounced in faith-based Latin or African cultures than in Asian and Western societies (Páez, Vázquez, & Echeburúa, 2013; Wlodarczyk et al., 2016b). The religious or spiritual beliefs represent a framework of help for later reappraisal of the traumatic event, and they can be useful in people's psychological recovery and growth (Helgeson et al., 2006; Prati & Pietrantoni, 2009; Show, Joseph, & Linley, 2005).

## Collective PTG: Communal and societal dimension

In cases of collective trauma and in cultures that emphasize collectivistic values, growth can also be perceived at a communal and societal level. As proposed by Páez et al. (2013, p. 18), collective posttraumatic growth is defined "as benefits perceived in the community and society as a response to collective trauma experiences. It is a process of community learning reflected in collective emotions, emotional climate, beliefs, values and social behaviors." Examples of communal and social benefits include increased family closeness, social support, empathy, prosocial behavior and, in the case of collective trauma, increased community cohesion in different cultural contexts (Poulin et al., 2009). In collectivistic cultures, such as that of Guatemala, research has found that collective massacres of the Mayan population genocide promoted more forms of social mobilization and social cohesion, in which the spiritual change was the most important dimension of PTG (Gasparre, Bosco, & Bellelli, 2010).

In the present study, it was proposed that natural disasters, despite obvious negative aspects, are events that, by fostering emotionally charged interaction among the affected ones, may potentially result in intensified perception of communal and societal growth. The first objective was to evaluate the perception of many positive changes and examine the factor structure of the scale of individual and collective posttraumatic growth (ICPTGS), in a collectivist cultural context. Thus, we set out to determine whether the five original factors of PTGI are differentiated from one another or collapse into one individual dimension, and also whether there emerge dimensions of communal change and another dimension of more general societal change. Second, we were interested in testing criterion validity of the proposed instrument. Explicitly, we expected that different dimensions of PTG would be associated with trauma intensity and social well-being (Helgeson et al., 2006; Wlodarczyk et al., 2016a, 2016b).



## Method

### *Participants*

Participants in the study were 332 volunteers who had personally experienced the devastating earthquake of 8.8 degrees on the Richter scale that rocked the western coast of Chile on February 27, 2010. They were students from two universities of Concepción, and were residents of different localities spread among the Bío Bío region, which was that most severely affected by the earthquake. The sample was made up of 225 women and 103 men, with an age range of 18 to 30 ($M = 19.82$, $SD = 1.95$). About 57% of participants reported personal or family property being damaged or destroyed as a result of the earthquake.

## Measures

### Trauma intensity

Emotional impact of the traumatic episode was assessed by three items: (a) "Overall, how stressful or traumatic was the earthquake-tsunami situation for you?" (b) "How intense was the experience for you?" (c) "To what extent did it cause you anxiety?". The response scale ranged from 1 (*not at all*) to 7 (*a lot*). A single factor was yielded by an exploratory factor analysis. Reliability of this scale was excellent ($\alpha = .87$). A mean score of the three items was calculated ($M = 4.23$, $SD = 1.57$), a lower score indicating less emotional impact of the traumatic event.

### Social well-being

A total of 15 items from the short Spanish version of the Social Well-Being Scale (Bobowik, Basabe, & Páez, 2015) ranging from 1 (*completely disagree*) to 5 (*fully agree*) were used to assess five dimensions of participants' SWB: social contribution ($\alpha = .78$), social integration ($\alpha = .60$), social actualization ($\alpha = .76$), social acceptance ($\alpha = .58$), and social coherence ($\alpha = .57$). Each subscale consisted of three items. Satisfactory reliability was obtained for the whole scale ($\alpha = .77$).

### Individual and collective posttraumatic growth scale (ICPTGS)

A 19-item scale was administrated in order to measure PTG after a traumatic event such as the earthquake on three different levels: (a) personal level (personal growth: dimensions of appreciation of life, new possibilities, personal strength, relationships with others, and spiritual growth), (b) group level (communal growth), and (c) societal or sociopolitical level (collective or societal growth; see Appendix 1). In order to assess personal growth, we used 10 items from a Short Form of Posttraumatic Growth Inventory (PTGI-SF; Cann et al., 2010). To assess communal growth, we included four items referring to an individual's perception of improved intragroup cohesion, empathy, and group strength. Finally, in order to measure individual perception of societal growth, we used five items referring to positive changes in cultural values in response to a collective catastrophe (Wlodarczyk et al., 2016b). Response options ranged from 0 (*not at all*) to 4 (*very great degree*). Overall reliability of this version of the ICPTGS was very good ($\alpha = .92$).

## Procedure

Accessibility sampling was used, trying to balance the sample by sex and socioeconomic status. Having previously talked to the lecturers and obtained their consent, questionnaires were distributed to the students in various sessions during September 2012. Written informed consents were obtained

from all study participants. The registered data was alphanumerically coded, ensuring anonymity. Participants were asked to respond to all the measures in relation to their experience of the earthquake in February 2010.

### Data analysis

Confirmatory factor analyses (CFA) was conducted using MPlus 6.11. The models tested included a model with seven correlated factors reflecting the five subscales measured by the original PTGI and additional communal and societal factors (Model A), a three-factor model (Model B), and an alternative four-factor model (Model C). Structural equation modeling (SEM) was used to determine the relation between PTG and indicators of perceived emotional impact and well-being.

## Results

### Confirmatory factor analysis

We first tested a seven-factor solution based on five personal growth dimensions and two additional dimensions of communal and societal PTG (Model A). The results revealed that this model returned admissible CFI values but relatively poor TLI and RMSEA values (see Table 1). In addition, it should be noted that the poor and inconsistent model fit was likely attributable to the extremely large interfactor correlations (ranging from .72 to .96), especially between the factors representing dimensions of New Possibilities, Relations With Others, Appreciation of Life, and Personal Strength (see Table 2).

These high correlations question the discriminate validity of the original five-factor PTGI model, suggesting that the original factors could collapse into one personal dimension. Taking these criteria into account, in the next step we performed a CFA with three latent dimensions: individual, communal, and societal PTG (Model B). As can be seen in Table 1, the fit indexes obtained for Model B were rather poor. Two items corresponding to spiritual

**Table 1.** Fit indices for confirmatory factor analyses of alternative ICPTGS models.

| | $\chi^2$ | *df* | CFI | TLI | RMSEA | 90% CI of RMSEA |
|---|---|---|---|---|---|---|
| A | 407.089* | 134 | .920 | .898 | .078 | .070, .087 |
| B | 509.984* | 149 | .894 | .879 | .085 | .077, .094 |
| C | 406.290* | 146 | .924 | .911 | .073 | .065, .082 |
| D | 310.449* | 143 | .951 | .941 | .059 | .050, .068 |

*Note.* *$p < .01$. $N = 332$. ICPTGS = Individual and Collective Posttraumatic Growth Inventory. Model A = 7-first-order-correlated-factor model; Model B = 3-first-order-correlated-factor model; Model C = 4-first-order-correlated-factor model; Model D = modified 4-first-order-correlated-factor model; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Squared Error of Approximation; 90% CI confidence interval of RMSEA = 90%.

**Table 2.** Means, standard deviations, reliabilities, and correlations between dimensions of ICPTG.

| | *M* | *SD* | *α* | NP | PS | RO | SC | CG | SG |
|---|---|---|---|---|---|---|---|---|---|
| AL (D5) | 2.76 | 1.04 | .73 | .94** | .72** | .95** | .66** | .69** | .37** |
| NP (D2) | 2.62 | 1.03 | .77 | | .85** | .96** | .81** | .71** | .48** |
| PS (D3) | 2.85 | 0.96 | .71 | | | .91** | .58** | .70** | .40** |
| RO (D1) | 2.80 | 0.94 | .63 | | | | .66** | .91** | .45** |
| IG (D1 + D2 + D3 + D5) | 2.75 | 0.85 | .89 | | | | .68** | .76** | .47** |
| SC (D4) | 2.22 | 1.18 | .84 | | | | | .53** | .41** |
| CG (D6) | 2.66 | 0.95 | .84 | | | | | | .46** |
| SG (D7) | 2.09 | 1.09 | .88 | | | | | | |

*Note*: **$p < .001$. AL = Appreciation of Life, NP = New Possibilities, PS = Personal Strength, RO = Relating to Others, IG = Individual Growth, SC = Spiritual Change, CG = Communal Growth, SG = Societal Growth.

growth dimension showed relatively lower loadings on the latent structure of personal growth factor, and the modification indices indicated high association between those two items. These results inspired an alternative four-factor solution (Model C), composed of individual, spiritual, communal, and societal growth factors. The fit indexes CFI, TLI, and the RMSEA were more satisfactory for Model C. ΔCFI value of Models A and C, and B and C, was in both cases greater than 0.01, which suggests that Model C fits the data better. Nevertheless, given that the fit of Model C was slightly lower than desired for the RMSEA, we respecified the model based on both the statistical (modification indices) and theoretical grounds. In the first step, item 6 belonging to the original dimension of New Possibilities was also allowed to load on the Spiritual Growth dimension. ΔCFI =.016 indicated a significant improvement of the model. Furthermore, item 10, corresponding to the original dimension of Relations with Others, was allowed to cross-load on the Communal Growth dimension (ΔCFI =.013). The final respecified four-factor solution (Figure 1) showed an improvement in the model parameters, and all fit indexes were within the expected range (see Table 2).



### *Structural equation modeling*

Once the ICPTG structure was determined, we examined its association with trauma intensity and different dimensions of social well-being. First, we estimated a model in which trauma intensity (perceived stress, level of intensity, and anxiety felt as a consequence of the experience) was set as a predictor of ICPTG. The proposed model obtained an adequate fit ($\chi^2[196, N = 332] = 401.834$, $p < .001$; CFI = 0.948; TLI = 0.939; RMSEA = 0.056 (90% CI [.048, .064]). As the results showed, trauma intensity was associated with more Individual, Communal, and Societal Growth, but the relation did not reached significance in the case of Spiritual Growth (Figure 2).

Finally, to confirm the positive relation between ICPTG and Social Well-Being, we estimated a model considering the four dimensions of ICPTG as predictors of different dimensions of Social Well-Being (Figure 3). Again, a

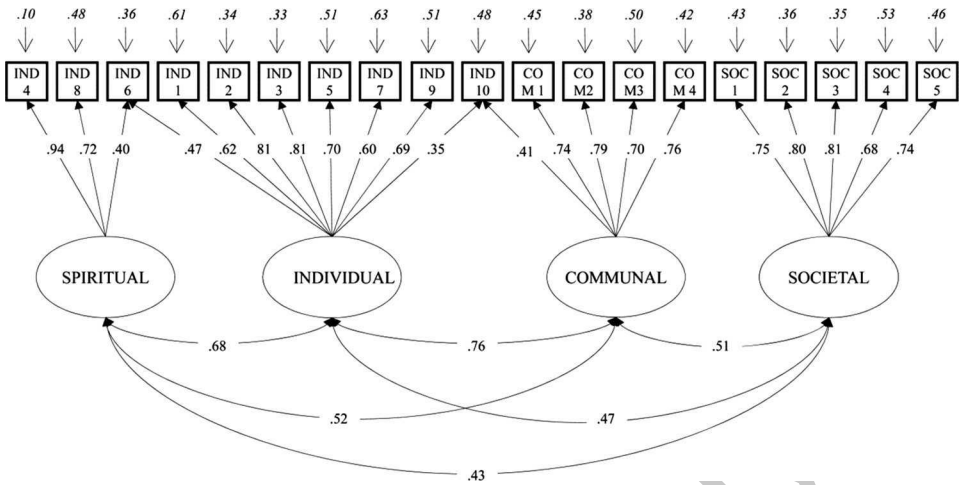


**Figure 1.** Confirmatory factor analysis of the multidimensional model of the Individual and Collective Posttraumatic Growth Scale (ICPTGS). *Note*: Path coefficients are standardized estimates. Significant covariances between latent factors are shown by double-arrowed solid lines. Standardized residual variances for each item are also shown in italics. All the regression coefficients are significant at the .05 level.

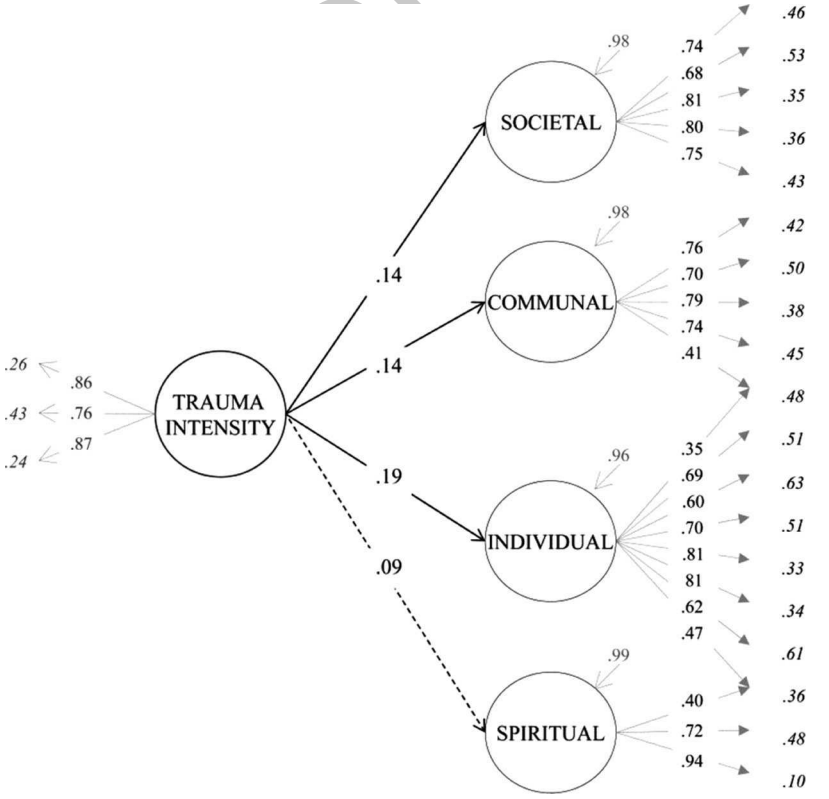


**Figure 2.** Relation between trauma intensity and ICPTG.

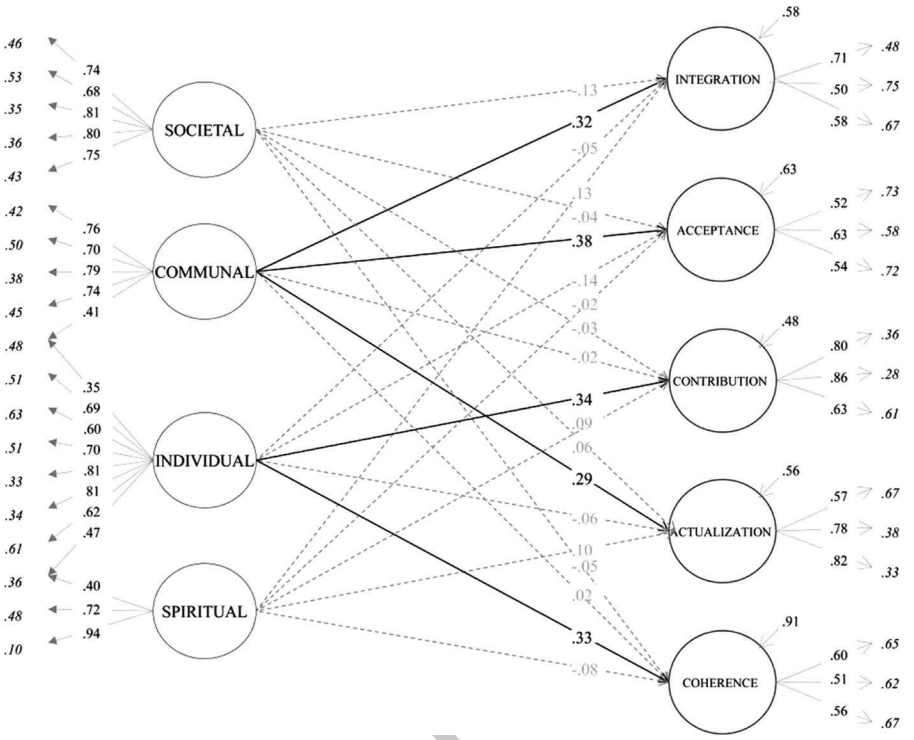


**Figure 3.** Relation between ICPTG and different dimensions of social well-being.

satisfactory fit to the data was obtained, $\chi^2(488, N = 332) = 781.130$, $p < .001$; CFI = 0.937; TLI = 0.928; RMSEA = 0.043 (90% CI [.037, .048]). It could be expected that communal and societal PTG should have stronger association with social well-being than individual growth. Also the dimension of communal and societal PTG should have strong associations with social actualization, acceptance, and social integration that tap a positive view of social evolution, the attitude toward and perception of the positive social milieu in which persons could belong. On the other hand, spiritual change should be more related to social coherence or sense of a meaningful society. Although relations between Spiritual and Societal Growth and different dimensions of Social Well-Being did not reached statistical significance, Communal Growth was shown to be specifically related to the dimensions of integration, acceptance, and actualization as expected, whether it was Individual Growth was related to dimensions of contribution and coherence. Q3

## Discussion

Our core hypothesis was that PTG individuals would perceive not only personal and spiritual growth, but also greater group-communal strength and social benefits in the aftermath of collective trauma. The present study

described an instrument designed to assess such factors in the context of a collective traumatic event, in this case a natural disaster. The results revealed a four-dimensional structure of The Individual and Collective PTG Scale (ICPTGS), made up of an intra- and interpersonal growth factor (composed of four of the five original dimensions of the PTG; Tedeschi & Calhoun, 1996), a second, spiritual factor linked to traditionalism and cultural collectivism (Show et al., 2005), and two group-level factors, communal growth and societal or sociopolitical participation (societal growth; Bonanno et al., 2010; Rhodes & Tran, 2012).

ICPTGS shows that stressful and traumatic events generate effects in an individual growth dimension (Tedeschi & Calhoun, 1996). Likewise, the CFA validates two less well-explored dimensions of growth—a community-microsocial factor and a societal-macrosocial one—giving rise to a model with a seven-factor solution. However, taking into account relatively poor fit obtained for this model and large interfactor correlations between the four factors representing intra- and interpersonal growth, we opted for a four-factor model, since it better reflects the multilevel structure we suggested. Moreover, our results confirmed that the best-fitting model was the modified four-first-order-correlated-factor model (Model D). It is noteworthy that, apart from communal and societal dimensions, the results suggested a single personal growth factor underlying four of the PTGI original factors and a separate spiritual growth factor. These findings are consistent with previous studies analyzing a Chilean sample (García & Wlodarczyk, 2016).

Overall, individual, spiritual, and communal dimensions showed high consistency and criteria validity. The concurrent validity analysis showed that trauma intensity is related to intensification of posttraumatic growth, especially at individual and communal levels. In addition, we confirmed that different dimensions of ICPTGS are associated to specific aspects of social well-being. Whether individual growth enhanced feelings of contribution and coherence, communal growth was linked to more "relational" aspects of social well-being, such as integration, acceptance, and actualization.

Therefore, the results confirmed that, within the context of natural disasters, the perceptions of change within oneself and within a group may have different psychosocial implications. Only the societal dimension showed lower construct validity. It is likely that growth is produced more readily in microsocial networks, in this case groups, families, or neighborhoods, and above all on the basis of a more emotional appraisal of growth, since processes of positive adjustment can be observed in the immediate environment. Splevins et al. (2010) concluded that the concept of PTG was probably universally acceptable, and that possible cultural differences were related to how a traumatic event is understood and the extent to which growth responses are accepted. In the present case, we propose that in collectivistic cultures like Latin American culture, and particularly in Chile (Hofstede, 1980), people are more likely to

perceive communal and societal changes as they share more collectivistic values (Weiss & Berger, 2006). Interestingly, some recent research conducted in Chilean population affected by natural disasters has suggested that the perception of personal change is clearly differentiated from the perception of spiritual change and the appreciation of relations with others (see García & Wlodarczyk, 2016). A similar structure is replicated in our findings, suggesting that, in this particular context, more self-oriented facets of PTG could be collapsed into a global personal dimension. However, negative spiritual coping could erode well-being, and religious dogmatism and moralist could be unhelpful (Pargament, Smith, Koenig, & Perez, 1998). Therefore, it is not surprising that spiritual changes do not always lead to PTG.

### Limitations and future research

The measurement proposal of the *ICPTGS* does not respond to all the questions in relation to how growth occurs in people. One unanswered question refers to whether the original PTG scale measures real growth or illusionary growth (Helgeson et al., 2006). In the present case we have used, like the majority of studies measuring PTG, a subjective measure that leaves unresolved the question of what the participants are considering as growth in the wake of a traumatic event. Future studies addressing the subject of collective traumatic events should strive to identify the conditions and coping strategies that could foster the recovery and develop the perception of growth, not only among individuals, but also regarding their communities and societies.

A second limitation is the inclusion of convenience samples. The participants in the study were indeed exposed to the earthquake of 8.8 degrees on the Richter scale, but they were mostly students, which reduces the level of representativeness. In this regard, though, future research should prioritize the study of growth responses in more heterogeneous samples, which would take account of variables such as age, sex, socioeconomic status, educational level, cultural context, and level of exposure to disasters. Likewise, the current study used mainly cross-sectional self-report measures. The incorporation of other methods, such as behavioral measures or longitudinal studies, which take account aspects such as changes in lifestyle or health-related habits, would help to clarify not only the difference between real and perceived growth but also the question of lack of validity in reports about personal change that are not clarified by self-report measures. Furthermore, future studies should assess growth at multiple points in time (Cann et al., 2010) in order to evaluate temporal stability of the measure and the dynamics of positive and negative changes over time.

The contribution of the ICPTGS is that it makes possible the consideration of some less commonly explored aspects, such as community, collective, and cultural factors of growth. We consider that it is an instrument with good

psychometric properties that can contribute to the progress in the study of growth, especially in relation to events that generate collective trauma, such as natural disasters, and possibly also in contexts of violence and humanitarian catastrophes. Furthermore, our findings provide initial evidence that support the need to examine cultural, communitarian, and societal aspects of growth in the context of different disasters (e.g., earthquakes, floods, hurricanes) and among different populations, in order to generate knowledge that could effectively guide community interventions and reparation processes.

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## References


Bobowik, M., Basabe, N, & Páez, D. (2015). The bright side of migration: Hedonic, psychological, and social well-being in immigrants in Spain. *Social Science Research*, *51*, 189–204. doi:10.1016/j.ssresearch.2014.09.011

Bonanno, G., Brewin, C., Kaniasty, K., & La Greca, A. (2010). Weighing the cost of disaster: Consequences, risks, and resilience in individuals, families and communities. *Psychological Science*, *11*(1), 1–49. doi:10.1177/1529100610387086

Cann, A., Calhoun, L., Tedeschi, R., Taku, K., Vishnevsky, T., Triplett, K., & Danhauer, S. (2010). A short form of the Posttraumatic Growth Inventory. *Anxiety, Stress, and Coping*, *23*, 127–137. doi:10.1080/10615800903094273

García, F. E., & Wlodarczyk, A. (2016). Psychometric properties of the Posttraumatic Growth Inventory–Short Form among Chilean adults. *Journal of Loss and Trauma, International Perspectives on Stress & Coping*, *21*, 303–314. doi:10.1080/15325024.2015.1108788

Gasparre, A., Bosco, S., & Bellelli, G. (2010). Cognitive and social consequences of participation in social rites: Collective coping, social support, and post-traumatic growth in the victims of Guatemala genocide. *International Review of Social Psychology*, *25*(1), 35–46.

Helgeson, V. S., Reynolds, K., & Tomich, P. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology*, *5*, 797–816. doi:10.1037/0022-006X.74.5.797

Hofstede, G. (1980). *Culture's consequences: International differences in work-related value*. Beverly Hills, CA: Sage.

Keyes, C. (1998). Social well-being. *Social Psychology Quarterly*, *61*, 121–140. doi:10.2307/2787065 Q6

Linley, P. A., Andrews, L., & Joseph, S. (2007). Confirmatory factor analysis of the Posttraumatic Growth Inventory. *Journal of Loss and Trauma*, *12*(4), 321–332. doi:10.1080/15325020601162823

Norris, F., Stevens, S., Pfefferbaum, B., Wyche, K., & Pfefferbaum, R. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, *41*, 127–150. doi:10.1007/s10464-007-9156-6

ÒRourke, J., Tallman, B., & Altmaier, E. (2008). Measuring post-traumatic changes in spirituality/religiosity. *Mental Health, Religion & Culture*, *11*(7), 719–728. doi:10.1080/13674670801993336 Q7

Páez, D., Vázquez, C., & Echeburúa, E. (2013). Trauma social, afrontamiento comunitario y crecimiento postraumático colectivo [Social trauma, community coping and collective posttraumatic growth]. In M. J. Carrasco & B. Charro (Eds.), *Crisis, vulnerabilidad y superación [Crisis, vulnerability and growth]*. Madrid, Spain: Eds. Universidad de Comillas.

Pargament, K. I., Smith, B. W., Koenig, H. G., & Perez, L. (1998). Patterns of positive and negative religious coping with major life stressors. *Journal for the Scientific Study of Religion*, *37*, 710–724. doi:10.2307/1388152

Park, C., Cohen, L., & Murch, R. (1996). Assessment and predictions of stress related growth. *Journal of Personality*, *64*, 71–105. doi:10.1111/j.1467-6494.1996.tb00815.x Q8

Poulin, M. J., Silver, R. C., Gil-Rivas, V., Holman, E. A., & McIntosh, D. N. (2009). Finding social benefits after a collective trauma: Perceiving societal changes and well-being following 9/11. *Journal of Traumatic Stress*, *22*, 81–90. doi:10.1002/jts.20391

Prati, G., & Pietrantoni, L. (2009). Optimism, social support, and coping strategies as factors contributing to posttraumatic growth: A meta-analysis. *Journal of Loss and Trauma*, *14*, 364–388. doi:10.1080/15325020902724271

Rhodes, A., & Tran, T. (2012). Predictors of posttraumatic stress and growth among black and white survivors of Hurricane Katrina: Does perceived quality of the governmental response matter? *Race and Social Problems*, *4*(3–4), 144–157. doi:10.1007/s12552-012-9074-6

Show, A., Joseph, S., & Linley, A. (2005). Religion, spirituality and posttraumatic growth: A systematic review. *Mental Health, Religion and Culture*, *8*(1), 1–11. doi:10.1080/1367467032000157981

Smith, L. E., Bernal, D. R., Schwartz, B. S., Whitt, C. L., Christman, S. T., Donnelly, S., … Kobetz, E. (2014). Coping with vicarious trauma in the aftermath of a natural disaster. *Journal of Multicultural Counseling and Development*, *42*, 2–12. doi:10.1002/j.2161-1912.2014.0040.x

Splevins, K., Cohen, K., Bowley, J., & Joseph, S. (2010). Theories of posttraumatic growth: Cross-cultural perspectives. *Journal of Loss and Trauma*, *15*, 259–277. doi:10.1080/15325020903382111

Taku, K., Cann, A., Calhoun, L. G., & Tedeschi, R. G. (2008). The factor structure of the Posttraumatic Growth Inventory: A comparison of five models using confirmatory factor analysis. *Journal of Traumatic Stress*, *21*, 158–164. doi:10.1002/jts.20305

Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry*, *15*, 1–18. doi:10.1207/s15327965pli1501_01

Triplett, K., Tedeschi, R. G., Cann, A., Calhoun, L. G., & Reeve, C. (2012). Posttraumatic growth, meaning in life, and life satisfaction in response to trauma. *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*(4), 400–410. doi:10.1037/a0024204 Q9

Villagrán, L., Reyes, C., Wlodarczyk, A., & Páez, D. (2014). Communal coping, collective posttraumatic growth and social well-being in context earthquake in Chile on 27th of February, 2010. *Terapia Psicológica*, *32*(3), 243–254. doi:10.4067/S0718-48082014000300007

Weiss, T., & Berger, R. (2006). Reliability and validity of a Spanish version of the Posttraumatic Growth Inventory. *Research on Social Work*, *16*, 191–199. doi:10.1177/1049731505281374

Wlodarczyk, A., Basabe, N., Páez, D., Amutio, A., García, F., Villagrán, L., & Reyes, C. (2016a). Positive effects of communal coping in the aftermath of a collective trauma: The case of the 2010 Chilean earthquake. *European Journal of Education and Psychology*, *9*(1), 9–19. doi:10.1016/j.ejeps.2015.08.001

Wlodarczyk, A., Basabe, N., Páez, D., Reyes, C., Villagran, L., Madariaga, C., … Martínez, F. (2016b). Communal coping and posttraumatic growth in a context of natural disasters in Spain, Chile and Colombia. *Cross-Cultural Research*, *50*(4), 325–355. doi:10.1177/1069397116663857

Zoellner, T., & Maercker, A. (2006). Posttraumatic growth in clinical psychology. *Clinical Psychology Review*, *26*, 626–653. doi:10.1016/j.cpr.2006.01.008

## Appendix 1. Spanish and english version of the ICPTG

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| Item | Dim |
|---|---|
| 1. I changed my priorities about what is important in life [He cambiado mis prioridades sobre lo que es importante en la vida.] | AL |
| 2. I have a greater appreciation for the value of my own life. [Aprecio más el valor de mi vida.] | AL |
| 3. I am able to do better things with my life. [Me siento capaz de hacer cosas mejores en mi vida.] | NP |
| 4. I have a better understanding of spiritual matters. [Tengo una mejor comprensión de algunas cuestiones o creencias espirituales.] | SC |
| 5. I have a greater sense of closeness with others. [Siento un mayor sentido de proximidad con las demás personas.] | RO |
| 6. I established a new path for my life. [He construido un nuevo rumbo de vida.] | NP |
| 7. I know better that I can handle difficulties. [Siento que puedo manejar mejor las dificultades.] | PS |
| 8. I have a stronger religious faith. [Tengo más fe religiosa.] | SC |
| 9. I discovered that I'm stronger than I thought I was. [He descubierto que soy más fuerte de lo que pensaba.] | PS |
| 10. I learned a great deal about how wonderful people are. [He aprendido lo maravillosas que son las personas.] | RO |
| 11. We discovered that our community, group, family was stronger than we thought. [Descubrimos que nuestra comunidad, grupo, familia era más fuerte de lo que pensábamos.] | CG |
| 12. The community, group, family became more compassionate and prepared to help. [La comunidad, grupo, familia se hizo más compasiva y dispuesta a ayudar.] | CG |
| 13. The community, group, family has created contexts for talking about what happened and what we felt. [La comunidad, grupo, familia ha creado instancias para hablar de lo que pasó y de lo que sentimos.] | CG |
| 14. My community, group, family began to express more openly its opinions and ways of thinking. [Mi comunidad, grupo, familia empezó a expresar su opinión, su forma de pensar más abiertamente.] | CG |
| 15. Awareness about violations of human rights in this country has been raised. [Se reforzó la sensibilidad hacia violaciones de derechos humanos en este país.] | SG |
| 16. Support for justice for all and against impunity in this country has been reinforced. [Se reforzó el apoyo a justicia para todos y la impunidad en este país.] | SG |
| 17. Support for freedom of expression and the acceptance of differences has been reinforced. [Se reforzó apoyo a libertad de opinión y aceptación de diferencias.] | SG |
| 18. Rejection of violence as a form of repression and political action has increased. [Ha aumentado el rechazo a la violencia como forma de represión y acción política.] | SG |
| 19. Political and ethical participation and commitment in this country have increased. [Ha aumentado la participación y los compromisos políticos y éticos en el país.] | SG |

*Note*. Items from 1 to 10 correspond to Short Form of Posttraumatic Growth Inventory (PTGI-SF; Cann et al., 2010) and were used by permission of the authors.

AL = Appreciation of Life; NP = New Possibilities; SC = Spiritual Change; RO = Relating to Others; PS = Personal Strength; CG = Communal growth; SG = Societal growth.