

Posttraumatic growth – Polish adaptation of the short form of the Posttraumatic Growth Inventory

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Abstract

Aim of the study. The most widely used instrument for assessing positive psychological changes following trauma is the 21-item Posttraumatic Growth Inventory (PTGI), developed by Tedeschi and Calhoun in 1996. A Polish adaptation has been available since 2010. In 2010, Cann and colleagues introduced the short form (PTGI-SF). This study aimed to describe the psychometric properties of the Polish PTGI-SF.

Subject or material and methods. The analyses included data from 1,004 individuals exposed directly or indirectly to various traumatic events. All participants completed the 10-item PTGI-SF. To assess validity, selected groups also completed the PCL-5, CPOTS, ERRI, CBI, RMS-25 and SDQ.

Results. The inventory demonstrated high reliability, comparable to that of the full Polish version and the original instrument. Exploratory analysis identified a four-factor structure, consistent with the full Polish version, accounting for 75.71% of the total variance. Sten norms were established separately for men and women.

Discussion. Most studies using the PTGI focus on the total score; in these settings, the short form can provide a suitable alternative. When the aim is to examine and compare specific components of posttraumatic growth, the full PTGI is preferable.

Conclusions. The Polish PTGI-SF provides a reliable total score and is easy to administer in clinical and research settings.

Posttraumatic Growth Inventory, Polish adaptation, psychometric properties

INTRODUCTION

Characteristics of posttraumatic growth

Despite thirty years of research, the phenomenon of positive posttraumatic changes, manifested as posttraumatic growth (PTG), continues to attract considerable scientific interest. Over the

past decade, research in the area has expanded to include secondary/vicarious posttraumatic growth (SPTG/VPTG), reflecting the growing focus on the mental well-being of workers in the helping professions, such as therapists, medical personnel and social workers, as well as individuals supporting loved ones after trauma. The emergence of new theoretical models has also provided a broader understanding of the conditions and mechanisms resulting in positive posttraumatic changes following direct and indirect exposure to trauma. These models have also been accompanied by the development of new measurement tools.

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The phenomenon of PTG has been extensively described in the Polish literature [1]. Tedeschi and Calhoun's conceptualisation [2, 3] proposes that posttraumatic growth arises through coping with traumatic situations and encompasses positive changes in three domains: perceptions of oneself, relationships with others and life philosophy. Individuals may come to see themselves as stronger than before, develop a sense of self-efficacy and an enhanced ability to cope with future challenges, cultivate new interests and set new life goals. They may also form closer relationships with others, become more willing to open up, and develop greater sensitivity and compassion. For many individuals, experiencing trauma leads to changes in existential beliefs (spirituality/religiosity) and their hierarchy of values. It may also lead to greater appreciation of life and increased attention to everyday events, while diminishing the importance of matters that previously seemed significant.

The authors of the PTG concept [2–4] adopt a broad understanding of traumatic situations and do not limit them to traumatic events as defined in international classifications such as DSM-5-TR or ICD-11. They use terms such as trauma, crisis and highly stressful event, which can also encompass divorce, caring for a child with a chronic illness, job loss or severe financial difficulties.

The beneficial changes associated with PTG do not imply that trauma is desirable or necessary for a person to change aspects of their functioning. As Tedeschi and Calhoun [2] emphasise, alongside the loss, pain and suffering associated with trauma, individuals may also derive something positive from their experience. In this sense, PTG represents an opportunity for a richer and more meaningful life, even when distress persists.

The first model of posttraumatic growth, which highlighted the role of cognitive processes, has undergone several modifications [2, 5, 6]. Its most recent version [3] introduces several new elements. The model assumes that the experience of severe stress (trauma) challenges an individual's fundamental beliefs about the world and the self; these most often concern controllability, predictability, and one's perceived ability to cope with adverse life events. As a conse-

quence, these beliefs or cognitive schemas may be altered or even shattered.

This makes their reconstruction necessary, and such reconstruction occurs through cognitive processing of the trauma, whose central component is rumination. The outcome of this cognitive rebuilding is the perception of positive posttraumatic changes. In other words, individuals gradually begin to establish new priorities, adopt a future-oriented perspective, and formulate life goals and tasks within a cognitively revised reality.

The authors of the model also considered another possible way of responding to traumatic experiences: one that does not lead to PTG but may foster the development of psychological resilience. This occurs when trauma does not disrupt an individual's core beliefs, which may result from strongly consolidated and change-resistant belief systems. The absence of changes in core beliefs following trauma may nonetheless help alleviate distress and support the building of resilience, which in turn may strengthen an individual's capacity to withstand future challenges.

Measures of posttraumatic growth

Several instruments have been developed to assess positive posttraumatic changes, including the Stress-Related Growth Scale (SRGS), the Revised Stress-Related Growth Scale (RSRGS), the Changes in Outlook Questionnaire (CiOQ), and the Perceived Benefit Scales (PBS). However, the best-known and most frequently used measure is the Posttraumatic Growth Inventory (PTGI), developed by Tedeschi and Calhoun [6]. The instrument consists of 21 positively worded statements describing changes that may occur following a traumatic event. In its original version, the inventory assesses five dimensions: Relating to Others (seven items), New Possibilities (five), Personal Strength (four), Spiritual Changes (two) and Appreciation of Life (three).

The Polish adaptation of the PTGI was developed in 2010 [7]. Factor analyses supported a four-factor model: changes in self-perception, changes in relationships with others, greater appreciation of life, and spiritual changes. Together, these four factors explained 57.7% of the total variance.

A short form of the PTGI (PTGI-SF) was subsequently developed [8]. It consists of 10 items from the original inventory, with two items representing each of the five factors. Items were selected using data from 1,351 adults who had completed the PTGI. Factor analysis supported the expected five-factor structure, which explained 64% of the total variance, with individual factors accounting for 8.5% to 17.9%. The short inventory demonstrated good psychometric properties, supporting its use as an alternative to the full version. However, the authors emphasised the need to validate the instrument in other cultural contexts [8].

The aim of the present study was to determine the psychometric properties of the Polish PTGI-SF and to examine whether levels of positive posttraumatic change differed by sex, age and type of traumatic experience.

METHODS

Participants

The study was conducted in 2024–2025 using face-to-face and online data collection. Participants included individuals who had experienced trauma directly or indirectly. The former group comprised patients with various types of cancer, people affected by flooding, and students from Ukraine who began their studies in Poland after Russia launched its full-scale invasion. The latter group comprised individuals exposed to indirect or secondary trauma through their professional roles (firefighters, mountain rescue workers, social workers and probation officers) or caregiving and support roles (parents of children with physical disabilities and volunteers supporting people affected by flooding).

All study procedures complied with the ethical standards of the University Ethics Committee. The analyses included data from 1,004 participants who completed all questionnaires administered to them. Participants were aged 18–75 years ($M = 38.31$, $SD = 12.54$); 51% identified as men and 49% as women.

Measures

All respondents completed the PTGI-SF, which consists of 10 items rated from 0 to 5. The total score is the sum of all 10 items and ranges from 0 to 50. The four factor scores described below each comprise two items; items 3 and 6 are retained in the total score but excluded from the factor scores. Selected groups also completed the instruments described below to assess the validity of the PTGI-SF.

The Secondary Posttraumatic Growth Inventory (SPTGI), developed by Ogińska-Bulik and Juczyński [9], consists of 12 items rated on a six-point scale. It measures positive changes associated with secondary traumatic stress. The instrument demonstrates satisfactory internal consistency (Cronbach's $\alpha = .90$ for the total score) and temporal stability (test-retest coefficient = .78).

The PTSD Checklist for DSM-5 (PCL-5), developed by Weathers et al. [10] and adapted into Polish by Ogińska-Bulik et al. [11], was used to assess PTSD symptoms. The checklist contains 20 items describing the four DSM-5 PTSD symptom clusters, rated on a five-point scale with reference to problems experienced during the month preceding the assessment. The instrument demonstrates good psychometric properties [12].

The Cognitive Processing of Trauma Scale (CPOTS), developed by Williams et al. [13] and adapted to Polish conditions [14], consists of 17 items rated on a seven-point scale. The scale assesses cognitive processing of trauma in the form of five coping strategies. Cronbach's alpha coefficients were .80, .79, and .76 for positive strategies, and .83 and .77 for negative strategies.

The Event-Related Rumination Inventory (ERRI), developed by Cann et al. [15] and adapted to Polish by Ogińska-Bulik and Juczyński [16], consists of two subscales of 10 items each. The first assesses intrusive rumination, and the second assesses deliberate rumination. Responses are given on a four-point Likert scale. Reliability indices are high: .92 for intrusive rumination and .90 for deliberate rumination.

The Core Beliefs Inventory (CBI), developed by Cann et al. [17] and adapted to Polish by Juczyński and Ogińska-Bulik [18], consists of nine statements assessing disruptions in core beliefs. The total score reflects the degree of disruption.

tion, with higher scores indicating a greater tendency to revise previously held beliefs. Internal consistency is excellent, with Cronbach's $\alpha = .96$.

The Resilience Measurement Scale (RMS-25), developed by Ogińska-Bulik and Juczyński [19], assesses personality predispositions that protect against negative consequences of both traumatic and everyday stressors. Responses are given on a five-point scale. The reliability of the overall scale is .89.

The Self-Description Questionnaire (SDQ), developed by Heszen and Gruszczyńska [20], consists of 20 items rated on a five-point scale. The questionnaire assesses general spirituality and its three dimensions: religious attitude, ethical sensitivity, and harmony. The instrument demonstrates good psychometric properties, with Cronbach's $\alpha = .91$.

Data analysis

Data were analysed using PS IMAGO PRO 10 (IBM SPSS Statistics 29). Skewness and kurtosis values indicated an approximately symmetric distribution. Differences between means were tested using independent-samples t-tests or one-way analysis of variance (ANOVA). Exploratory and confirmatory factor analyses were conducted to examine the structure of positive posttraumat-

ic changes. Relationships between variables were assessed using Pearson's correlation coefficients.

RESULTS

Factor structure of the PTGI-SF

The original version of the PTGI-SF consists of 10 items, i.e. two items from each of the five factors of the full PTGI. Since the structure of the Polish adaptation of the PTGI differs from the original version, it was deemed necessary to conduct an exploratory factor analysis. For this purpose, the entire sample of 1,004 participants was divided into two equal subsamples (even and odd case numbers). Data from the first subsample (n = 502) were used to determine the factor structure of the inventory, while the data from the second subsample (n = 502) were used to evaluate the goodness-of-fit indices for different factor models by confirmatory factor analysis.

Before the factor analyses, the suitability of the data was assessed. The Kaiser–Meyer–Olkin value of .90 indicated good sampling adequacy, and Bartlett's test of sphericity was significant ($p < .001$). Principal component analysis with orthogonal rotation was applied, and a four-factor solution was selected.

The reliability indices and the factor structure of the four-factor model are presented in Table 1.

Table 1. Item coefficients and factor loadings for the Polish PTGI-SF

Item	Rtt	Factor I	Factor II	Factor III	Factor IV
1. I changed my priorities about what is important in life (III-1)	.65	.81			
2. I have a greater appreciation for the value of my own life (III-2)	.65	.82			
3. I am able to do better things with my life (I-11)	.63		(.69)		
4. I have a better understanding of spiritual matters (IV-5)	.69		.51		
5. I have a greater sense of closeness with others (II-6)	.71				.51
6. I established a new path for my life (I-7)	.65			(.73)	
7. I know better that I can handle difficulties (I-10)	.72			.77	
8. I have a stronger religious faith (IV-18)	.42		.88		
9. I discovered that I'm stronger than I thought I was (I-19)	.69			.80	
10. I learned a great deal about how wonderful people are (II-20)	.57				.88

Note. I: Greater Appreciation of Life; II: Spiritual Changes; III: Increased Personal Strength; IV: Improved Relationships with Others. Roman and Arabic numerals in parentheses after each item identify its factor and item number in the full Polish PTGI. Parenthesised loadings identify items 3 and 6, which were excluded from the corresponding factor scores. Factor loadings $\leq .50$ are omitted.

Response scale: 0 = I did not experience this change as a result of my crisis; 1 = I experienced this change to a very small degree as a result of my crisis; 2 = I experienced this change to a small degree as a result of my crisis; 3 = I experienced this change to a moderate degree as a result of my crisis; 4 = I experienced this change to a great degree as a result of my crisis; 5 = I experienced this change to a very great degree as a result of my crisis.

Two items representing New Possibilities in the original PTGI-SF loaded on other factors in the Polish analysis: item 3 on Factor II (Spiritual Changes) and item 6 on Factor III (Increased Personal Strength). These items were excluded from the respective factor scores for two reasons: their content did not correspond to the conceptual meaning of the assigned factors, and unequal numbers of items would hinder comparisons between factors. Together, the four factors explained 75.71% of the total variance: Factor I, Greater Appreciation of Life, 23.19%; Factor II, Spiritual Changes, 18.53%; Factor III, Increased Personal Strength, 17.09%; and Factor IV, Improved Relationships with Others, 16.90%. Confirmatory factor analysis was conducted in the second subsample to assess the fit of the

five-, four – and three-factor models. Absolute and comparative fit indices, indices based on non-centrality, the Akaike information criterion (AIC), and the chi-square statistic were examined [21]. The four-factor models generally had higher GFI, AGFI and CFI values than the five – and three-factor models (Table 2). However, RMSEA values of .08–.09 did not meet the specified criterion of < .05. AIC values are also reported in Table 2, with lower values indicating better relative fit. The chi-square tests were significant. Thus, several indices favoured a four-factor structure, as in the full Polish PTGI, although the fit indices did not uniformly support this conclusion.

Table 2. Fit statistics for alternative PTGI-SF models and multigroup cross-validation analyses

Model	GFI	AGFI	CFI	NCI	RMSEA	AIC	χ ² (df)
10 items, five factors	.90	.78	.90	.77	.14	.23	235.09 (25)
10 items, four factors	.95	.90	.94	.90	.09	.39	144.08 (29)
10 items, three factors	.93	.88	.92	.85	.10	.49	199.97 (32)
8 items, four factors [¶]	.97	.91	.97	.94	.08	.23	73.45 (14)
8 items, four factors [¶]	.96	.91	.96	.94	.09	.24	76.90 (14)
8 items, four factors [¶]	.96	.90	.96	.93	.09	.24	90.14 (14)

Note. GFI: goodness-of-fit index; AGFI: adjusted goodness-of-fit index; CFI: comparative fit index; NCI: non-centrality index; RMSEA: root mean square error of approximation; AIC: Akaike information criterion; χ²: chi-square statistic; df: degrees of freedom.
[¶] Multigroup cross-validation using the even – and odd-numbered subsamples. - Multigroup cross-validation by sex. - Multigroup cross-validation by age: ≤ 40 years, n = 550; > 40 years, n = 454.

Reliability and validity of the PTGI-SF

Internal consistency, assessed using Cronbach’s alpha, was .89 for the total inventory score. This indicates high reliability, comparable to that of the original short form and the full Polish version (.93). Inter-item correlations for the four factors, each comprising two items, were .82, .79, .78 and .75, respectively. Test-retest reliability was assessed in 25 social workers over a three-week interval. The stability coefficient was .78 for the total score and .76, .62, .68 and .72 for the four factors, respectively. Using the total-score SD of 11.16 (Table 4) and Cronbach’s alpha of .89, the classical standard error of measurement is approximately 3.70 points ($SEM = SD \times \sqrt{1 - \alpha}$).

Validity was assessed in terms of content, construct and criterion validity. The exploratory and confirmatory analyses supported a four-factor structure for the Polish PTGI-SF, although model fit varied across indices. As in the full Polish PTGI, four factors were identified, but their order differed. The four-factor solution explained a larger proportion of the total variance than the original five-factor PTGI-SF, for which the factors accounted for 64.0% of the total variance, with individual factors explaining 8.5%–17.9%. The validity of the PTGI-SF was also evaluated using variables theoretically expected to correlate with posttraumatic growth. Analyses used data from selected groups of participants. Among probation officers, PTG measured with

the PTGI-SF was positively associated with secondary posttraumatic growth assessed using the SPTGI ($r = .81, p < .001$).

According to the theoretical model of PTG, the emergence of positive posttraumatic changes is primarily associated with cognitive processing of trauma. Its components include rumination, disruptions in core beliefs about the world and the self, and cognitive coping strategies. Therefore, it can be assumed that PTG should correlate positively with positive coping strategies and deliberate rumination, and negatively with negative coping strategies and intrusive rumination.

A significant positive association was found between PTG and deliberate rumination. This correlation was significant both in groups directly exposed to trauma (war-related trauma: $r = .62$; oncology patients: $r = .56, p < .001$) and in those indirectly exposed (firefighters: $r = .56, p < .001$). In contrast, the relationship between PTG and intrusive rumination, which occurs in an uncontrolled manner, was weaker in the directly exposed groups, but significant in the indirectly exposed groups, such as firefighters.

Among social workers ($n = 65$), posttraumatic growth correlated significantly with Core Beliefs Inventory scores ($r = .48, p < .001$) and with positive coping strategies assessed using the Cognitive Processing of Trauma Scale. Specifically, correlations with positive cognitive restructuring and resolution/acceptance were $r = .42$ and $r = .36$, respectively ($p < .01$). Thus, posttraumatic growth was associated with both disruptions in core beliefs and adaptive cognitive coping strategies.

Positive associations were expected between PTG and personal resources, particularly psychological resilience and spirituality. Positive associations between PTG/SPTG and symptoms of posttraumatic stress (PTSD) or secondary traumatic stress (STS) were also hypothesised. Cohen and Collens' metasynthesis [22] provided a context for examining the coexistence of adverse effects and growth following indirect exposure to trauma.

The obtained results confirmed positive associations between spirituality and PTG, especially in groups directly exposed to trauma, such as students who experienced war-related trauma ($r = .79, p < .001$) and oncology patients ($r = .67,$

$p < .001$). This is understandable in the context of shifting life priorities and the identification of new possibilities and life paths, i.e. core components of PTG. These values are closely linked to a sense of inner balance, coherence, and harmony with oneself and the world, and are captured by measures of spirituality.

The associations between PTG and resilience were found to vary among several of the studied groups. Positive correlations were noted among the students exposed to war-related trauma ($r = .81, p < .001$) and volunteers assisting people affected by flooding ($r = .28, p < .01$), but not among the people affected by flooding themselves ($r = .00$) or firefighters ($r = .15$).

The relationships between PTSD/STS and PTG/SPTG also varied across groups. Weaker, non-significant associations were found among participants directly exposed to trauma, including oncology patients ($r = .14$) and students exposed to war-related trauma ($r = -.18$). Stronger positive associations were observed among participants indirectly exposed to trauma, including volunteers assisting people affected by flooding ($r = .43, p < .001$) and firefighters ($r = .54, p < .001$). Although the association was negative among students exposed to war-related trauma, it was not statistically significant and does not establish that PTSD symptoms hindered posttraumatic growth.

Norms for the inventory

The inventory may be used to assess individual positive changes following trauma and for research. Interpretation of individual scores requires reference values. These may be derived from the score distribution in a standardisation sample or from mean scores in relevant groups. Both approaches were used in the present study.

The distribution of total PTGI-SF scores was examined using skewness and kurtosis (-0.36 and -0.72 , respectively). Women reported significantly higher levels of positive posttraumatic change than men (men: $M = 25.12, SD = 11.19$; women: $M = 29.98, SD = 10.58$; $t = -7.10, p < .001$). Participants directly exposed to trauma also reported higher PTG scores than those indirectly exposed ($M = 30.25, SD = 10.16$ vs. $M = 26.13, SD = 11.44$; $t = 5.379, p < .001$). Scores did not dif-

fer significantly by age group (younger participants: $M = 27.46$, $SD = 11.23$; older participants: $M = 27.59$, $SD = 11.08$; $t = -.179$, not significant).

Because PTG scores differed significantly by sex, norms were established separately for men

and women (Table 3). Sten scores of 5–6 are interpreted as average, while scores of 1–4 and 7–10 are interpreted as low and high, respectively.

Table 3. PTGI-SF sten norms for men and women

Men: raw score	Sten	Women: raw score
0–3	1	0–5
4–7	2	6–11
8–11	3	12–17
12–18	4	18–23
19–25	5	24–31
26–31	6	32–36
32–36	7	37–40
37–40	8	41–43
41–44	9	44–47
45–50	10	48–50

Data from groups representing direct and indirect exposure to trauma were used to calculate mean scores and test differences between

groups. Table 4 presents the results for the nine groups.

Table 4. Total PTGI-SF and factor scores in the nine study groups

Group	n	Total M (SD)	Factor I M (SD)	Factor II M (SD)	Factor III M (SD)	Factor IV M (SD)
1. Oncology patients	135	32.46 (9.60)	7.30 (2.61)	5.77 (2.10)	6.66 (2.65)	7.04 (2.45)
2. Individuals exposed to war-related trauma	150	29.34 (10.37)	7.35 (2.37)	4.03 (2.07)	6.71 (2.91)	5.40 (2.80)
3. Parents of children with disabilities	94	28.83 (10.26)	6.29 (2.63)	4.82 (2.50)	6.44 (2.59)	5.55 (2.54)
4. People affected by flooding	74	26.97 (9.83)	6.64 (2.56)	3.65 (2.73)	5.73 (2.71)	6.04 (2.62)
5. Volunteers assisting people affected by flooding	155	22.62 (12.23)	5.44 (3.02)	2.28 (2.40)	5.13 (3.19)	5.30 (2.79)
6. Firefighters	166	24.50 (11.32)	4.55 (2.50)	4.46 (3.06)	5.43 (2.60)	5.59 (2.66)
7. Mountain rescue workers	96	26.39 (11.10)	6.23 (2.83)	5.24 (2.75)	4.73 (3.03)	4.47 (2.71)
8. Social workers	65	29.51 (10.66)	7.34 (2.46)	4.42 (2.53)	6.49 (2.52)	5.54 (2.60)
9. Probation officers	69	30.70 (9.54)	7.54 (2.06)	4.78 (2.69)	6.52 (2.23)	5.86 (2.50)
Total	1004	27.52 (11.16)	6.34 (2.80)	4.30 (2.74)	5.93 (2.85)	5.65 (2.72)

Note. M: mean; SD: standard deviation. I: Greater Appreciation of Life; II: Spiritual Changes; III: Increased Personal Strength; IV: Improved Relationships with Others. Group numbers are used in Table 5.

Mean total scores differed significantly between groups ($F = 11.17$, $df = 8$, $p < .001$). Higher PTG scores were observed among oncology patients, students exposed to war-related trauma, parents of children with disabilities, probation officers and social workers, representing both direct and indirect exposure to trauma. Signif-

icantly lower scores were found among volunteers assisting people affected by flooding and firefighters ($p < .001$).

Among the four PTG factors, the largest F statistics were observed for Factor I ($F = 20.31$, $df = 8$, $p < .001$) and Factor II ($F = 21.32$, $df = 8$, $p < .001$). Overall, the highest mean scores were record-

ed for Factor I (Greater Appreciation of Life) and the lowest for Factor II (Spiritual Changes). High appreciation-of-life scores occurred in groups exposed to both direct and indirect trauma, including social workers and probation officers. The lowest spiritual-change scores were observed among people affected by flooding and the volunteers assisting them. Smaller F statistics were found for Factor III (Increased Personal Strength; $F = 8.32$, $df = 8$, $p < .001$) and Factor IV (Improved Relationships with Others; $F = 7.79$, $df = 8$, $p < .001$). For Factor IV, oncology patients had the highest mean score.

Tedeschi and Calhoun [6] argue that PTG should be viewed as a continuum rather than as simply present or absent, allowing more informative individual interpretation. Sten scores enable classification of PTG as low, average or high. For a more detailed interpretation, the low and high categories may be subdivided into very low (stens 1–2), low (stens 3–4), high (stens 7–8) and very high (stens 9–10).

The distributions of posttraumatic growth levels across the examined groups are compared in Table 5.

Table 5. Distribution of posttraumatic growth levels across the study groups (%)

PTG level	1	2	3	4	5	6	7	8	9
Very low	0.7	4.0	2.1	6.8	14.2	8.4	5.2	6.2	4.3
Low	15.6	22.0	20.2	24.3	34.2	22.3	22.9	20.0	17.4
Average	28.9	41.3	41.5	47.3	28.4	39.8	37.5	46.2	47.8
High	43.7	24.0	30.9	18.9	19.4	21.1	25.0	20.0	23.2
Very high	11.1	8.7	5.3	2.7	3.9	8.4	9.4	7.7	7.2

Note. Group numbers correspond to Table 4: 1, oncology patients; 2, individuals exposed to war-related trauma; 3, parents of children with disabilities; 4, people affected by flooding; 5, volunteers assisting people affected by flooding; 6, firefighters; 7, mountain rescue workers; 8, social workers; 9, probation officers. Very low: stens 1–2; low: stens 3–4; average: stens 5–6; high: stens 7–8; very high: stens 9–10. Percentages may not total 100 because of rounding.

High or very high levels of PTG were more common in groups directly exposed to trauma, with more than half of oncology patients falling into these categories. By contrast, nearly half of the volunteers assisting people affected by flooding had low or very low scores.

DISCUSSION

The PTGI-SF is easy to administer in clinical research and provides a reliable total score. In the Polish PTGI-SF, as in the full Polish PTGI, the original five-factor structure was not confirmed. The dimensionality of the PTGI has been questioned in other studies, which have proposed one-factor [23], three-factor [24], four-factor [25] and five-factor [26] structures. Differences between adaptations may reflect linguistic nuances in item wording, sample characteristics and size, and cultural factors that shape responses to traumatic events.

As Cann et al. [8] note, most studies using the PTGI focus on the total score; in these settings,

the short form can provide a suitable alternative. When the aim is to examine and compare specific components of PTG, however, the full PTGI is preferable.

The PTGI-SF demonstrated high reliability for the total score. Each of the four factors was represented by two items, and reliability estimates varied across factors. A limitation of both the full and short versions is their exclusive focus on positive changes, without assessing negative posttraumatic changes.

The PTG construct remains debated. Some researchers conceptualise it as personality change, while others understand it in terms of life narratives [27]. Tedeschi and Calhoun [2, 3] propose that positive changes may follow both events classified as traumatic and highly stressful experiences that do not meet trauma criteria, such as divorce or job loss. This broader conceptualisation may partly explain the high prevalence of reported positive changes. Available data indicate that up to 70% of individuals report at least one positive change in a PTG domain [28, 29].

Most studies in this area are cross-sectional rather than prospective. Some authors [28] highlight the difficulty of assessing positive post-traumatic changes over time, as changes may become apparent several years after an event. Self-reported PTG may also sometimes be illusory [1], reflecting wishful thinking rather than measurable change.

Despite these limitations, the findings contribute to understanding PTG and expand the range of available measurement tools. A strength of the study is its large sample, comprising groups exposed directly and indirectly to diverse traumatic situations.

The findings and the instrument may also inform practice, including the development of programmes to strengthen resilience and personal resources that may facilitate positive changes following trauma.

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