scientific reports

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Mediating effects of positive coping styles among oncology nurses between psychological resilience and professional grief: a cross-sectional study

Min Luo, Qin Guo✉, Siyou Yan, Meiling Huang & Xiaoxue Wang

Professional grief is a global challenge in oncology nursing. It refers to the constellation of grief reactions experienced by nurses after the death of patients under their care, and it seriously undermines mental health and job performance. Psychological resilience—a positive psychological attribute—enables individuals to achieve adaptive adjustment and maintain mental well-being. However, systematic evidence on the inter-relationships among psychological resilience, positive coping styles, and professional grief is lacking. This study clarifies how psychological resilience relates to professional grief among oncology nurses and elucidates the mechanisms through which positive coping styles operate. The findings furnish international nurse managers with a low-cost, high-impact target for psychological interventions and expand the global evidence map for prevention and mitigation professional grief. A questionnaire survey was conducted using purposive sampling among 540 oncology nurses in fifteen tertiary-level hospitals in Sichuan Province from November 2024 to February 2025. Instruments included psychological resilience (MeRS), positive coping styles (SCSQ), and professional grief (GSSN). A total of 518 valid questionnaires were returned, with an effective response rate of 95.9%. The results showed that psychological resilience had a significant direct effect on professional grief ($\beta = -0.511$, 95% CI [-0.374, -0.280]), a positive effect on positive coping styles ($\beta = 0.526$, 95% CI [0.177, 0.232]), and—via the mediator—remained significantly associated with professional grief ($\beta = -0.346$, 95% CI [-0.275, -0.168]). Positive coping styles, in turn, significantly predicted lower professional grief ($\beta = -0.313$, 95% CI [-0.656, -0.375]). Positive coping styles partially mediated the relationship between psychological resilience and professional grief among oncology nurses, with a mediation effect value of 0.164 and a mediation effect of 32.094% of the total effect. This is the non-Western study to delineate a mechanistic pathway from resilience to reduced grief via positive coping styles. The model is culture-independent and cost-effective, offering global oncology managers a concrete lever—strengthening positive coping—to mitigate nurses' grief and safeguard workforce well-being.

Keywords Professional grief, Psychological resilience, Positive coping styles, Oncology, Nurses

Abbreviations
GSSN   Grief state scale for nurses
MeRS   Medical professionals resilience scale
SCSQ   Simplified coping style questionnaire

Professional grief among nurses refers to the constellation of grief reactions evoked by the death of a patient under their care[1,2]. Although these reactions mirror those experienced by bereaved relatives at the individual level, they also carry profession-specific features[3,4]. Nurses may refrain from openly expressing grief when a patient dies[5], and because they must continue caring for other patients and families, they often lack the time

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and space to process their emotions, resulting in "grief deprivation"[6]. Repeated exposure to such grief can precipitate burnout and compassion fatigue, adversely affecting emotional stability, cognitive functioning, career development, and ultimately the quality of nursing care[7–10].

Background

A Spanish study demonstrated that a substantial proportion of nurses experience professional grief[11]. Oncology nurses, who encounter dying or deceased patients and their families on a daily basis, are at even higher risk than colleagues in other specialties[12,13]. A German-led multinational survey reported prevalence rates of professional grief among oncology nurses, ranging from 23 to 100% in the United States, Canada, Israel, and China[14]. Consequently, the professional grief experienced by oncology nurses warrants urgent global attention.

Lazarus et al.[15] emphasized that when confronted with stressful events and environments, individuals must mobilize internal and external resources and engage in coping actions to attenuate their stress responses. Psychological resilience is defined as the capacity to adapt effectively to life adversities, trauma, or work-related challenges[16]. As an intrapersonal resource, it enables individuals to cope with and adjust to stressful events[17]. Higher psychological resilience enables individuals to resist and adapt to traumatic experiences more proactively[18]. Viewed from the perspective of positive psychology, psychological resilience functions as a positive psychological attribute that helps nurses navigate highly stressful and traumatic work settings[19]. Chinese Zhou et al.[20] demonstrated that psychological resilience negatively predicts adverse emotions. Nurses with greater psychological resilience report significantly lower levels of anxiety, depression, and grief, indicating that psychological resilience buffers the impact of stressful events. Similarly, Uguz et al.[21] found that enhancing psychological resilience effectively strengthens individuals' resistance to professional grief and plays a vital role in maintaining psychological equilibrium.

Coping strategies comprise the specific behaviors individuals employ to mitigate stress, and can be broadly classified as positive or negative[15]. When confronted with external pressures, nurses adopt distinct coping styles to meet the demands of clinical practice. Zhou et al.[22] demonstrated that nurses who use positive coping styles to manage stressors and solve problems report significantly lower levels of distress and negative affect. Conversely, negative coping styles amplify unpleasant emotions, because rather than processing the emotion, strategies such as avoidance and self-blame promote rumination and suppression, fueling a self-intensifying cycle of distress. Consequently, positive coping styles serve as an effective regulator of nurses' psychological states and offer a viable avenue for addressing professional grief[23]. Moreover, empirical work indicates that psychological resilience is closely linked to coping styles. Nurses with higher psychological resilience are more inclined to adopt positive coping styles[24]. Therefore, the interplay among positive coping styles, psychological resilience, and professional grief merits deeper investigation.

Theoretical framework

The diathesis–stress interaction model posits that an individual's psychological diathesis and external stressors jointly determine stress responses and coping behaviors[15,25]. A robust psychological constitution facilitates the mobilization of protective factors—such as seeking external support and engaging in active coping—when confronted with threats or challenges. Illness outcomes, psychological states, and behaviors are thus contingent upon the severity of the stressor, the person's psychological diathesis, the effectiveness of coping efforts, and the availability of social support and external resources. Within this framework, psychological resilience—manifested as heightened perseverance and rebound capacity during stressful encounters[26]—is particularly vital for oncology nurses. Nurses with higher psychological resilience are more inclined to adopt approach-oriented, problem-focused, and non-avoidant strategies to counteract the negative impact of patient death, thereby mitigating stress and facilitating adaptation to environmental changes[27,28]. Guided by this theoretical model, we hypothesize that positive coping styles mediate the relationship between psychological resilience and the severity of professional grief.

Purpose

To date, international research has focused primarily on grief among bereaved relatives[29], whereas studies addressing oncology nurses' professional grief remain scarce and largely qualitative[5]. Moreover, the interrelationships among professional grief, psychological resilience, and positive coping styles have not been empirically examined. Building on the limited evidence, we identified a need to investigate whether, among Chinese oncology nurses, psychological resilience alleviates professional grief through the mediating role of positive coping styles. Guided by positive psychology and the diathesis–stress interaction model, the present study aimed to describe the levels of professional grief, psychological resilience, and positive coping styles in this population and test whether positive coping style mediates the association between psychological resilience and professional grief.

We hope that our findings will elucidate the mechanisms through which psychological resilience influences professional grief, thereby extending the existing literature on their interplay. By identifying evidence-based and precisely targeted intervention points, the study will inform clinical nursing managers in designing effective strategies to alleviate professional grief among oncology nurses. Simultaneously, this work offers researchers a novel avenue for investigating professional grief.

Building on the literature, we examined the interrelationships among nurses' professional grief, psychological resilience, and positive coping styles and subsequently proposed four hypotheses. Figure 1 illustrates the hypothesized model of the present study.

1. Psychological resilience exerts a direct negative effect on professional grief.
2. Psychological resilience exerts a direct positive effect on positive coping style.
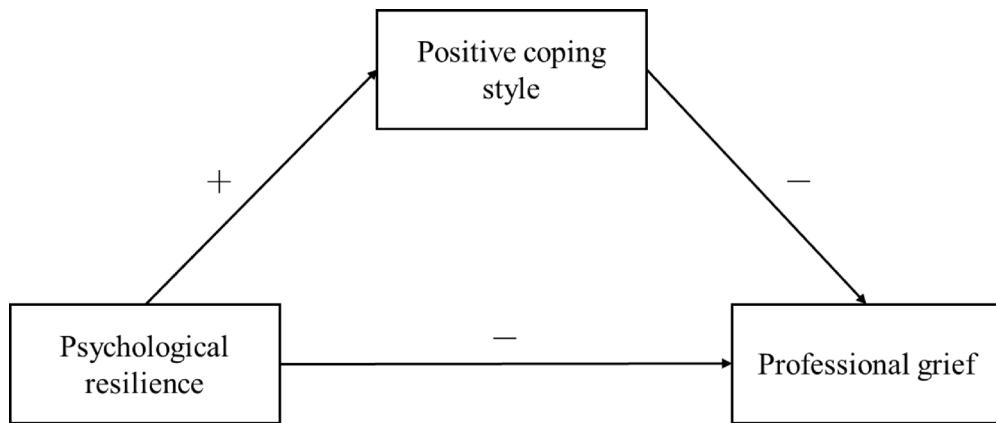
Fig. 1. Hypothesized model of variable relationships.

3. Positive coping style exerts a direct negative effect on professional grief.
4. The relationship between psychological resilience and professional grief is mediated by positive coping style.

Methods and materials
Study design, participants and recruitment
This cross-sectional study adopted convenience sampling. To ensure an adequate sample size, we contacted each department in advance and distributed a questionnaire from the professional online platform Wenjuanxing between November 2024 and February 2025 to clinical nurses working in oncology units of fifteen tertiary-level hospitals in Sichuan Province, China. Eligibility criteria were: (1) valid nursing license and ≥ 1 year of clinical experience; (2) previous exposure to patient death; (3) ability to access the internet and complete questionnaires, with no cognitive impairment; and (4) informed consent and voluntary participation. Exclusion criteria comprised: (1) incomplete responses; (2) major life events within the past month; and (3) diagnosed psychiatric disorders (e.g., depression). Sample size calculation: this study used nurses' professional grief as the main observation index to calculate the sample size, according to the pre-survey results, $\sigma = 1.06$, $\delta = 0.1$, α was set at 0.05, brought into the formula $N = (u_{1-\alpha/2}\sigma/\delta)^2 \approx 432$ cases, and considering a 20% invalid questionnaires, the final sample size was determined to be 518 cases. This study followed the STROBE guidelines for cross-sectional studies.

Instrument
Demographic information
A self-designed questionnaire, developed after a literature review and expert consultation, was used to collect the following information: sex, age, highest education level, religious belief, length of service, professional title, marital status, fertility, hospital type, current position, etc.

Grief state scale for nurses (GSSN)
Originally developed by Japanese scholars Feni[30], the scale was translated and culturally adapted into Chinese by Wang[31] to assess professional grief among nursing staff. The scale comprises four dimensions: (1) emotional fluctuation (4 items), (2) discomfort with death (3 items), (3) grief over patient death (5 items), and (4) emotional exhaustion (5 items), yielding a total of 17 items. Each item is rated on a 5-point Likert scale, with total scores of 17–85. Higher scores indicate greater levels of professional grief. The Chinese version demonstrated satisfactory reliability and validity, with a Cronbach's α of 0.813 and test–retest reliability of 0.915. In the present sample, Cronbach's α was 0.907.

Medical professionals resilience scale (MeRS)
Constructed by Rahman[32] in 2021 on the basis of an integrated resilience model and refined through conceptual mapping and literature review, the scale was subsequently translated and culturally adapted into Chinese by Jiao[33]. The scale contains 37 items distributed across four domains: growth (15 items), involvement (6 items), control (12 items), and resources (4 items). Each item is rated on a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree), yielding a total score of 37–148. Scores of 37–66 indicate low psychological resilience, 67–118 moderate psychological resilience, and 119–148 high psychological resilience. The original Chinese version reported a Cronbach's α of 0.90. In the present sample, Cronbach's α was 0.966.

Simplified coping style questionnaire (SCSQ)
Developed by Chinese scholar Xie Yaning[34] through shortening and revising an established foreign coping inventory, the scale assesses how individuals respond to stressful situations in daily life or at work. The full questionnaire contains 20 items divided into two subscales: positive coping subscale (12 items) and negative coping subscale (8 items). In accordance with the aims of the present study, only the 12-item positive-coping subscale was used. Each item is rated on a 4-point Likert scale ranging from 0 ("never use") to 3 ("very often

use"), yielding a total score of 36, with higher scores indicating greater use of positive coping styles. Cronbach's α for the positive-coping subscale was 0.89. In the present sample, Cronbach's α was 0.877.

Data collection

A three-member survey team, uniformly trained by the research group, distributed and collected questionnaires on site. Data were gathered electronically between November 2024 and February 2025 using the professional online platform Wenjuanxing (https://www.wjx.cn/). Before the main survey, a pilot study involving 50 nurses was conducted to assess reliability and validity, and questionnaire wording was refined based on their feedback. To safeguard the integrity and reliability of the survey, two attention-check items were embedded, all items were set as mandatory, and a standardized introductory statement explaining the study's purpose, significance, and instructions was provided to clarify any ambiguities. Responses with duplicate IP addresses, completion times shorter than 300 s or incompletion were excluded. Each questionnaire took approximately 10 to 15 min to complete. Ultimately, 540 questionnaires were returned; after removing 22 incomplete or invalid responses, 518 valid questionnaires remained, yielding an effective response rate of 95.9%.

Data analysis

All analyses were performed using IBM SPSS statistics 21.0 (IBM Corp, Almonk, NY, USA). A two-tailed test was performed at a significance level of $\alpha = 0.05$. Continuous data were presented as mean ± standard deviation and categorical data were presented as (n) and percentage (%).Pearson correlation analysis was used to test for correlation between variables. Similarly, MacKinnon's four-step method was used to analyze the mediating role, which had to satisfy four specific criteria: (1) There was a significant correlation between the independent variable (MeRS) and the dependent variable (GSSN). (2) There was also a significant correlation between the independent variable (MeRS) and the mediating variable. (3) After adjusting for the control of the independent variable (MeRS), there is a significant positive correlation between the mediator variable (SCSQ) and the dependent variable (GSSN). (4) Significant indirect correlation coefficient between the independent variable (MeRS) and the dependent variable (GSSN) through the mediator variable (SCSQ). The first three steps were tested by linear regression equations with $\alpha\_in = 0.05$ and $\alpha\_out = 0.01$, respectively. Finally, the mediating effect was analyzed using the PROCESS macro (Model 4) of SPSS version 4.0. Statistical significance was found when the 95% confidence interval (95% CI) did not contain zero. Statistical tests revealed that the data were not seriously affected by common-method bias; the study variables approximated a normal distribution and showed no multicollinearity.

Results

Sociodemographic characteristics and professional grief of oncology nurses

Table 1 presents the sociodemographic characteristics of the oncology nurses and compares professional grief scores across subgroups. Univariate analysis showed that length of nursing experience was significantly associated with professional grief ($p < 0.05$).

Correlation analysis of oncology nurses' positive coping styles, psychological resilience, and professional grief

As shown in Table 2, the mean professional grief score was 36.685 ± 9.217, the mean psychological resilience score was 113.062 ± 14.395, and the mean positive coping style score was 26.334 ± 5.590. The results of Pearson's correlation analysis showed that oncology nurses' professional grief was negatively correlated with psychological resilience and positive coping style ($P < 0.01$). Psychological resilience was positively correlated with positive coping style ($P < 0.01$). Thus, hypotheses 1, 2 and 3 were supported.

Analysis of the mediating effect of positive coping styles between psychological resilience and professional grief in oncology nurses

To elucidate the mechanisms underlying the significant positive effect of psychological resilience on professional grief, we simultaneously estimated covariates that exhibited statistical significance in preliminary univariate analyses to minimize confounding effects on the mediation results. Professional grief was specified as the dependent variable, psychological resilience as the independent variable, and positive coping style as the mediating variable within a structural equation framework. Model 4 of the SPSS macro PROCESS corresponds precisely to a simple mediation model of "one independent variable → one mediator → one dependent variable," offering the most parsimonious and theoretically aligned solution for our hypotheses. Mediation significance was therefore examined using PROCESS Model 4. Bootstrap constructs an empirical distribution through 5,000 repeated resamples, yielding accurate p-values regardless of whether the data are normally distributed. Following Hayes' bootstrap procedure[35], we tested whether positive coping style mediates the relationship between psychological resilience and professional grief. Path coefficients among psychological resilience, positive coping style, and professional grief are presented in Fig. 2.

Table 3 summarizes the mediation analysis. After controlling for covariates, psychological resilience showed a significant direct effect on professional grief ($\beta = -0.511$, 95% CI [$-0.374, -0.280$]), a positive effect on positive coping style ($\beta = 0.526$, 95% CI [0.177, 0.232]), and—via the mediator—remained significantly associated with professional grief ($\beta = -0.346$, 95% CI [$-0.275, -0.168$]). Positive coping style, in turn, significantly predicted lower professional grief ($\beta = -0.313$, 95% CI [$-0.656, -0.375$]).

According to Table 4, the 95% bootstrap confidence intervals of the indirect effect did not contain zero, indicating that psychological resilience exerts not only a direct effect on professional grief but also an indirect effect via positive coping styles. The direct (0.346) and indirect (0.164) effects accounted for 67.710% and 32.094% of the total effect, respectively (Fig. 2), thus supporting Hypothesis 4.

Variable	N (%)	Mean ± SD	T/F	P
Sex			1.780	0.092
Female	500 (96.5)	36.856 ± 9.089		
Male	18 (3.5)	31.944 ± 11.578		
Age (years)			0.903	0.406
< 30	131 (25.3)	36.046 ± 10.251		
30 ~ 50	361 (69.7)	36.778 ± 8.798		
> 50	26 (5.0)	38.615 ± 9.479		
Highest education level			0.893	0.410
Diploma	87 (16.8)	36.287 ± 10.769		
Bachelor's degree	412 (79.5)	36.886 ± 8.962		
Postgraduate and above	19 (3.7)	34.158 ± 6.610		
Religious belief			− 1.523	0.136
None	483 (93.2)	36.492 ± 9.075		
Yes	35 (6.8)	39.342 ± 10.797		
Length of service(years)			**16.846**	**< 0.001**
< 3	58 (11.2)	43.862 ± 10.427		
3 ~ 10	163 (31.5)	37.085 ± 9.057		
11 ~ 20	208 (40.2)	35.510 ± 8.318		
> 21	89 (17.2)	34.022 ± 8.383		
Professional title			2.147	0.093
Staff nurse	52 (10.0)	34.154 ± 8.819		
Senior nurse	197 (38.0)	36.310 ± 9.949		
Supervisor nurse	224 (43.2)	37.313 ± 8.460		
Associate chief nurse and above	45 (8.7)	38.133 ± 9.593		
Marital status			0.388	0.679
Single	111 (21.4)	36.126 ± 9.898		
Married	388 (74.9)	36.889 ± 8.978		
Divorced or widowed	19 (3.7)	35.789 ± 10.239		
Fertility			− 0.330	0.741
Having children	375 (72.4)	36.768 ± 8.959		
Childless	143 (27.6)	36.468 ± 9.893		
Hospital type			0.331	0.741
Specialized hospital	383 (73.9)	36.765 ± 9.413		
General hospital	135 (26.1)	36.459 ± 8.669		
Current position			2.547	0.055
Primary nurse	326 (62.9)	35.969 ± 9.472		
Team leader nurse	128 (24.7)	37.961 ± 8.730		
Office nurse	36 (6.9)	39.306 ± 7.697		
General-duty nurse	28 (5.4)	35.821 ± 9.373		
Nursing career choice			− 0.435	0.662
Involuntary	105 (20.3)	36.333 ± 7.848		
Voluntary	413 (79.7)	36.775 ± 9.541		
Previous psychological training			− 1.690	0.092
Not attended	286 (55.2)	36.069 ± 9.407		
Attended	232 (44.8)	37.444 ± 8.940		

Table 1. Comparison of professional grief among oncology nurses with different characteristics (n = 518). *T* t-value, *F* F-value. Bold values indicate statistical significance.

Discussion
Professional grief
The present findings indicate that Chinese oncology nurses reported relatively low levels of professional grief (score 36.685 ± 9.217), a pattern consistent with Zhuo et al.'s study[36]. This attenuation may partly reflect a recall effect: the assessment was not conducted immediately after a patient's death but relied on participants' retrospective accounts, during which grief intensity naturally declines[37,38]. Culturally, the traditional Chinese notion of "falling leaves returning to their roots" leads many patients to request discharge home at the end of life or even before death, so nurses seldom witness the actual moment of dying[39]. In addition, China's

Variables	Mean	SD	1	2	3
1. Professional grief	**36.685**	**9.217**	1		
2. Psychological resilience	**113.062**	**14.395**	**−0.545****	1	
3. Positive coping style	**26.334**	**5.590**	**−0.538****	**0.570****	1

Table 2. Means, SDs, and correlations of all variables (n = 518). ** indicates $P < 0.01$, 1 = professional grief, 2 = psychological resilience, 3 = positive coping style. Bold values indicate statistical significance.
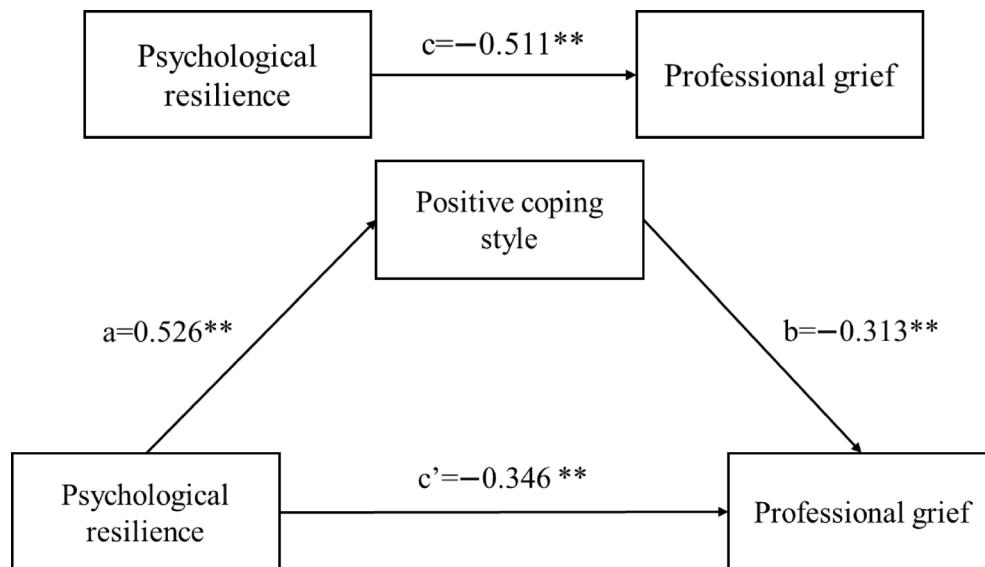
Fig. 2. The hypothesised mediation model relating the effect of psychological resilience on professional grief through positive coping style (All coefficients are standardized coefficients, ** indicates $P < 0.001$).

Variables	β	t	P	LLCI	ULCI	R^2	F
Result variable: positive coping style							
a = Predictor variable: psychological resilience	**0.526**	14.528	**<0.001**	0.177	0.232	0.361	145.457
Result variable: professional grief							
c' = Predictor variable: psychological resilience	**−0.346**	−8.174	**<0.001**	−0.275	−0.168	0.380	105.157
b = Mediator variable: positive coping style	**−0.313**	−7.201	**<0.001**	−0.656	−0.375		
Result variable: professional grief							
c = Independent variable: psychological resilience	**−0.511**	−13.657	**<0.001**	−0.374	−0.280	0.318	119.961

Table 3. Regression analysis among study measures. *β* regression coefficient, *t* t-value, *P* p-value, *LLCI* lower level confidence interval, *ULCI* upper level confidence interval, *R²* R-squared, *95% CI* 95% confidence interval, *F* F-value. Bold values indicate statistical significance.

Path	Effect size	Boot SE	Boot LLCI	Boot ULCI	Effect ratio
Total effect	**−0.511****	0.024	−0.374	−0.280	1
Direct effect	**−0.346****	0.027	−0.275	−0.168	**67.710%**
Indirect effect	**−0.164****	0.024	−0.216	−0.117	**32.094%**

Table 4. Analysis of the mediating effect of positive coping style on psychological resilience and professional grief. ** indicates $P < 0.001$; *Boot SE* bootstrap standard error, *Boot LLCI* bootstrap lower level confidence interval, *Boot ULCI* bootstrap upper level confidence interval. Bold values indicate statistical significance.

health-insurance reimbursement policies shorten hospital stays, limiting opportunities for deep nurse–patient attachments and further reducing grief intensity[40].

Notably, nurses with shorter length of service reported significantly higher grief. Novices have fewer exposures to dying patients and receive limited death education. Consequently, their cognitive frameworks for death are poorly developed, heightening empathic distress and making them feel grief when patients die[41]. In addition, these nurses have lower psychological detachment ability and find it difficult to disengage from grief.

Psychological resilience

First, the present study found that oncology nurses obtained a mean psychological resilience score of 113.062 ± 14.395, indicating a moderate level. Thus, the psychological resilience of oncology nurses still needs to be further improved. At the same time, the results fully supported Hypothesis 1 by demonstrating that psychological resilience exerts a significant effect on professional grief among Chinese oncology nurses, a finding consistent with previous reports[42,43]. Our data strengthen the evidence linking psychological resilience to professional grief alleviation. On the one hand, nurses with higher psychological resilience possess greater adaptive capacity, allowing them to recover more rapidly from adverse or stressful events[44,45]. On the other hand, highly resilient oncology nurses display greater initiative, actively seeking external resources to adjust to environmental demands and counteract stress, thereby attenuating the physiological, psychological, and cognitive distress associated with professional grief[28].

Second, our findings confirmed Hypothesis 2 by demonstrating a direct effect of psychological resilience on positive coping style. This relationship likely reflects the tendency of highly resilient oncology nurses to appraise stressful events constructively and to evaluate their own coping resources optimistically. Such cognitive framing enables them to draw on personal strengths and situational resources, actively manage problems, and regulate their emotions effectively[46].

The mediating role of active response modalities

The results supported Hypotheses 3 and 4 by demonstrating that positive coping style partially mediates the relationship between psychological resilience and professional grief, thereby clarifying one mechanism through which psychological resilience exerts its protective effect. Importantly, psychological resilience influenced professional grief both directly and indirectly via positive coping style.

On the one hand, highly resilient nurses possess greater adaptability, self-confidence, and problem-solving capacity, allowing them to appraise adversity more optimistically, remain calmer under pressure, and continuously readjust their mindset to the changes imposed by negative events[47–50]. These individuals maintain emotional stability, confront difficulties head-on, and actively mobilize available resources to mitigate the impact of stressors on their physical and mental health[51,52].

On the other hand, psychological resilience functions as an antecedent of positive coping style. Nurses with elevated psychological resilience recognize the benefits of approach-oriented strategies and are more likely to seek assistance, generate solutions, or release negative affect through communication with colleagues[53,54]. Both psychological resilience and positive coping style thus constitute key intrapersonal resources that protect oncology nurses during patient-death events: each can directly reduce negative affect and foster personal growth[15,55,56], while psychological resilience additionally promotes the adoption of positive coping style, which further attenuates the emotional impact of stressors[57,58].

By delineating these pathways, the present study enriches the literature on psychological resilience and professional grief and provides a novel direction for interventions aimed at strengthening psychological resilience and encouraging positive coping style to alleviate grief among oncology nurses.

Implications for practice
Clinical significance

As professional grief becomes increasingly common among oncology nurses, it is imperative to identify its root determinants. Our study revealed that psychological resilience is negatively associated with grief intensity. Consequently, both researchers and nurse managers should pay equal attention to enhancing psychological resilience while alleviating grief. Multi-level interventions that strengthen positive psychological assets are needed to reduce grief prevalence. Moreover, because positive coping style mediated the effect of psychological resilience on grief, targeted programmes should encourage approach-oriented strategies, thereby simultaneously boosting psychological resilience and active coping skills and ultimately diminishing professional grief.

Recommendations and countermeasures

To address this issue, we recommend that national authorities include staff mental health as a hospital quality indicator and allocate dedicated funds for psychological interventions. Hospital administrators should provide oncology nurses with professional psychological support and grief counselling, and routinely incorporate "death education and self-care" into mandatory training and competency assessments to improve nurses' understanding of death and their emotional self-regulation, thereby enhancing psychological resilience. Furthermore, nurse managers should organize regular group activities to foster peer support and create safe spaces for expressing negative emotions, which will help reduce professional grief.

Limitations

This study has several limitations. First, only one mediating variable was examined. Thus, caution is needed when generalizing the findings. Future research should explore additional potential variables related to professional grief. Second, the sample was recruited exclusively from Sichuan Province and did not include oncology

nurses from other regions of China, limiting representativeness and generalizability. Multi-site data collection is recommended for future studies. Third, the cross-sectional design precludes definitive causal inferences. Longitudinal or experimental designs are needed to clarify causal relationships between influencing factors and professional grief. Finally, reliance on participants' recall introduced memory-related bias. Qualitative approaches should be incorporated in future work to achieve a deeper understanding of how professional grief affects oncology nurses.

Conclusion

Professional grief among oncology nurses warrants urgent global attention. Our findings indicate that nurses with higher psychological resilience are more likely to adopt positive coping styles, thereby reducing grief triggered by patient deaths. Although scholars continue to explore interventions to alleviate this problem, current outcomes remain suboptimal. Future studies should employ longitudinal designs to map the developmental trajectory of nurses' grief over time. In addition, psychological resilience and coping style should be targeted in multi-component interventions that enhance social support, facilitate interprofessional guidance, and provide structured grief-management education and training, ultimately mitigating professional grief in this vulnerable population.

Data availability

All data supporting the findings of this study are included within the article. The raw data are available from the corresponding author upon reasonable request.

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Acknowledgements

Author contributions

QG designed the study. SYY, MLH and XXW collected the data. ML analyzed the data and drafted the manuscript. ML and QG revised the manuscript. All authors read and approved the final manuscript.

Declarations

Competing interests

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethical approval and consent to participate

All procedures of this study were approved by the Sichuan Cancer Hospital Ethics Committee (No. SCCHEC-02–2024-258) and conducted in accordance with the ethical standards of the 1964 Declaration of Helsinki. After a face-to-face explanation of the study's aims, significance, and potential risks, written informed consent was obtained from each participant. Participation was voluntary, and nurses completed the anonymous online questionnaire at their discretion. Participants could withdraw at any time. Upon completion, a small gift was provided as a token of appreciation. To safeguard participants' rights and data security, all IP addresses and identifiable information were removed before data entry, questionnaires were

assigned the uniform codes. Furthermore, the final dataset is held only by the research team, and is used solely for research purposes.

Consent for publication

Not applicable.

Additional information

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