



Research Article

A Study on The Correlation Between Post-Traumatic Growth and Psychological Resilience Among Cancer Patients

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Citation: Luo X, Li W, Xue X, Chen C, Yao D (2026) A Study on The Correlation Between Post-Traumatic Growth and Psychological Resilience Among Cancer Patients. Int J Nurs Health Care Res 9:1717. DOI: <https://doi.org/10.29011/2688-9501.101717>

Received Date: 03 August 2026; **Accepted Date:** 10 August 2026; **Published Date:** 12 August, 2026

Abstract

Aim: To understand the current status of posttraumatic growth (PTG) and psychological resilience among hospitalized cancer patients, and to explore their association, providing evidence for clinical psychological nursing and intervention strategies. **Methods:** A survey was conducted among 102 hospitalized cancer patients in a tertiary comprehensive hospital in Zhuhai, Guangdong Province, using a general demographics questionnaire, the Posttraumatic Growth Inventory (PTGI), and the Connor–Davidson Resilience Scale (CD-RISC). Data were entered and analyzed with SPSS version 25.0, and Pearson correlation analyses were performed. **Results:** The total CD-RISC score was 69.80 ± 11.31 , and the total PTGI score was 70.30 ± 12.46 among the 102 hospitalized cancer patients. Pearson correlation analysis showed a significant positive correlation between the CD-RISC total score and the PTG total score ($r = 0.493$, $p < 0.01$). **Conclusion:** Cancer patients generally exhibit a certain level of posttraumatic growth, and their levels of psychological resilience are closely related to posttraumatic growth. **Significance:** Clinical care providers should emphasize the assessment and cultivation of patients' psychological resilience and promote posttraumatic growth through enhancing resilience, thereby improving psychological prognosis and quality of life.

Keywords: Cancer; Posttraumatic Growth; Psychological Resilience; Correlation.

Introduction

Malignant tumors have become a major public health problem that seriously threatens human health. According to the latest cancer statistics in 2026, approximately 5.15 million new cancer cases and more than 2.58 million deaths occurred in China in 2024 [1]. The incidence and mortality of malignant tumors in China continue to rise, imposing a heavy disease burden and psychological trauma on patients and their families [2]. With the advancement of the bio-psycho-social medical model, psychosocial oncology research [3] indicates that positive psychosocial factors play a beneficial

role in cancer rehabilitation, and its focus has gradually shifted from solely addressing negative emotions such as depression and anxiety to exploring positive psychological changes that occur after experiencing cancer as a major adverse life event.

As part of positive psychology, post-traumatic growth refers to positive psychological changes in cognition, emotion, and interpersonal relationships after individuals experience a major traumatic event, manifested as a redefined sense of meaning in life, deeper interpersonal relationships, and enhanced self-efficacy [4]. Some studies indicate that cancer patients may experience psychological reconstruction and positive adaptation while bearing negative emotions [5]. Psychological resilience, as

the dynamic ability to cope effectively with adversity, trauma, or significant stress and to recover and even exceed prior functioning, is considered a key protective factor promoting post-traumatic growth [6].

Recent literature indicates that psychological resilience plays an important mediating role between social support and post-traumatic growth in cancer patients [7]. Meanwhile, interventions targeting psychological resilience can effectively enhance the level of post-traumatic growth, and reduce fear of cancer recurrence and perceived stress[8]. Although previous studies have explored their relationship, the specific association mechanisms between the dimensions of psychological resilience and the dimensions of post-traumatic growth in cancer patients across different regions and cancer types require further validation. This study aims to investigate the current status of post-traumatic growth and psychological resilience in cancer patients and to analyze their correlation in depth, with the goal of providing empirical support for the implementation of precise psychological interventions in clinical practice.

Objects and Methods

Study population: We used convenience sampling to recruit cancer patients admitted for treatment in a comprehensive tertiary hospital in Zhuhai, Guangdong, from November 2018 to January 2019. Inclusion criteria: (1) age ≥ 18 years; (2) histopathological or imaging diagnosis of malignant tumor; (3) patients aware of their cancer diagnosis and willing to participate in this survey; (4) conscious, able to read, communicate verbally, and cooperate with the survey.

Exclusion criteria: (1) history of psychiatric disorders or severe cognitive impairment; (2) condition is critical or in terminal stage preventing cooperation with the survey.

Survey Instruments

General Demographic Questionnaire: sex, age, education, residence, marital status, religion, personal monthly income, payment method, medical burden, primary caregiver, family accompany status, and psychological status.

Connor-Davidson Resilience Scale (CD-RISC) [9]: The CD-RISC-7C comprises three dimensions-self-efficacies, optimism, and tenacity-with 25 items in total. Each item is scored on a 0–4 scale, giving a total score of 0–100. Higher scores indicate higher resilience. The Cronbach's alpha for this scale is 0.91.

Posttraumatic Growth Inventory (PTGI) [10]: The PTGI includes five dimensions: appreciation of life, spiritual change, new possibilities, personal strength, and relationships, with a total of 21 items. Each item is rated on a 0–5 scale, giving a total score of 0–105. Higher scores indicate higher posttraumatic growth. The Cronbach's alpha for this scale is 0.87.

Data collection: Questionnaires were distributed to eligible patients. Before survey administration, a standardized briefing explained the study purpose, significance, and item instructions, and informed consent was obtained with a commitment to data confidentiality. Questionnaires were anonymous and completed independently by the patients; for those with reading difficulties, investigators asked each item in a neutral, objective manner and completed the questionnaire on their behalf. Questionnaires were collected on site and checked for completeness; invalid questionnaires with patterned responses or missing key information were excluded. A total of 110 questionnaires were distributed; after removing inconsistent or duplicate invalid responses, 102 valid questionnaires were collected, giving a valid return rate of 92.7%.

Statistical analysis: Data were analyzed using SPSS version 25.0. Continuous data were expressed as mean $\pm$ standard deviation ($\bar{x} \pm s$) if normally distributed; categorical data were presented as frequency and percentage (%). Pearson correlation analysis was used to examine the relationship between posttraumatic growth and psychological resilience in cancer patients, with a significance level of $p < 0.05$.

Survey Results

General characteristics of the study population: The general characteristics of the study population are detailed in Table 1.

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Characteristic	Frequency	Percentage (%)	Characteristic	Frequency	Percentage (%)
Sex			Payment method		
Male	59	57.8	Self-pay	5	4.9
Female	43	42.2	Medical insurance	96	94.1
Age (years)			Other	1	1.0
18~	13	12.8	Medical burden		
40~	54	52.9	No significant burden	13	12.7
60~	32	31.4	Moderate burden	57	55.9
80~	3	2.9	Heavy burden	32	31.4
Education			Primary caregiver		
Primary or below	22	21.5	Spouse and/or children	92	90.2
Junior high school	15	14.7	Parents and/or siblings	7	6.8
Senior high school	35	34.3	Other	3	3.0
Secondary technical school	4	3.9	Family accompaniment		
College or above	26	25.6	Full-time	81	79.4
Residence			Daily visits	12	11.8
Rural	25	24.5	Other	9	8.8
Town	16	15.7	Primary reason for hospital choice		
Urban	61	59.8	Proximity	13	12.6
Marital status			High technical expertise	55	53.9
Married	96	94.1	Designated facility	12	11.8
Unmarried or divorced	6	5.9	Trusted physician	17	16.7
Religious belief			Other	5	5.0
Yes	8	7.8	Current psychological status		
No	94	92.2	Very good	5	4.9
Occupation			Good	36	35.3
Institution/company employee	32	31.4	Fair	59	57.8
Self-employed	3	3.0	Poor	2	2.0
Agricultural worker	10	9.8	Treatment decision-maker		
Student	4	3.9	Self-and/or family	6	5.9
Retired	37	36.3	Physician	44	43.1
Other	16	15.6	Self, family, and physician	52	51.0

Monthly income			Cancer type		
< 3,000 RMB	46	45.1	Digestive system	54	52.9
3,000–5,000 RMB	34	33.3	Reproductive system	24	23.6
5,001–10,000 RMB	17	16.7	Respiratory system	8	7.8
> 10,000 RMB	5	4.9	Other	16	15.7

Table 1: General demographic characteristics of cancer patients (n = 102).

Descriptive statistics of PTG and CD-RISC study variables

In this group, the cancer patients had a total CD-RISC score of 69.80 ± 11.31 , with the resilience dimension scoring the highest at 39.06 ± 7.45 . The total PTGI score was 70.30 ± 12.46 , with the relational dimension scoring the highest at 25.18 ± 4.54 and the spiritual change dimension scoring the lowest at 3.28 ± 1.08 . According to the high-PTG definition (PTG total score ≥ 70 or $\geq 50\%$ of the total mean), 53.92% of patients in this study exhibited high levels of posttraumatic growth. The results are shown in Table 2.

Variable	Total score	Minimum	Maximum	Mean $\pm$ SD
CD-RISC total	57	33	90	69.80 ± 11.31
Tenacity	40	12	52	39.06 ± 7.45
Strength	24	10	34	24.64 ± 4.98
Optimism	10	6	16	11.11 ± 2.40
PTG total	70	29	99	70.30 ± 12.46
Relating to others	21	13	34	25.18 ± 4.54
New possibilities	25	0	25	16.46 ± 4.35
Personal strength	16	4	20	14.38 ± 3.11
Spiritual change	5	0	5	3.28 ± 1.08
Appreciation of life	11	4	15	11.00 ± 2.18

Table 2: Descriptive statistics of PTGI and CD-RISC scores (n = 102, scores).

Correlation analysis between posttraumatic growth (PTG) and psychological resilience in cancer patients

Pearson correlation results show that the total CD-RISC score is significantly positively correlated with the total PTG score ($r = 0.493$, $p < 0.01$). At the dimension level, the resilience dimension (perseverance/tenacity) is significantly positively correlated with all PTG dimensions (interpersonal relations, new possibilities, personal strength, spiritual change, and appreciation of life) with p-values ≤ 0.05 or ≤ 0.01 as indicated. The empowerment/strength dimension is also significantly positively correlated with all PTG dimensions. Optimism (another CD-RISC dimension) is significantly positively correlated with PTG dimensions of interpersonal relations, new possibilities, personal strength, and spiritual change, but shows no statistically significant correlation with the “appreciation of life” dimension ($r = 0.187$, $p > 0.05$). Full results are presented in Table 3.

Variable	PTG total	Relating to others	New possibilities	Personal strength	Spiritual change	Appreciation of life
CD-RISC total	0.493**	0.366**	0.503**	0.409**	0.378**	0.282**
Tenacity	0.482**	0.364**	0.502**	0.392**	0.351**	0.263**
Strength	0.451**	0.317**	0.458**	0.396**	0.337**	0.270**
Optimism	0.305**	0.246*	0.279**	0.231*	0.311**	0.187
Note: *p < 0.01; p < 0.05.						

Table 3: Correlation between PTG and psychological resilience in cancer patients (r=values).

Discussion

This study found that posttraumatic growth in cancer patients was at a moderately high level, and 53.92% of patients reached a high level of PTG. This result is consistent with several recent domestic and international studies [11-13]. Cancer, as a significant negative stressor, disrupts patients’ pre-existing life balance and cognitive schemas. To cope with this threat, patients are compelled to reassess the meaning of life, values, and interpersonal relationships, thereby creating opportunities for growth amid suffering [14]. In this study, the interpersonal relationships dimension scored the highest, suggesting that the disease experience prompts patients to value emotional connections with family and friends more and to receive more social support [15-16]; the spiritual change dimension scored the lowest, which may be related to the traditional cultural background in our country, where most patients lack specific religious beliefs and seek spiritual solace less from religious or supernatural sources [17].

Regarding psychological resilience, the total CD-RISC score in this group was at a moderate level, with the highest score in the perseverance/tenacity dimension. This indicates that when facing the severe challenge of cancer, patients exhibit a strong endurance and perseverance trait, which is a core quality that maintains goal-directed behavior and prevents giving up in adversity, contributing importantly to long-term cancer treatment [18]. However, some patients also show insufficient psychological resilience, which may be related to the fact that more than 87% of participants in this study faced varying degrees of medical and economic burden. Economic pressure, as an important chronic stressor, continuously consumes individuals’ psychological resources and thereby diminishes their psychological resilience [19].

The central finding of this study is the significant positive correlation between psychological resilience and PTG (r = 0.493), which is highly concordant with recent systematic

reviews and empirical studies [20-21]. Psychological resilience provides essential psychological capital for PTG. According to the cognitive-phenomenological model of PTG, individuals need repeated cognitive processing (e.g., rumination) after trauma to reconstruct disrupted cognitive schemas.

Patients with high psychological resilience can regulate negative emotions more effectively, avoid pathological over-rumination, and thus create psychological space for constructive cognitive reappraisal and the search for positive meaning [22].

Notably, in this study the correlation between “optimism” and the “appreciation of life” dimension was not statistically significant (r > 0.05). This may relate to the particularity of the “appreciation of life” dimension. Appreciation of life more often involves perceiving small daily beauties and reverence for life itself, a realization that often occurs as an epiphany after extreme suffering rather than being readily achieved by optimism alone. Furthermore, cancer patients face substantial physical pain and uncertainty during treatment; excessive optimism may serve as a defense mechanism that, at times, hinders genuine engagement with the deeper meaning of illness. This finding suggests that clinical interventions should not merely encourage surface optimism but should guide patients to accept negative emotions and seek resilience in the lived pain experiences.

Clinical implications and intervention strategies

Based on the above findings, clinical nursing staff should adopt the following strategies in tumor psychology care: First, regularly assess psychological resilience and posttraumatic growth. Incorporate the CD-RISC and PTGI into routine psychological screening during admission and treatment to identify high-risk individuals with low psychological resilience or impaired PTG, enabling early detection and early intervention. Second, implement targeted interventions centered on psychological resilience. Given

the promotive role of psychological resilience for PTG, evidence-based interventions such as mindfulness-based stress reduction, acceptance and commitment therapy (ACT), or meaning-centered therapy can be introduced clinically. By helping patients accept the reality of the illness, adjust irrational cognitions, and uncover inner strengths, their level of psychological resilience can be enhanced, thereby promoting PTG. Third, construct a multidimensional social support system. In this study, the vast majority of patients are cared for by spouses or children, with a high proportion of family members providing full-time companionship. Healthcare professionals should fully utilize this family resource by providing parallel psychological education for family members, guiding them to offer high-quality emotional support and companionship, avoiding overprotection or neglect, and creating a favorable external environment for psychological resilience and PTG. Fourth, attend to patients' financial burden and medical needs. Nearly one third of patients in this study reported substantial medical burdens. The medical team should consider patients' financial capacity when devising treatment plans, offer cost-effective treatment options, and actively assist patients with applying for health insurance and charitable aid to reduce chronic stress-related depletion of psychological resilience.

Conclusions

Cancer patients generally exhibit a certain level of posttraumatic growth, and psychological resilience is an important protective factor promoting PTG. In clinical practice, healthcare professionals should give high priority to the assessment and intervention of psychological resilience, enhancing perseverance and strength to guide patients toward positive psychological transformation during the cancer treatment journey, thereby improving overall physical and mental health. Future studies could pursue longitudinal follow-up or interventional designs to clarify the causal relationship between psychological resilience and posttraumatic growth and to identify the optimal timing of interventions. Implications for clinical nursing practice: psychological resilience can be integrated into routine assessments, using instruments such as the CD-RISC to identify high-risk patients and implement stratified management. Additionally, develop a resilience-centered intervention model through group counselling, cognitive-behavioural therapy, and related approaches to enhance resilience and promote PTG. Pay attention to the synergistic effects of social and psychological factors, and combine strategies to enhance social support and coping strategies to form a multidimensional psychological intervention program. This study has limitations in that its cross-sectional design cannot infer causality, and the sample was drawn from a single hospital, limiting representativeness. Future work could use a longitudinal design, expand the sample, and integrate qualitative methods to deeply elucidate the dynamic development

of PTG and its underlying mechanisms.

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