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Post-Traumatic Growth and Psychological Well-Being among Cancer Survivors

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Abstract: ***Cancer survivorship research has traditionally emphasised distress, while positive psychological outcomes such as post-traumatic growth (PTG) have received comparatively less attention, particularly in the Indian context. This study examined the relationship between PTG and psychological well-being (PWB) among cancer survivors. A cross-sectional survey was administered in English and Malayalam to consenting adult cancer survivors, using a combination of online (self-administered) and offline, in-person (researcher-administered) data collection. Of 115 records, 12 were excluded (3 non-diagnosed or blank; 9 currently undergoing critical cancer treatment), leaving 103 analytic cases (87 English, 16 Malayalam). PTG was measured with the 10-item Post-Traumatic Growth Inventory-Short Form (PTGI-SF; range 0–50) and PWB with the 18-item Ryff Scales of Psychological Well-Being (Ryff-18; range 18–108). Pearson correlation and simple linear regression tested whether PTG predicted PWB. Internal consistency was good for the PTGI-SF (α = .87) but poor for the Ryff-18 (α = .35). Mean PTGI-SF was 31.16 (SD 10.41) and mean Ryff-18 was 71.89 (SD 7.33). PTG and PWB were weakly and non-significantly correlated (r = 0.143, 95% CI [−.05, .33], p = 0.148; Spearman ρ = 0.001, p = 0.991). The regression model was non-significant (B = 0.101, R2 = 0.021, F(1,101) = 2.12, p = 0.148). PTG did not significantly predict PWB in this sample; the poor reliability of the Ryff-18 composite limits confidence in this null result. Replication with validated, longer-form instruments and a larger sample is needed.***

Keywords: post-traumatic growth; psychological well-being; cancer survivors; PTGI-SF; Ryff scale; positive psychology; India

1. Introduction

Cancer is a leading cause of morbidity and mortality worldwide, and a diagnosis is often experienced as traumatic. Advances in treatment have produced a growing population of survivors, shifting part of psycho-oncology research beyond distress toward positive psychological change. Post-traumatic growth (PTG) refers to positive change arising from the struggle with highly challenging circumstances, including improved relationships, personal strength, new possibilities, spiritual change, and appreciation of life (Tedeschi & Calhoun, 2004). Psychological well-being (PWB), as conceptualised by Ryff, comprises autonomy, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance (Ryff, 1989). It reflects positive functioning, not merely the absence of distress, and is theoretically distinct from- though plausibly related to- growth after adversity. Most PTG–PWB research is Western, and Indian studies remain limited. This study examined PTG and PWB among Indian cancer survivors using English and Malayalam instrument versions.

2. Literature Review

1) *Post-Traumatic Growth*

PTG was first systematically described by Tedeschi and Calhoun, who proposed that positive psychological change can emerge from the cognitive and emotional struggle with highly challenging life circumstances, rather than from the traumatic event itself (Tedeschi & Calhoun, 1996, 2004). Controlled work on breast cancer survivors found evidence of PTG relative to healthy comparison groups (Cordova, Cunningham, Carlson, & Andrykowski, 2001), and a widely used short form later condensed the original 21-item inventory into 10 items spanning the same five domains (Cann et al., 2010).

2) *Psychological Well-Being*

Ryff's model conceptualises well-being as a multidimensional construct rather than a single affective state, comprising six theoretical dimensions assessed through both original and abbreviated item sets (Ryff, 1989; Ryff & Keyes, 1995). This framework emphasises positive functioning- autonomy, mastery, growth, purpose, relationships, and self-acceptance- over the mere absence of psychological distress.

3) *PTG and Well-Being in Cancer Populations*

Meta-analytic evidence links benefit-finding to better psychological adjustment (Helgeson, Reynolds, & Tomich, 2006), and resources such as optimism, social support, and approach-oriented coping predict higher PTG (Prati & Pietrantoni, 2009). Among cancer patients specifically, PTG and post-traumatic stress can co-occur with only partly overlapping correlates (Shand, Cowlishaw, Brooker, Burney, & Ricciardelli, 2015), suggesting that growth and distress are not simply opposite ends of one dimension. Taken together, this literature motivates examining PTG in relation to a validated indicator of positive functioning, rather than assuming reduced distress and reported growth are interchangeable with flourishing.

4) *Research Gap*

Despite this body of work, few studies have examined PTG and PWB together among Indian cancer survivors, and fewer still have used a bilingual (English and Malayalam) design to widen participation. This gap motivated the present study.

3. Objectives and Hypotheses

Objectives

- To assess the level of post-traumatic growth among cancer survivors.
- To assess the level of psychological well-being among cancer survivors.

- To examine the relationship between post-traumatic growth and psychological well-being.
- To determine whether post-traumatic growth predicts psychological well-being.

Hypotheses

- H1: Post-traumatic growth will be positively associated with psychological well-being.
- H2: Post-traumatic growth will significantly predict psychological well-being.

4. Method

4.1 Research Design and Participants

This exploratory, cross-sectional study used the same instrument set in two language versions — English and Malayalam — to widen accessibility. Data were collected through a combination of online, self-administered responses and offline, in-person administration, in which the researcher visited cancer survivors directly and administered the same survey on-site; most responses were collected in this offline, in-person manner, with a smaller number collected online. Participants were adult cancer survivors recruited through non-probability, purposive sampling. Consent and self-reported diagnosis were confirmed before scoring.

Of 115 records (93 English, 22 Malayalam), 3 were excluded for no confirmed diagnosis or a blank record, and 9 for currently undergoing critical cancer treatment (e.g., chemotherapy, radiotherapy, surgery), per the study's exclusion criterion. This left 103 eligible cases (87 English, 16 Malayalam) with no missing item-level data.

4.2 Measures

PTGI-SF. PTG was measured with the 10-item short form of the Posttraumatic Growth Inventory (Cann et al., 2010; two items from each of five subscales of the original 21-item PTGI, Tedeschi & Calhoun, 1996), rated 0 (did not experience) to 5 (to a very great degree); range 0–50.

Ryff-18. PWB was measured with the 18-item Ryff Scales of Psychological Well-Being (Ryff & Keyes, 1995; three items per dimension across six theoretical dimensions), rated 1 (strongly disagree) to 6 (strongly agree) with reverse-scoring of negatively worded items; range 18–108.

The items were translated from English into Malayalam to help participants who understood Malayalam better; formal back-translation was not carried out and is noted as an area for future refinement.

4.3 Procedure

Participants gave voluntary, anonymous consent, then completed screening and demographic items followed by the PTGI-SF and Ryff-18 in fixed order, either online or with the researcher present.

4.4 Statistical Analysis

Composite scores were unit-weighted sums with appropriate reverse-scoring. Internal consistency used Cronbach's alpha. The primary association was tested with a Pearson correlation, with a Spearman correlation as a robustness check given non-normality of both composites (Shapiro–Wilk $p < .001$ for each). A simple linear regression (Ryff-18 on PTGI-SF) tested whether PTG predicted PWB. Given the small, non-probability sample, no further predictors were modelled and no causal inference is drawn.

5. Results

5.1 Sample Characteristics

The sample (N = 103) was 58.3% female, 41.7% male; ages were fairly evenly spread (25.2% 18–29, 31.1% 30–39, 30.1% 40–49, 13.6% 50–60 years). Breast cancer was most frequent (25.2%), followed by blood (13.6%), cervical (12.6%), lung (11.7%), and head/neck cancer (11.7%). Most participants were >1 year past diagnosis (87.4%) and under follow-up care (51.5%) or had completed treatment (39.8%). See Table 1.

Table 1: Sample characteristics (N = 103)

Characteristic	n	%
Language		
English	87	84.5
Malayalam	16	15.5
Gender		
Female	60	58.3
Male	43	41.7
Age group		
18–29 years	26	25.2
30–39 years	32	31.1
40–49 years	31	30.1
50–60 years	14	13.6
Status		
Follow-up care	53	51.5
Completed tx	41	39.8
Remission	7	6.8
Other	2	1.9

Note. Cancer type not tabulated here for space; top five given in text.

5.2 Scale Properties

Internal consistency was good for PTGI-SF ($\alpha = .87$) but poor for Ryff-18 ($\alpha = .35$). Item-total correlations for Ryff-18 were low and inconsistent across items (about −.12 to .33), indicating a broad measurement problem rather than one weak item. See Table 2.

Table 2: Scale properties (N = 103)

Scale	Items	M (SD)	α
PTGI-SF	10	31.2 (10.4)	0.87
Ryff-18	18	71.9 (7.3)	0.35

5.3 PTG–PWB Relationship

PTGI-SF and Ryff-18 were weakly, non-significantly correlated ($r = 0.143$, 95% CI [−.05, .33], $p = 0.148$). A Spearman check was essentially zero ($\rho = 0.001$, $p = 0.991$), suggesting the weak Pearson estimate is not a robust trend. The regression of Ryff-18 on PTGI-SF was non-significant

(B = 0.101, SE = 0.069, 95% CI [-0.037, 0.239], p = 0.148; R2 = 0.021, adj. R2 = 0.011, F(1,101) = 2.12, p = 0.148). See Table 3 and Figures 1–2.

Table 3: Regression predicting Ryff-18 from PTGI-SF

Predictor	B	SE	95% CI	p
PTGI-SF	0.101	0.069	[-0.04, 0.24]	0.148

Note. R2 = 0.021, F(1,101) = 2.12, p = 0.148. Cross-sectional association; no causal direction implied.

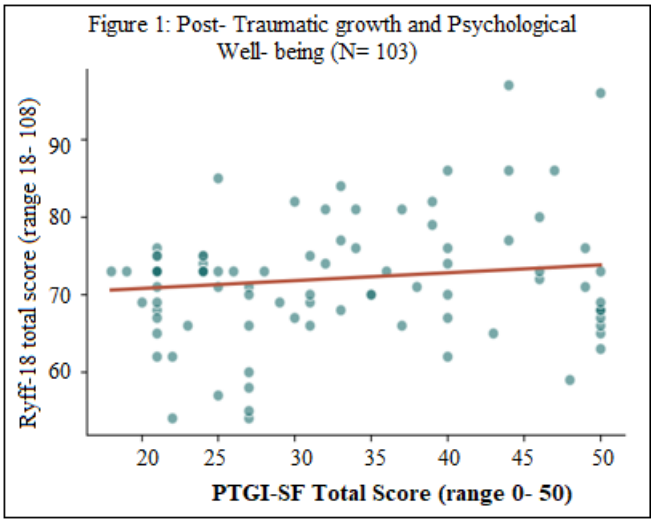

Figure 1: PTGI-SF vs. Ryff-18 with fitted line (N = 103)

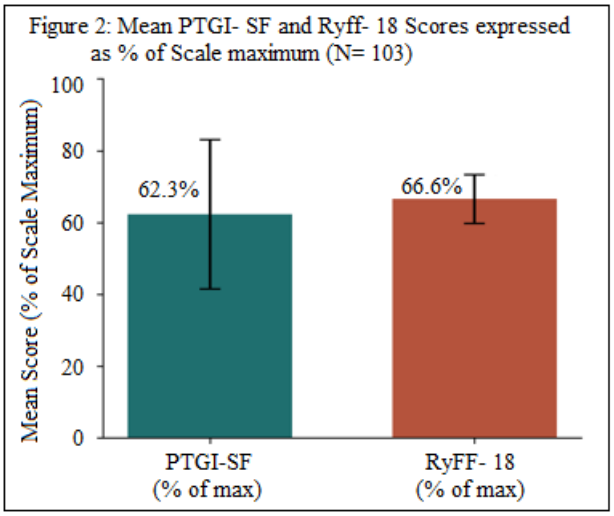

Figure 2: Mean PTGI-SF and Ryff-18 scores as % of scale maximum, ±1 SD (N = 103)

6. Discussion

Contrary to the study's directional hypotheses, PTGI-SF and Ryff-18 scores were not significantly correlated, and PTG did not significantly predict PWB. The estimate was small and positive but its interval included zero, and a non-parametric check was essentially null. This sample did not provide evidence of a meaningful PTG–PWB relationship, rather than showing the constructs are unrelated.

A key qualifier is that Ryff-18 reliability was poor (α = .35) here, well below the .70–.90 typically reported for Ryff's longer forms (Ryff, 1989). Weakened reliability of the abbreviated 18-item form has been reported elsewhere too, including specific negatively-worded items (e.g., living "one day at a time") flagged as inconsistent with the rest of the scale in other studies. This is consistent with a known limitation of the short-form Ryff scale rather than a study-specific error, but it means measurement error, not a true absence of association, cannot be ruled out: attenuated reliability lowers observed correlations relative to the real relationship. The PTGI-SF, by contrast, performed as expected (α = .87), consistent with its original validation (Cann et al., 2010), which makes an instrument-specific explanation more likely than general data-quality issues.

These results should be read cautiously against a literature linking benefit-finding to well-being (Helgeson et al., 2006) and identifying resources associated with PTG (Prati & Pietrantoni, 2009), while cancer-specific work shows growth and distress can co-occur with only partly overlapping correlates (Shand et al., 2015). A single small, cross-sectional sample with an unreliable outcome measure is not well positioned to detect a real but modest population association.

Strengths and Limitations

Strengths include the bilingual, mixed-mode (online and in-person) design, which improved accessibility, use of established instruments as translation bases, and transparent, pre-specified exclusions. Limitations are substantial: the small, non-probability, cross-sectional sample precludes population estimates or causal claims; the Malayalam adaptation was not formally back-translated or invariance-tested against English, and the two language subsamples were unequal in size (87 vs. 16); and, most importantly, poor Ryff-18 reliability limits confidence in the null result — a scale not measuring one consistent construct cannot be expected to correlate cleanly with anything else. No confirmatory factor analysis was conducted on either instrument.

7. Conclusion

Among 103 cancer survivors surveyed online and in person in English or Malayalam, PTG was not significantly associated with, or predictive of, PWB as measured by the Ryff-18. This null result is qualified by the scale's poor internal consistency in this sample, a pattern also documented elsewhere for this abbreviated form, so the finding should be treated as inconclusive rather than as evidence against a PTG–PWB relationship. The study's value lies in testing this association in an under-described, bilingual Indian sample and identifying a specific, replicable measurement problem for future work to address.

8. Recommendations

8.1 Future Research

- Use a longer, more reliable measure of psychological well-being (e.g., the 84-item or 54-item Ryff scales) rather than treating this null finding as evidence against a PTG–PWB link.
- Conduct a formal back-translation of the Malayalam instruments, with cognitive interviewing where possible.
- Recruit a larger, more balanced bilingual sample using a preregistered analysis plan.

- Use longitudinal designs to examine the temporal PTG–PWB relationship, which this cross-sectional survey cannot address.

8.2 Practical Implications

- Given that a substantial share of survivors may report only moderate well-being regardless of reported growth, survivorship care should screen for well-being directly rather than assuming high PTG implies good PWB.
- Any use of the Ryff-18 in similar populations should be paired with reliability checks before drawing conclusions from it.

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