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Emotional Preparedness Mediates the Relationship Between Empathy and Depersonalization Among Oncology Nurses: A Cross-Sectional Study

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Article Info

Abstract

Background: Depersonalization is a key dimension of burnout that threatens the well-being of nurses and patient care, especially in oncology settings where exposure to suffering is frequent. Empathy typically protects against depersonalization; however, its effect may weaken in emotionally demanding environments. Emotional preparedness may help sustain empathy and prevent depersonalization. However, evidence on how emotional preparedness explains the relationship between empathy and depersonalization remains limited.

Purpose: This study examined whether emotional preparedness mediates the relationship between empathy and depersonalization among oncology nurses in Indonesia.

Methods: A cross-sectional survey using convenience sampling was conducted with 116 oncology nurses at a national cancer hospital in Jakarta, Indonesia. Empathy, emotional preparedness, and depersonalization were measured using the Jefferson Scale of Empathy (JSE), the Expanded Nursing Stress Scale (ENSS), and the Maslach Burnout Inventory (MBI). Data were analyzed using Pearson correlation, multiple linear regression, and mediation analysis with Hayes' PROCESS Macro (Model 4).

Results: Emotional preparedness and empathy were both negatively correlated with depersonalization (r = −0.28, p < .01; r = −0.54, p < .01, respectively). Empathy significantly predicted depersonalization (β = −0.21, SE = 0.02, p < .001), and mediation testing demonstrated that emotional preparedness fully mediated this relationship (β = −0.08, SE = 0.06, 95% CI [−0.14, −0.02]).

Conclusion: Emotional preparedness fully mediates the association between empathy and depersonalization among oncology nurses. Strengthening emotional preparedness through structured training and psychosocial support may help preserve empathy, reduce depersonalization, and enhance both nurse well-being and the quality of patient care.

1. Introduction

Burnout is a common issue among nurses, particularly in oncology settings where frequent exposure to patient suffering and death places substantial emotional demands on healthcare professionals (HaGani et al., 2022; Ma et al., 2023; Sharma & Sharma, 2023). These emotionally demanding conditions require not only clinical competence but also strong emotional resilience (Kranke et al., 2022; Tzeng et al., 2023). Burnout is a multidimensional syndrome characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment

(Maslach & Jackson, 1981). Among these dimensions, depersonalization, defined as emotional detachment or diminished compassion toward patients, poses a particular concern in oncology care (De la Fuente-Solana et al., 2020; Maslach & Jackson, 1981; Shen et al., 2018). Although emotional distancing may function as a short-term coping strategy, persistent depersonalization can impair therapeutic relationships, reduce care quality, and undermine professional identity (Chan et al., 2019; Cheung et al., 2020). In Indonesia, approximately 60% of nurses report moderate to high levels of burnout, with depersonalization and emotional exhaustion being especially prevalent (Amaliyah & Sansuwito, 2022; Yulianita et al., 2023). Similar patterns have been reported globally, underscoring the importance of identifying protective factors that help nurses remain emotionally engaged with their patients (HaGani et al., 2022; Ma et al., 2023). One of the key factors that protects against depersonalization and supports compassionate care is empathy (Khatun, 2023; McKinnon, 2018; Sedaghati Kesbakhi et al., 2017; Taleghani et al., 2017).

Empathy is a core value in nursing practice and an essential skill for establishing therapeutic relationships (McKinnon, 2018; Taleghani et al., 2017). It involves understanding patients' feelings and experiences while responding with professional sensitivity and concern (Hojat et al., 2001). Empathy enables nurses to deliver humanized care, make sound clinical judgments, and build patient trust (Sedaghati Kesbakhi et al., 2017; Zhang et al., 2019). Higher levels of empathy have been associated with greater job satisfaction, improved patient outcomes, and lower levels of burnout (Hojat et al., 2001; Keshtkar et al., 2024; Wilkinson et al., 2017). However, sustaining empathy in oncology settings is particularly challenging. Continuous exposure to pain, suffering, and death can lead to empathy fatigue, which may manifest as emotional numbness or depersonalization over time (Cheung et al., 2020; Radaelli & Quipildor, 2023; Tang et al., 2021). Although empathy is widely recognized as a protective factor against burnout, the psychological mechanisms that help nurses preserve empathy and prevent depersonalization remain insufficiently explained (Sedaghati Kesbakhi et al., 2017; Taleghani et al., 2017).

One potential mechanism that may explain how empathy protects nurses from depersonalization is emotional preparedness (Kranke et al., 2022; Tang et al., 2021; Wen et al., 2021). Emotional preparedness refers to nurses' psychological readiness to face emotionally intense or distressing clinical situations. It enables nurses to regulate emotional responses, remain composed in difficult circumstances, and sustain empathic engagement with patients (Tang et al., 2021; Taleghani et al., 2017). Nurses with higher emotional preparedness are better able to cope with work-related stress and derive meaning from their professional experiences rather than feeling overwhelmed (Kranke et al., 2022). Previous studies have shown that emotionally prepared nurses experience lower emotional exhaustion and better mental health outcomes (Kranke et al., 2022; Tang et al., 2021). Emotional preparedness is also closely linked to the ability to manage stressors related to patient care, emotional labor, and workload commonly encountered in nursing practice (French et al., 2000; Harsono, 2017).

To ensure conceptual focus, this study narrowed the broader constructs of burnout and work-related stress to the dimensions most relevant to the proposed model. Depersonalization was selected to represent burnout because it reflects emotional detachment that directly undermines empathic engagement in patient care. Emotional preparedness was selected to represent work-related stress, as it captures anticipatory emotional coping in emotionally demanding clinical situations. These selections are theoretically grounded in the Conservation of Resources (COR) Theory, which explains how individuals strive to acquire, maintain, and protect valuable psychological resources when facing stress (Hobfoll, 1989; Lazarus & Folkman, 1984). Within this framework, empathy functions as a protective psychological resource that helps nurses remain emotionally connected to patients, while emotional preparedness acts as a coping resource that supports emotional regulation under sustained stress. In contrast, depersonalization reflects the depletion of emotional resources resulting from prolonged exposure to emotionally demanding conditions (De la Fuente-Solana et al., 2020; Maslach & Jackson, 1981).

Previous studies have shown that empathy plays an important role in reducing burnout and supporting compassionate care among nurses, while emotional preparedness contributes to better stress management and emotional regulation in demanding clinical environments (Kranke et al., 2022; Ma et al., 2023; Taleghani et al., 2017; Tang et al., 2021). However, most existing studies have examined empathy and emotional preparedness separately, and limited research has explored how emotional preparedness may explain the relationship between empathy and depersonalization, particularly among oncology nurses in Asian contexts where cultural values

influence emotional expression and caregiving practices. Therefore, this study aimed to examine the relationships among empathy, emotional preparedness, and depersonalization, and to investigate whether emotional preparedness mediates the relationship between empathy and depersonalization, guided by the Conservation of Resources Theory (Hobfoll, 1989).

2. Methods

2.1. Research design

This study utilized a quantitative, cross-sectional correlational design to examine the relationships among empathy, emotional preparedness, and depersonalization among oncology nurses. This design was appropriate for identifying associations between psychological variables measured at a single point in time without manipulating conditions, making it suitable for ethical and practical reasons in healthcare settings (Polit & Beck, 2021). It allowed for efficient data collection within a limited period and provided objective, comparable results using standardized instruments (Polit & Beck, 2021).

2.2. Setting and samples

The study was conducted at the National Cancer Hospital, an oncology referral center located in Jakarta, Indonesia. This tertiary hospital serves as the national center for cancer treatment, education, and research, providing comprehensive oncology services for both inpatient and outpatient care. The hospital's nursing staff manages patients across diverse oncology specialties, exposing them to varying levels of emotional and clinical demands.

Inclusion criteria for study participants were: (a) full-time oncology nurses, (b) willingness to participate, (c) fluency in Bahasa Indonesia, and (d) having online access. Nurses not directly involved in patient care, such as head nurses or administrative nurses, were excluded from the study. Participants included nurses from both inpatient and outpatient care units to ensure variability in patient interaction intensity and emotional workload. A convenience sampling technique was used, targeting eligible oncology nurses who were available and willing to participate during the data collection period. This approach was selected due to the demanding clinical schedules of oncology nurses and the need to ensure feasible recruitment while minimizing disruption to patient care.

The sample size was calculated using G*Power 3.1, based on a medium effect size ($f^2 = 0.15$), an alpha level of .05, statistical power of 0.80, and three predictors, resulting in a minimum required sample of 109 participants (Faul et al., 2007). To account for potential non-responses or incomplete data, a total of 116 oncology nurses were recruited.

2.3. Measurement and data collection

Demographic data were collected to describe the backgrounds of participants and explore possible covariates related to the study variables. The demographic questionnaire included age, gender, marital status, education level, years of nursing experience, years working in oncology, employment status, and type of ward or unit. Participants provided this information using a structured self-report form.

Depersonalization was measured using the Indonesian version of the Maslach Burnout Inventory–Human Services Survey (MBI-HSS). The MBI-HSS, developed by Maslach and Jackson (1981), is widely recognized as the standard tool for measuring burnout among professionals in human service settings. The depersonalization subscale consists of five items rated on a 7-point Likert scale ranging from 0 (never) to 6 (every day), producing a total score range of 0–30. Higher scores indicate greater levels of depersonalization. The Indonesian version was previously translated and validated by Putri (2020) using standard forward and backward translation procedures. In the validation study conducted among 24 mental health nurses, all items demonstrated acceptable construct validity, with corrected item–total correlation coefficients exceeding the critical r-value ($r > 0.404$). The instrument also demonstrated excellent internal consistency reliability (Cronbach's alpha = 0.955). In the present study, the depersonalization subscale showed high internal consistency reliability (Cronbach's alpha = 0.89), supporting its applicability in the oncology nursing context.

Empathy was measured using the Indonesian version of the Jefferson Scale of Empathy–Health Professions version (JSE-HP). The JSE-HP was originally developed by Hojat et al. (2001) to assess empathy in healthcare provider–patient interactions. The instrument consists of 20

items rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with total scores ranging from 20 to 140. It measures three dimensions of empathy: perspective-taking, compassionate care, and standing in the patient's shoes, with higher scores indicating stronger empathic orientation. The original English version demonstrated good construct validity and strong internal consistency reliability, with Cronbach's alpha values of 0.87 among resident physicians and 0.89 among medical students (Hojat et al., 2001). The Indonesian version was translated and linguistically validated with permission from the original developers and is publicly available through the official Jefferson Scale of Empathy website. In this study, the Indonesian JSE-HP demonstrated excellent construct validity and internal consistency reliability (Cronbach's alpha = 0.90), supporting its validity for assessing empathy among oncology nurses.

Emotional preparedness, one of the nine subdomains of the Expanded Nursing Stress Scale (ENSS), reflects nurses' psychological readiness to manage emotionally demanding clinical situations. The ENSS was developed by French et al. (2000) to assess occupational stress among nurses and consists of 57 items across nine subscales, with total scores ranging from 57 to 228. Items are rated on a four-point Likert scale from 1 (does not apply) to 4 (very stressful), with higher scores indicating greater perceived stress. The Emotional Preparedness subscale includes three items (score range: 3–12), where higher scores indicate greater emotional strain and lower levels of preparedness. The Indonesian version of the ENSS, translated and validated by Harsono (2017) through a forward–backward translation process, demonstrated excellent psychometric properties, with a Cronbach's alpha of .956 and an intraclass correlation coefficient (ICC) of .939 for test–retest reliability. In the current study, the emotional preparedness subscale demonstrated good internal consistency reliability (Cronbach's alpha = .82).

In this study, the recruitment process involved consulting with the nursing committee director to obtain an official list of nursing personnel. Using this list, the survey invitation and online questionnaire link were distributed to potential participants who met the inclusion criteria and agreed to take part voluntarily. This approach allowed participation from nurses who were accessible and willing to respond. Written informed consent was not obtained in paper format due to the use of an online data collection platform (Google Forms). Comprehensive study information was presented on the first page of the online survey, and participants who proceeded to complete the questionnaire were considered to have provided voluntary electronic consent. Participants were informed that they could discontinue participation and exit the online platform at any time without penalty.

To ensure transparency and ethical compliance, the researcher personally approached each potential participant via WhatsApp to invite participation and provide additional clarification regarding the study. Participants were encouraged to raise any questions or concerns about the research procedures directly through WhatsApp before or during their participation. Data confidentiality and participant anonymity were maintained throughout the data collection and analysis processes. All oncology nurses provided socio-demographic information and completed validated instruments measuring depersonalization, empathy, and emotional preparedness. Data collection was conducted between March and April 2022.

2.4. Data analysis

Descriptive analyses were used to summarize socio-demographic characteristics and study variables using frequencies, percentages, means, and standard deviations (Pallant, 2020; Polit & Beck, 2021). Data were examined for accuracy, missing values, and distributional assumptions. The normality of the main study variables was assessed using the Kolmogorov–Smirnov test, as well as skewness and kurtosis values (Pallant, 2020). Continuous variables, including age and years of working experience, were recorded as numerical values, whereas categorical variables were coded for statistical analysis.

Independent-samples t-tests and one-way analyses of variance (ANOVA) were conducted to examine differences in emotional preparedness and empathy across categorical demographic variables. Pearson correlation analyses were used to assess associations among continuous variables, including age, years of working experience, empathy, emotional preparedness, and depersonalization (Polit & Beck, 2021; Pallant, 2020). Variables that demonstrated associations with depersonalization in the bivariate analyses ($p < .20$), including age, years of work experience, empathy, and emotional preparedness, were selected for inclusion in the hierarchical regression analyses.

After confirming the assumptions of linearity, homoscedasticity, and absence of multicollinearity, hierarchical multiple linear regression analyses were performed to examine factors associated with depersonalization. Age and years of working experience were entered in Model 1 as control variables, empathy was entered in Model 2, and emotional preparedness was entered in Model 3. Mediation analysis was subsequently conducted using Model 4 of Hayes' PROCESS Macro in SPSS to examine the mediating role of emotional preparedness in the relationship between empathy and depersonalization (Hayes, 2015). Bootstrapping with 5,000 resamples was applied to generate bias-corrected confidence intervals for indirect effects.

A two-tailed p value of < .05 was considered statistically significant for all analyses. All statistical analyses were conducted using SPSS for Mac version 25.0.

2.5. Ethical Considerations
This study was conducted in accordance with ethical principles for research involving human participants. Approval was obtained from the Institutional Medical Research Ethics Committee of Dharmais Cancer Hospital (Approval Number: 082/KEPK/IV/2022). Comprehensive study information was presented on the first page of the online questionnaire, and participants who proceeded to complete the survey were considered to have provided voluntary electronic consent. Participants were informed that they could withdraw from the study at any time without penalty. Confidentiality and anonymity were strictly maintained throughout the data collection and analysis processes.

3. Results
3.1. Characteristics of participants
Descriptive statistics for 116 oncology nurses involved in the study showed that most were female (75.9%), with an average age of 33 years (SD = 7.2), the majority were married (70.7%), and held a bachelor's degree (52.6%). The working unit was majority in the inpatient ward (69.8%), with an average working experience of 9 years (SD = 7.2). Detailed demographic characteristics are listed in Table 1. All respondents provided complete data, and there were no instances of loss to follow-up among the participants.

Table 1. Distribution of demographic and work-related variables

Variables	Mean(SD)	Frequency (f)	Percentages (%)
Age (years)	32.95(7.18)		
Working Experience (years)	8.88(7.15)		
Gender			
Female		88	75.91
Male		28	24.1
Marital Status			
Unmarried		34	29.3
Married		82	70.7
Educational Level			
Diploma		50	43.1
Bachelor		61	52.6
Master		5	4.3
Working Unit			
Inpatient Ward		81	69.8
Outpatient Ward		35	30.2

3.2. Associations of demographic characteristics with emotional preparedness and empathy
Educational level showed a significant difference in emotional preparedness $(F(2, 113) = 8.27, p < .01)$. Nurses with a master's degree (M = -5.60, SD = 2.19) demonstrated lower emotional preparedness compared to those with a diploma (p = .01, 95% CI = [-9.55, -1.39]) and those with a bachelor's degree (p = .02, 95% CI = [-8.36, -.74]). Gender, working unit, and marital status did not show significant differences in emotional preparedness (Table 2).

Table 2. Relationship between categorical variables and the variables

Variable	n	Depersonalization				Empathy				Emotional Preparedness			
		M	SD	t/F	*p*	M	SD	t/F	*p*	M	SD	t/F	*p*
Gender[a]				-.86	.40			1.31	.19			1.63	.10
Female	88	10.15	6.13			-92.86	9.82			-10.03	2.72		
Male	28	11.54	7.89			-95.89	13.02			-11.04	3.14		
Working Unit[a]				-.93	.36			1.97	.05			1.52	.13
Inpatient	81	10.11	6.25			-92.33	9.61			-10.01	2.80		
Outpatient	35	11.34	7.24			-96.51	12.54			-10.89	2.90		
Marital Status[a]				-.29	.77			.86	.39			-1.05	.30
Unmarried	34	10.21	5.39			-92.26	6.18			-10.71	2.68		
Married	82	10.60	7.00			-94.15	7.20			-10.10	2.91		
Educational Level[b]				1.38	.26			.03	.97			8.27	<.001
Diploma	50	11.54	7.03			-93.78	7.29			-10.72	2.89		
Bachelor	61	9.84	6.30			-93.38	6.59			-10.30	2.54		
Master	5	7.80	2.28			-94.40	7.99			-5.60	2.19		

Notes. [a]Analyzed using Independent T-Test; [b]Analyzed using ONE-WAY ANOVA; t-VALUE (two-tailed = 1.981); F-VALUE (df2-113= 3.07).
    p < .05 refers to there was a significant difference in the variable. Values originally rounding to .000 were reported as p < .001

Regarding empathy, the working unit was marginally significant (t = 1.97, *p* = .05). Outpatient nurses (M = -96.51, SD = 12.54) reported higher empathy than inpatient nurses (*M* = -92.33, SD = 9.61). However, gender, marital status, and educational level did not significantly differ in empathy scores.

The correlation analysis revealed a negative correlation between emotional preparedness and depersonalization (r = -.28, *p* < .01), indicating that higher emotional preparedness is associated with lower levels of depersonalization. Empathy was also negatively correlated with depersonalization (r = -.54, *p* < 0.01), indicating that nurses with higher empathy levels experienced lower depersonalization. Age and years of working experience did not show significant correlations with depersonalization (Table 3).

Table 3. Relationship between continuous variables and depersonalization

Variable	M	SD	1	2	3	4	5
1. Age	32.95	7.18	1				
2. Years of working experience	8.88	7.15	.89**	1			
3. Depersonalization	10.48	6.56	-.16	-.15	1		
4. Empathy	93.59	10.70	-.09	-.11	-.54**	1	
5. Emotional Preparedness	10.28	2.85	.27**	.29**	-.28**	.21*	1

Note. M = Mean; SD = Standard Deviation. Correlation is significant at the .01 level (2-tailed); * correlation is significant at the .05 level (2-tailed).

Although the Jefferson Scale of Empathy consists of three subdomains, Perspective Taking, Compassionate Care, and Standing in the Patient's Shoes, none of the individual domains showed a statistically significant association with depersonalization in bivariate or regression analyses. In contrast, the total empathy score demonstrated a significant negative correlation with depersonalization (r = -.54, *p* < .01) and was therefore retained as the primary predictor in the final model.

3.3. Hierarchical regression analysis of factors associated with depersonalization

Demographic variables, including age and years of work experience, were entered in Model 1. The results showed that depersonalization was not significantly influenced by age ($\beta = -0.14$, *p* = .623) or years of work experience ($\beta = -0.06$, *p* = .786). The adjusted R^2 was .008, and the overall R^2 for the model was .025 (Table 4).

In Model 2, empathy was added to the regression model. The results indicated that empathy was a significant predictor of depersonalization ($\beta = -0.20$, *p* = .036), suggesting that higher empathy was associated with lower depersonalization. The inclusion of empathy increased the R^2 to .063, with an adjusted R^2 of .038 and an R^2 change of .059.

Model 3 added emotional preparedness, which approached significance ($\beta = -0.21$, *p* = .062), whereas empathy was no longer a significant predictor ($\beta = -0.09$, *p* = .411). This pattern suggests that emotional preparedness may mediate the relationship between empathy and depersonalization, such that higher emotional preparedness is associated with lower depersonalization. The final model yielded an R^2 of .092, an adjusted R^2 of .059, and an R^2 change of .029.

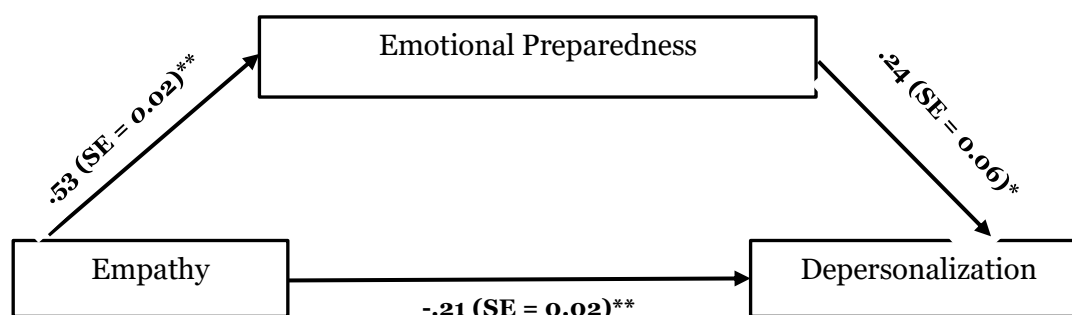### 3.4. Hierarchical regression predicting depersonalization

A mediation analysis was conducted to examine the mediating role of emotional preparedness in the relationship between empathy and depersonalization (Figure 1). The results showed a strong positive association between empathy and emotional preparedness ($\beta = 0.53$, SE = 0.02, *p* < .001), indicating that higher empathy is associated with greater emotional preparedness. Emotional preparedness was negatively associated with depersonalization ($\beta = -0.24$, SE = 0.06, *p* < .05), suggesting that nurses with higher emotional preparedness experience lower depersonalization.

Table 4. Determinants of depersonalization

Variable	Model 1			Model 2			Model 3		
	β	t	p	β	t	p	β	t	p
Age	-.14	-.493	.623	-.11	-.51	.608	-.10	-.49	.623
Years of working experience	-.06	-.27	.786	-.03	-.16	.874	.01	.05	.957
Empathy				-.20	-2.13	.036	-.09	-.83	.411
Emotional preparedness							-.21	-1.89	.062
R²		.025			.063			.092	
Adjusted R²		.008			.038			.059	
R² change		.025			.059			.029	

Note. β was the standardized regression coefficient.

The total effect of empathy on depersonalization was significant (β = −0.21, SE = 0.02, *p*< .001). However, when emotional preparedness was included as a mediator, the direct effect of empathy on depersonalization decreased to β = −0.09 (SE = 0.02, *p* = .411) and was no longer statistically significant. The indirect effect of empathy on depersonalization through emotional preparedness was β = −0.08 (SE = 0.06, 95% CI [−0.14, −0.02]), indicating a significant mediating effect because the confidence interval did not include zero.

Figure 1. Mediation model showing the indirect effect of empathy on depersonalization through emotional preparedness. The indirect effect was −0.08 *(*SE = 0.06, 95% CI [−0.14, −0.02]). All coefficients are standardized regression weights. *p* < .05, p < .01.

4. Discussion

This study examined the relationships among empathy, emotional preparedness, and depersonalization among oncology nurses and demonstrated that emotional preparedness fully mediates the association between empathy and depersonalization. Although empathy was initially associated with lower levels of depersonalization, this relationship became non-significant after emotional preparedness was included in the model. This finding indicates that empathy exerts its protective influence on depersonalization primarily through emotional preparedness. The results provide empirical support for the Conservation of Resources (COR) Theory (Hobfoll, 1989), which posits that individuals cope more effectively with stress when sufficient psychological resources are available. Within this framework, emotional preparedness appears to function as a critical coping resource that enables empathic engagement to serve as psychological protection rather than a source of emotional strain. Similar patterns have been reported among caregivers and healthcare professionals in emotionally demanding environments, where anticipatory coping and emotional readiness act as key protective mechanisms (Tang et al., 2021; Kranke et al., 2022; Rocha et al., 2025).

These findings extend previous research by clarifying that empathy alone may not consistently protect against burnout-related outcomes. Earlier studies identified empathy as a general protective factor against emotional exhaustion and depersonalization (Hojat et al., 2001; Taleghani et al., 2017; Sedaghati Kesbakhi et al., 2017). However, the present results suggest that

empathy in the absence of adequate emotional coping resources may be insufficient to prevent depersonalization. This interpretation aligns with McKinnon (2018), who proposed that empathy without effective self-regulation may increase vulnerability to compassion fatigue. In addition, Cheung et al. (2020) reported partial mediation by emotional preparedness, suggesting that its role may vary across populations and clinical contexts. In oncology nursing, where exposure to patient suffering, grief, and death is persistent and emotionally intense, anticipatory coping appears to be particularly critical (Souza et al., 2025). The observation of full mediation in the present study reinforces the notion that empathy represents a dual process, promoting compassionate care while increasing vulnerability when emotional preparedness is insufficient.

Collectively, these findings indicate that the protective function of empathy depends on the presence of emotional preparedness, thereby offering a more nuanced understanding of how psychological resources interact to mitigate burnout and depersonalization in oncology settings. Cultural and organizational characteristics in Indonesia may further explain these patterns. Nurses in Indonesia commonly practice within hierarchical healthcare systems that emphasize professionalism, obedience, and emotional restraint rather than open emotional expression (Amaliyah & Sansuwito, 2022; Yulianita et al., 2023). Similar to observations in other collectivist contexts, such as Saudi Arabia, cultural norms tend to prioritize composure, harmony, and self-control, which may discourage explicit emotional disclosure (Baker & Alshehri, 2020). As noted by Ma et al. (2023) and Tzeng et al. (2023), such norms increase reliance on internal coping strategies rather than external emotional support. This context likely amplifies the importance of emotional preparedness, as nurses depend more heavily on individual regulation strategies in the absence of structured emotional support systems.

This interpretation is consistent with evidence indicating that resilience is inversely associated with emotional exhaustion among nurses working in high-stress environments (Gagnon-Béland et al., 2025). In contrast, healthcare systems in many Western countries frequently incorporate debriefing sessions, reflective supervision, and formal emotional support interventions to help clinicians process occupational stressors (Romosiou et al., 2019; Lees-Deutsch et al., 2025). Such organizational practices may reduce the need for strict personal emotional restraint and support more adaptive emotional regulation.

Educational level and workplace characteristics also contributed to observed differences in empathy and emotional preparedness. Nurses holding a master's degree reported lower levels of emotional preparedness, potentially reflecting increased leadership responsibilities, administrative demands, and emotional labor associated with advanced professional roles (McVicar, 2016). This finding contrasts with evidence suggesting that resilience increases with clinical experience (Taleghani et al., 2017), indicating that higher educational attainment may introduce distinct stressors in certain contexts. In addition, outpatient nurses demonstrated slightly higher empathy than inpatient nurses, consistent with prior research indicating that sustained and continuous patient interaction fosters stronger empathic engagement (Zhang et al., 2019). These results highlight the influence of professional role demands and patterns of nurse–patient interaction on both empathy and emotional preparedness, underscoring the need for context-specific emotional support strategies.

Overall, the findings emphasize the importance of fostering both empathy and emotional preparedness in oncology nursing practice. While empathy facilitates understanding and meaningful patient connection, emotional preparedness ensures that empathic engagement does not result in emotional exhaustion or depersonalization. This interpretation is supported by recent intervention studies demonstrating that emotional regulation and resilience-building programs effectively reduce burnout symptoms among nurses (Adif et al., 2024; Balideh et al., 2025; Cheung et al., 2020; Kharatzadeh et al., 2020; Naggar et al., 2025). Emotional regulation training has been shown to enhance emotional adjustment and reduce psychological distress among nursing students (Balideh et al., 2025), while emotional intelligence development contributes to lower job exhaustion and improved well-being among healthcare professionals (Naggar et al., 2025). Moreover, evidence from oncology settings indicates that emotional intelligence moderates the relationship between burnout and patient-centered communication (Alodhialah, 2025), reinforcing the importance of strengthening emotional competencies in nursing education and professional development.

In summary, this study advances understanding of the emotional mechanisms underlying burnout in oncology nursing by demonstrating that empathy alone is insufficient to buffer against

depersonalization without concurrent emotional preparedness. The cultivation of emotional preparedness and related emotional competencies may therefore be essential for promoting resilience, reducing depersonalization, and sustaining empathic, patient-centered care in emotionally intensive oncology settings.

5. Implications and limitations

The findings of this study carry important practical and theoretical implications for nursing practice and policy. Emotional preparedness should be explicitly integrated into nursing education and ongoing professional development, especially for nurses in emotionally demanding specialties such as oncology. Healthcare institutions can incorporate emotional regulation workshops, reflective practice sessions, and peer support systems as standard components of training to enhance resilience and empathy. Also, nurse managers and policymakers should recognize emotional preparedness as a core element of burnout prevention, implementing screening and early intervention programs to support workforce well-being and reduce turnover. From a research standpoint, longitudinal and interventional studies are warranted to examine how emotional preparedness develops over time and to evaluate the effectiveness of targeted strategies in strengthening its protective role across varied clinical and cultural contexts.

Despite the significance of the findings, several limitations should be acknowledged. The cross-sectional design limits causal interpretation of the relationships among emotional preparedness, empathy, and depersonalization. Longitudinal studies are needed to explore potential reciprocal effects over time. The sample was restricted to oncology nurses from a single hospital, which may reduce generalizability. Data were collected through self-report questionnaires, which may introduce response bias; combining self-report with objective or multi-method assessments is recommended. Emotional preparedness represents one aspect of work-related stress, and its association with empathy and depersonalization may be influenced by other unmeasured factors such as workload, coping strategies, and institutional support.

6. Conclusion

This study investigated the interrelationships among empathy, emotional preparedness, and depersonalization among oncology nurses. The findings showed that emotional preparedness fully mediated the association between empathy and depersonalization. Nurses who demonstrated higher empathy experienced lower levels of depersonalization when equipped with adequate emotional readiness to manage the psychological demands of oncology care. These results underscore that empathy alone is insufficient to mitigate burnout; it must be reinforced through emotional preparedness. Enhancing emotional preparedness through structured training, psychological support, and a supportive organizational climate may serve as an effective strategy to reduce depersonalization and promote the mental well-being and quality of care of oncology nurses. Further research should examine these factors and evaluate interventions that strengthen emotional preparedness, reduce burnout, and improve nurses' psychological well-being. Future studies should also include more diverse nursing populations and settings to enhance external validity.

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Author contributions

SAA, CYL, and HFL contributed to the study conception, design, and methodology. SAA and HFL collected the data. Data analysis and interpretation were performed by SAA, HFL, CYL, and BFA. The first draft of the manuscript was written by SAA, CYL, and HFL, and all authors contributed to subsequent revisions. MAP, MY, and HFL provided critical review and editing of the final manuscript. HFL and MY supervised the overall study process. All authors read and approved the final version of the manuscript.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Declaration of Generative AI in Scientific Writing

Generative AI, specifically OpenAI's ChatGPT, was utilized to assist in language refinement and improve the readability of the manuscript. All content was carefully reviewed and revised by the authors to ensure accuracy and alignment with the study objectives. The use of AI was limited to language editing and did not influence the data analysis, interpretation, or conclusions. The authors assume full responsibility for the final content and affirm adherence to ethical standards in scientific writing.

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