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# Moral distress and compassion fatigue among nursing interns: a cross-sectional study on the mediating roles of moral resilience and professional identity

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## Abstract

**Background** Nursing interns often faced moral distress in clinical practice, similar to registered nurses, which can lead to compassion fatigue. The roles of moral resilience and professional identity in influencing the psychological well-being of nursing interns are recognized, but the interrelationships among moral distress, moral resilience, professional identity, and compassion fatigue in this group remain unclear.

**Objectives** This study aimed to investigate the impact of moral distress on compassion fatigue among nursing interns and to explore the mediating role of moral resilience and professional identity.

**Methods** A quantitative cross-sectional study was conducted with 467 nursing interns. Data were collected using Compassion Fatigue Short Scale, Moral Distress Scale-revised, Rushton Moral Resilience Scale, and Professional Identity Scale. Data analyses were performed using SPSS 22.0 and Amos 21.0, adhering to the STROBE statement.

**Results** The mean scores for compassion fatigue, moral distress, moral resilience, and professional identity were 35.876, 44.887, 2.578, and 37.610, respectively. Moral distress was positively correlated with compassion fatigue. Structural equation modeling showed that moral resilience and professional identity partially mediated the relationship between moral distress and compassion fatigue ( $\beta = 0.448, P < 0.001$ ).

**Conclusion** The findings suggest that moral distress directly influences compassion fatigue among nursing interns and also exerts an indirect effect through moral resilience and professional identity. Interventions aimed at enhancing moral resilience and fostering a strong professional identity may help mitigate the adverse effects of moral distress on compassion fatigue among nursing interns.

**Keywords** Nursing interns, Compassion fatigue, Moral distress, Moral resilience, Professional identity

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## Introduction

The aging population and the growing prevalence of chronic disease are driving a significant increasing in the need for nursing services. However, with only 3.7 registered nurses per 1,000 people as of 2022, this figure falls short of the World Health Organization's recommended minimum of 4.45 per 1,000 people, leading to a nursing shortage that negatively affects patient care and health-care efficiency [1–3]. To address this, healthcare system is significantly hiring more new graduate nurses and utilizing nursing interns [4, 5]. In China, nursing interns, recruited during their final year, undergo an 8-month clinical internship, contributing significantly to hospital operations. However, approximately 13.9% of nursing interns experience compassion fatigue [6, 7], leading many to reconsider pursuing a career in nursing [8].

Compassion fatigue, characterized by emotional and psychological distress from chronic exposure to patient suffering [9, 10], manifests in two domains: secondary traumatic stress (STS) and burnout (BO). Nursing interns, akin to experienced nurses, frequently encounter real-life traumatic scenarios during internships, rendering them highly susceptible to compassion fatigue [8]. Research demonstrates a significant prevalence of compassion fatigue among this population [8, 11, 12]. For instance, a US study reported moderate levels among Doctor of Nursing Practice (DNP) students, while a Turkish study identified a high average score on the Compassion Fatigue Short Scale (CFSS) among nursing interns [11, 12]. In China, an online survey of 2,256 nursing interns revealed that nearly 20% scored above the CFSS threshold for compassion fatigue [8]. The consequences of compassion fatigue on nursing interns include sleep disturbances, increased alcohol consumption, depressive symptoms, intrusive thoughts, and decline in self-reflection. Ultimately, this can lead to burnout, career uncertainties, and a higher likelihood of attrition from the nursing workforce [13, 14]. Given the significant detrimental effects of compassion fatigue on the physical and mental health, as well as career development of nursing interns, a deeper exploration of its causes and mechanisms is imperative.

Moral distress arises when nurses recognize the ethically sound course of action but are unable to act on their convictions due to internal or external constraints [15]. Nursing interns are particularly susceptible to moral distress due to challenges in patient communication, inadequacy or lack of confidence when trying to communicate personal opinions and concerns during interactions with physicians, exposure to inaccurate treatment information, and a sense of isolation inherent to trainee's roles [16, 17]. Chronic exposure to moral distress can have deleterious consequences for nursing interns, manifesting as anxiety, self-doubt, guilt, and emotional exhaustion,

ultimately contributing to compassion fatigue [18]. A robust of research demonstrates a positive correlation between moral distress and compassion fatigue among nurses [19–22]. Maiden et al. identified a positive association between moral distress and compassion fatigue among 205 American critical care nurses [19]. Furthermore, several studies have documented this positive association among clinical nurses in emergency department and department of rheumatological immunology [20–22]. However, a critical gap exists in research regarding the specific influence of moral distress on compassion fatigue among nursing interns.

Moral resilience, the capacity to maintain or restore one's ethical integrity despite encountering moral complexities, confusion, distress, or setbacks [23], is a critical protective factor for nurses' mental health and ethical decision-making [24]. Moral resilience is particularly crucial for nursing interns who are more susceptible to compassion fatigue [25]. Some studies support this notion, demonstrating a negative association between moral resilience and compassion fatigue [12, 26].

Professional identity encompasses the nurse's perception of their professional worth and the ongoing development of their skills within the nursing field [27]. A robust professional identity could serve as a critical source of psychological resilience in the face of ethical and clinical challenges [28]. Research reveals that programs fostering professional identity can significantly reduce job burnout among clinical nurses. Two cross-sectional studies demonstrate an inverse relationship between professional identity and compassion fatigue among nurses and nursing interns [8, 29]. This indicates that a well-developed professional identity may buffer against compassion fatigue experienced by both registered nurses and nursing interns.

Given the high prevalence of compassion fatigue and moral distress among nursing interns, it is essential to explore their causes and mechanisms. While existing literature primarily explores the bivariate relationship between these factors [14], the potential for moral resilience and professional identity to mediate the influence of moral distress on compassion fatigue remains unexamined in nursing interns. This knowledge gap hinders the development of targeted interventions for mitigating compassion fatigue in this vulnerable population [3, 24, 28, 30–33]. Addressing this gap could lead to targeted interventions to support the well-being and professional development of nursing interns. This study aims to investigate five key hypotheses:

**H1** Nursing interns' moral distress is positively correlated with their compassion fatigue.

**H2** Nursing interns' moral distress is negatively correlated with their moral resilience and professional identity.

**H3** Nursing interns' moral resilience is positively correlated with their professional identity.

**H4** Nursing interns' moral resilience and professional identity are negatively correlated with their compassion fatigue.

**H5** Moral resilience and professional identity simultaneously mediate the influence of nursing interns' moral distress on their compassion fatigue.

## Methods

### Study design

An online quantitative, cross-sectional survey study was conducted and the findings were reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for enhanced scientific rigor [34].

### Study setting and sampling

The study employed a convenience sampling method to recruit eligible nursing interns from four public junior colleges in Hunan province, central China, in February, 2024. Participants were eligible if they had completed at least two years of nursing education, and participated in clinical internships for 8 months at a second-level or higher hospital. The professional requirements include basic nursing skills, knowledge of patient care protocols, and adherence to ethical standards. All participants provided informed consent and participated voluntarily. Nursing interns whose clinical practice positions solely involved clerical or administration duties without direct patient contact, were excluded.

### Sample size

This study used structural equation modeling (SEM) technique with maximum likelihood estimation to examine the relationships between the designed variables. The sample size was determined using the N: q rule with a ratio of 10:1, where N represents the minimum required number of cases and q denotes the number of parameters requiring estimation [35]. Based on this approach, the q of 28 yielded a theoretical minimum sample of 339. To account for potential invalid response, we aimed to recruit a sample 20% larger. However, to enhance the representativeness and minimize sampling bias, we actively recruited nursing students participating in internships across public junior colleges. This recruitment strategy resulted in a final sample of 544 nursing interns.

### Data collection

The data for this study were collected using Wenjuanxing (<https://www.wjx.cn>), a widely recognized online survey platform in China, known for its reliability and user-friendliness in research applications. This platform was selected due to its ability to securely host surveys and its accessibility to participants. To facilitate easy access, a Quick Response (QR) code was generated and shared via WeChat, a widely used mobile app in China. The principal investigator established collaborative relationships with full-time student counselors responsible for managing nursing interns at four public junior colleges in Hunan province. These counselors were provided with the survey link and were responsible for disseminating it to the nursing interns. Before participating, the nursing interns received comprehensive information about the study, including its purpose, significance, and procedures. This information was communicated both verbally by the counselors and in writing through an introductory page on the Wenjuanxing platform. The introduction emphasized the voluntary nature of participation, ensured confidentiality, and estimated the survey completion time to be between 10 and 15 min. Upon accessing the survey via the QR code or direct link, participants were required to read and agree to an informed consent statement before proceeding. The survey was designed to guide participants smoothly through each section, with all questions designated as mandatory to ensure thorough data collection. A pilot study was conducted on the Wenjuanxing platform with a small group of nursing interns to identify and address any potential technical issues or ambiguities in the questions. Based on the feedback, minor adjustments were made to enhance the clarity and user experience of the survey.

To maintain data integrity, several quality control measures were implemented. Responses completed in less than 8 min were flagged as potentially rushed and excluded from the final analysis. Additionally, responses exhibiting signs of inattention, such as uniformity in answers, regular patterns, or logical inconsistencies, were also excluded. These measures ensured that the data collected were both reliable and valid. After applying these quality control measures, the final sample consisted of 467 participants, resulting in an effective response rate of 85.9%.

### Instruments

#### *Demographic characteristics*

A self-designed demographic characteristics questionnaire was used to collect data on participants' gender, age, academic discipline (major), motivations for choosing their major, level of the internship hospital, prior exposure to ethics courses, receipt of ethics training during internship, degree of fondness for their major,

employment intentions and self-reported health status over the past month.

#### **Compassion fatigue short scale**

The Chinese version of the CFSS was utilized to measure nursing interns' CF in the present study, which was originally developed and validated by Adams et al. [36]. The Chinese version of CFSS was developed by Sun et al. [37], consisting of 13 items with 2 subscales: BO subscale (items 1, 2, 4, 6, 7, 9, 11, and 13) and STS subscale (items 3, 5, 8, 10, and 12). The Cronbach's  $\alpha$  coefficient for the total scale was satisfactory, with a value of 0.90. Similarly, the BO subscale had a coefficient of 0.90, while the  $\alpha$  coefficient of the STS subscale was 0.80. Each item is scored on a Likert scale ranging from "never" (1) to "always" (10), resulting in a total score range of 13–130. Higher scores indicate higher severity of CF. In this study, the Cronbach's  $\alpha$  values for the total scale was 0.925, with 0.894 and 0.897 for BO and STS, respectively.

#### **Moral Distress Scale-revised**

The Moral Distress Scale (MDS), a valid tool for assessing moral distress intensity and frequency, was employed in this study. The MDS-R, originally developed by Corley et al. and subsequently revised by Hamric et al. to a 21-item version [38, 39]. The Chinese adaptation of the Moral Distress Scale-revised (MDS-R) was translated and modified by Sun et al., resulting in a final version consisting of 22 items categorized into individual responsibility, not in the patient's best interest, value conflict, and harming patient's interest [40]. The Chinese version of MDS-R demonstrates high reliability and validity, with a Cronbach's  $\alpha$  coefficient of 0.894 for the total scale. MDS-R employs a 4-point Likert scale to assess the current intensity of moral distress (0=none, 4=great extent) and its frequency (0=never occurs, 4=very frequently). Each item score is calculated by multiplying the intensity and frequency scores, resulting in a range of 0 to 16. These individual scores are then summed up to generate a total score between 0 and 336, with higher scores indicating greater moral distress. In this study, the total scale exhibited excellent internal consistency, as evidenced by a Cronbach's  $\alpha$  coefficient of 0.966.

#### **Rushton Moral Resilience Scale**

The Rushton Moral Resilience Scale (RMRS), developed by Heinze et al., demonstrates a internal consistency, with a Cronbach's  $\alpha$  coefficient of 0.843. The original version consists of 17 items categorized into 4 subscales: response to moral adversity, personal integrity, relational integrity, and moral efficacy [41]. Tian et al. adapted the RMRS for the Chinese nurses, resulting in a 17-items version with 3 subscales: the ability to flexibly cope with adversity (items 2, 4, 5, 6, and 8), relational moral

soundness (items 10, 11, 13, 14, 15, and 16), and moral efficacy (items 1, 3, 7, 9, 12, and 17) [42]. The Chinese version maintains satisfactory reliability, with a Cronbach's  $\alpha$  of 0.811. Items are rated on a 4-point Likert scale ranging from "disagreement" (1) to "complete agreement" (4), with 11 items reverse-scored for accurate interpretation of the total score, including items 2, 4, 5, 6, 8, 10, 11, 13, 14, 15, and 16. The total score for this scale is calculated as the mean value of all items, where higher scores indicate greater moral resilience. In this study, the total scale achieved a Cronbach's  $\alpha$  coefficient of 0.802.

#### **Professional Identity Scale**

The present study employed the Chinese version of the Professional Identity Scale (PIS) to assess nursing interns' professional identity. This scale was originally developed and validated by Brown et al., and subsequently adapted for the Chinese population by Lu et al. [43, 44]. The PIS consists of a single dimension with 10 items, where 5 items (items 1, 4, 5, 8, 9) are scored in a positive direction and the remaining 5 items (items 2, 3, 6, 7, 10) are scored in a reverse direction. Each item is rated on a 5-point Likert scale ranging from "never" (1) to "always" (5), resulting in a total score range of 10–50. A higher score indicates stronger PI. The original scale demonstrated good internal consistency with a Cronbach's  $\alpha$  coefficient of 0.71; similarly, the Chinese version exhibited satisfactory reliability with a Cronbach's  $\alpha$  coefficient of 0.82. In this study, the Cronbach's  $\alpha$  coefficient for the scale was found to be 0.816.

#### **Statistical analysis**

Descriptive statistics were calculated using the IBM SPSS version 22.0 (Chicago, Illinois, USA). Categorical variables were represented as frequencies and percentages, while continuous variables were described using mean and standard deviation (SD). Given the adequate sample size, Pearson correlation analysis was employed to investigate the relationships between moral distress, moral resilience, professional identity, and compassion fatigue [45]. A mediation model was then constructed and analyzed using AMOS version 21.0 (Chicago, IL, United States). This analysis utilized 5,000 bootstrap samples with a focus on bias-corrected and accelerated confidence interval (CI). Model fit was assessed using established metrics including chi-square/degree of freedom ( $\chi^2/df$ ) < 5, comparative fit index (CFI) > 0.90, Tucker-Lewis index (TLI) > 0.90, and root mean square error of approximation (RMSEA) < 0.08 [46]. A two-tailed  $p$ -value of less than 0.05 indicates statistical significance.

## Results

### Participant characteristics

Table 1 presents the demographic and professional characteristics of 467 participants. The average age of the nursing interns was 20.31 years, with female students constituting 90.6% (423/467) of the participants, and nearly all participants (97.9%, 457/467) majored in the nursing specialty. Approximately half of the participants (53.7%, 251/467) reported that their choice of nursing as a major was influenced by friends and family, and a same proportion expressed a positive or very positive attitude towards their future career working in nursing field. The majority of participants (88.7%, 414/467) completed their internships in tertiary hospitals. In addition, a significant majority (92.5%, 432/467) reported receiving nursing ethics education in their curriculum, while 366 students underwent ethics-related training during their internships. A total of 61.9% participants (289/467) perceived their health status over the past month as good, and 72.2% (337/467) expressed employment intentions to work in the nursing field.

**Table 1** The characteristics of the participants ( $n=467$ )

Characteristics	Frequency (%)	Mean $\pm$ SD
Age (years)		20.31 $\pm$ 0.820
Gender	Female Male	423 (90.6) 44 (9.4)
Major	Nursing Midwife	457 (97.9) 10 (2.1)
Reasons of choosing their major upon admission	Voluntary Influenced by friends and family Adjustment	198 (42.4) 251 (53.7) 18 (3.9)
Hospital level	Tertiary hospital Secondary hospital	414 (88.7) 53 (11.3)
Inclusion of ethics courses in their college curriculum	Nursing Ethics Medical Ethics Covered in other courses or not studied	432 (92.5) 14 (3.0) 21 (4.5)
Receipt of ethics training during internship	Yes No	366 (78.4) 101 (21.6)
Degree of fondness for their major	Extremely fond Fond Indifferent Dislike Strongly dislike	36 (7.7) 215 (46.0) 183 (39.2) 28 (6.0) 5 (1.1)
Employment intentions	Working in the nursing field Working in other fields Continue to study	337 (72.2) 49 (10.5) 81 (17.3)
Health status in the past month	Good Average Poor	289 (61.9) 146 (31.3) 32 (6.9)

### Scores of variables measured in this study

Table 2 detailed the scores of participants across various scales. The overall mean score for compassion fatigue was  $35.876 \pm 19.103$ , subdivided into BO with a mean score of  $24.281 \pm 12.908$  and STS with a mean score of  $11.595 \pm 7.944$ . The overall average score for professional identity was  $37.610 \pm 6.287$ . In terms of moral resilience, the overall mean score was  $2.578 \pm 0.294$ , with the subscales of flexible response to moral adversity, relational moral soundness, and moral efficacy scoring  $2.343 \pm 0.614$ ,  $2.378 \pm 0.575$ , and  $17.801 \pm 2.916$ , respectively. Moreover, the overall mean score for moral distress was  $44.887 \pm 38.730$ , with the subscales of individual responsibility, not in the patient's best interest, values conflicts, and harm to the patient's interest scoring  $14.355 \pm 14.282$ ,  $10.647 \pm 9.325$ ,  $13.274 \pm 11.414$ , and  $6.610 \pm 6.278$ , respectively.

### Correlations for variables

Pearson correlation analysis revealed that higher level of moral distress was correlated to lower professional identity ( $r = -0.269$ ,  $P < 0.01$ ) and moral resilience ( $r = -0.343$ ,  $P < 0.01$ ) among nursing interns. Conversely, moral distress has a positive association with compassion fatigue ( $r = 0.434$ ,  $P < 0.01$ ). Additionally, a strong negative correlation was also found between professional identity and compassion fatigue ( $r = -0.527$ ,  $P < 0.01$ ). A detailed breakdown of all correlations is presented in Table 2.

### The effect of moral distress on compassion fatigue

The results from the SEM were presented in Table 3; Fig. 1. The model fit indices showed an acceptable level of congruence between the hypothesized model and the observed data. Specifically,  $\chi^2/df$  was 3.264, indicating a good fit. Additionally, CFI of 0.990, TLI of 0.980, RMSEA of 0.070 [90% CI, 0.044–0.097] further supported a satisfactory model fit. The SEM results revealed significant direct relationship within the cohort of nursing interns. Moral distress exerted a negative influence on moral resilience ( $\beta = -0.351$ ,  $P < 0.001$ ), professional identity ( $\beta = -0.199$ ,  $P < 0.001$ ), and compassion fatigue ( $\beta = 0.285$ ,  $P < 0.001$ ). Conversely, moral resilience positively impacted on professional identity ( $\beta = 0.225$ ,  $P < 0.001$ ) and negatively affected compassion fatigue ( $\beta = -0.141$ ,  $P < 0.001$ ). Similarly, professional identity exhibited a significant negative association with compassion fatigue ( $\beta = -0.405$ ,  $P < 0.001$ ). Further analysis using the bias-corrected bootstrap procedure demonstrated statistically indirect pathways from moral distress to compassion fatigue. These pathways functioned through moral resilience ( $\beta = 0.050$ ,  $P < 0.001$ ) and professional identity ( $\beta = 0.081$ ,  $P < 0.001$ ) independently, as well as concurrently through both factors ( $\beta = 0.032$ ,  $P < 0.001$ ). The

**Table 2** Correlations for variables measured in this study (n = 467)

Variables	Mean (SD)	a	b	c	d	e	f	g	h	i	j	k	l	m
a. PI	37.610 (6.287)	1												
b. CF	35.876 (19.103)	-0.527**	1											
c. BO	24.281 (12.908)	-0.569**	0.950**	1										
d. STS	11.595 (7.944)	-0.342**	0.861**	0.659**	1									
e. MD	44.887 (38.730)	-0.269**	0.434**	0.389**	0.410**	1								
f. MD1	14.355 (14.282)	-0.299**	0.439**	0.397**	0.410**	0.946**	1							
g. MD2	10.647 (9.325)	-0.209**	0.376**	0.337**	0.358**	0.952**	0.849**	1						
h. MD3	13.274 (11.414)	-0.211**	0.377**	0.319**	0.388**	0.944**	0.829**	0.794**	1					
i. MD4	6.610 (6.278)	-0.288**	0.432**	0.418**	0.361**	0.886**	0.794**	0.012	0.058	1				
j. MR	2.578 (0.294)	0.295**	-0.361**	-0.349**	-0.302**	-0.343**	-0.343**	-0.241**	-0.223**	-0.222**	0.763**	1		
k. MR1	2.343 (0.614)	0.133**	-0.246**	-0.235**	-0.208**	-0.238**	-0.208**	-0.183**	-0.158**	-0.176**	0.834**	0.657**	1	
l. MR2	2.378 (0.575)	0.146**	-0.210**	-0.196**	-0.187**	-0.257**	-0.253**	-0.183**	-0.158**	-0.176**	0.834**	0.657**	0.657**	1
m. MR3	17.801 (2.916)	0.205**	-0.129**	-0.130**	-0.100*	-0.031	-0.066	0.478**	0.506**	0.506**	-0.059	-0.506**	-0.430**	1

Note: PI: professional identity; CF: compassion fatigue; BO: burnout; STS: secondary traumatic stress; MD: moral distress; MD1: individual responsibility; MD2: not in patient's best interest; MD3: values conflicts; MD4: harm to patient's interest; MR: moral resilience; MR1: the ability to respond flexibly to moral adversity; MR2: relational moral soundness; MR3: moral efficacy. \*Statistical significance at the level of 0.05 (two-tailed), \*\*Statistical significance at the level of 0.01 (two-tailed)

specific results for these indirect pathways are summarized in Table 4.

**Discussion**  
**Main findings**

The present study stemmed from a fact that the mechanism by which moral distress influences compassion fatigue among nursing interns remains unclear. The findings of the present study revealed 4 significant outcomes: (1) moral distress is positively correlated with compassion fatigue but negatively correlated with moral resilience and professional identity, (2) moral resilience is positively correlated with professional identity, while negatively correlated with compassion fatigue, (3) professional identity is negatively associated with compassion fatigue, and (4) moral resilience and professional identity play a mediating role in the relationship between moral distress and compassion fatigue.

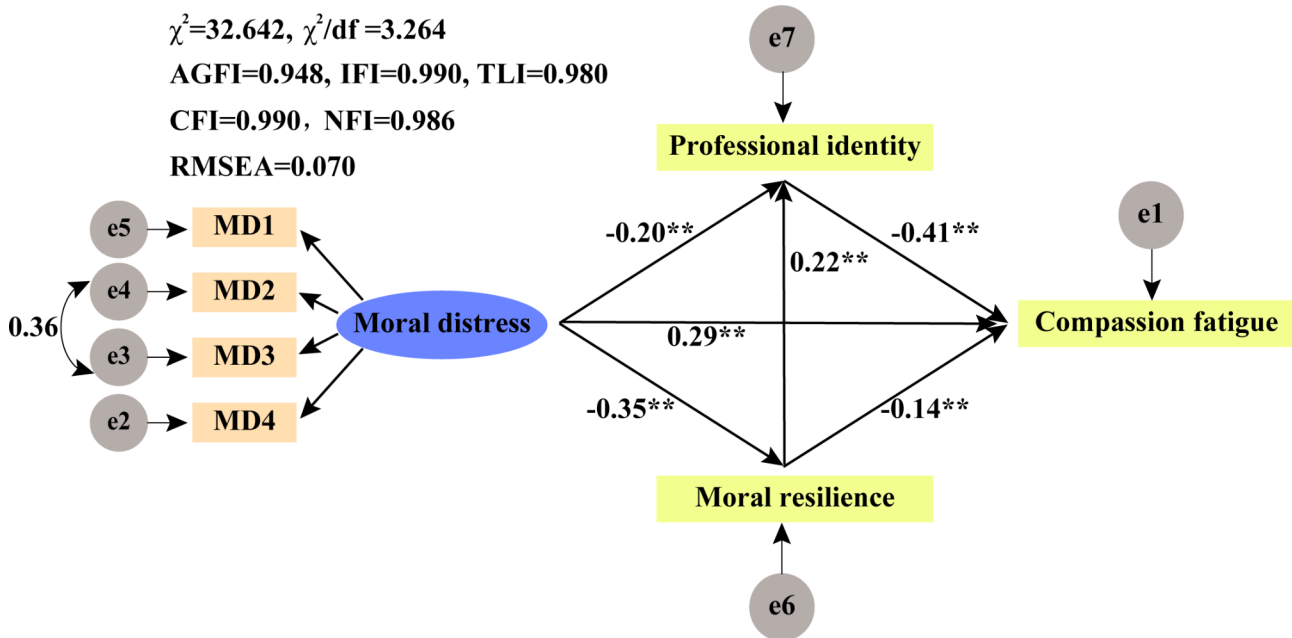
The current study unveiled a direct positive relationship between moral distress and compassion fatigue among nursing interns (confirming hypothesis 1). Nursing is a profession that requires the ability to manage substantial stress, while also maintaining a compassionate and empathetic approach to patient care. When nursing interns encounter moral distress during internships, they are forced to grapple with complex ethical questions that can evoke strong emotions such as anxiety, guilt, helplessness, and hopelessness [47–49]. This emotional stress can accumulate over time, leading to compassion fatigue [17]. The findings align with previous researches investigating the relationship between moral distress and compassion fatigue among nurses [17, 19]. However, one study reported no significant association between moral distress and compassion fatigue among nurses working in the surgical intensive care unit, which might result from the limited sample size (26 participants), different study participants and work environments [50].

Our study also revealed that nursing interns' moral distress had a negative relationship with their moral resilience (confirming hypothesis 2), which was consistent with Berdida et al. exploring the relationships between moral distress and moral resilience among 412 Philippine nurses [32]. When facing high level of moral distress, individuals may experience intense negative emotions, which can deplete individual psychological resources and reduce moral resilience in coping with stress [51]. Moreover, constant exposure to morally challenging situations can leave individuals feeling hopeless and questioning the point of striving for ethical behavior. This can make it difficult to find meaning in work and decrease overall moral resilience [18, 32, 52].

Moral resilience has emerged as a promising resource for promoting mental well-being and navigating ethical conflicts. A great deal of studies has established the

**Table 3** Decomposition of standardized effects from the path model

Variable of effect	Moral distress			Moral resilience		Professional identity
	Moral resilience	Professional identity	Compassion fatigue	Professional identity	Compassion fatigue	Compassion fatigue
Total effects	-0.351	-0.278	0.448	0.225	-0.232	-0.405
Direct effects	-0.351	-0.199	0.286	0.225	-0.141	-0.405
Indirect effects	0.000	-0.079	0.162	0.000	-0.091	0.000



**Fig. 1** A path diagram of direct and indirect influences of moral distress, moral resilience and professional identity on compassion fatigue among Chinese nursing interns (n=467). \*\*P<0.01

**Table 4** Bias-corrected bootstrap test for all indirect pathways

Pathway	Estimate	Standard errors	Bootstrap confidence	P
Moral distress → Moral resilience → Compassion fatigue	0.081	0.021	0.042–0.124	0.001
Moral distress → Professional identity → Compassion fatigue	0.05	0.015	0.021–0.081	0.001
Moral distress → Moral resilience → Professional identity → Compassion fatigue	0.032	0.008	0.019–0.049	0.001
Total indirect effects	0.162	0.024	0.116–0.211	0.001
Total direct effects	0.286	0.041	0.205–0.369	0.001
Total effects	0.448	0.043	0.366–0.534	0.001

importance of incorporating moral resilience-building strategies into ethical education and psychosocial interventions, particularly for nurses and nursing interns [53–55]. In current study, we found a direct negative correlation between moral resilience and compassion fatigue among nursing interns (confirming hypothesis 4). While it is intuitively understood that lower levels of moral resilience may lead to the increase in the level of compassion fatigue among nursing interns. This finding resonates with previous studies that has emphasized the role of moral resilience in mitigating the adverse psychological effects of ethical challenges in healthcare settings [25, 26]. Individuals with high moral resilience are typically better able to regulate their emotions [23]. When confronted

with the suffering of others, they can effectively modulate their emotional responses, preventing excessive emotional involvement and thus mitigating compassion fatigue. They understand how to maintain compassion while also preserving their emotional resources. Meanwhile, moral resilience enables individuals to reappraise stressful situations in a more positive and constructive light. When faced with the hardships of others, they are more likely to view them as challenges to be overcome, rather than constant sources of negative emotions. This cognitive shift helps to reduce the psychological toll of compassion fatigue [12]. For above results, it could be inferred that moral distress can indirectly contribute to

negative effects on compassion fatigue through moral resilience (confirming hypothesis 5).

We also found there was a negative correlation between professional identity and compassion fatigue (confirming hypothesis 4), which was consistent with previous studies [8, 29]. Professional identity acts as a protective factor against compassion fatigue and a strong professional identity can buffer the emotional impact resulting from caring patients [27]. When individuals have a clear sense of their purpose and values within their profession, they are more likely to view challenging situations as part of their role and responsibility, rather than as personally draining or overwhelming. Otherwise, moral distress had a negative relationship with professional identity (confirming hypothesis 2). One study which was performed to investigate the influencing factors on professional identity in intensive care nurses also consistently indicated that moral distress is one of the most important factors [56]. But another study only revealed a very low negative relationship and the inconsistent result could potentially be explained by the nature of the surveyed population [57]. The study primarily targeted nurses employed in general hospitals, rather than those specifically working in high-intensity environments like emergency departments or intensive care units (ICUs). Given this, nurses working in general departments within general hospitals may encounter significantly less severe ethical distress in comparison to their colleagues in ICUs or emergency departments. Moral distress can erode professional identity and sense of purpose. When nursing interns face moral distress that require them to compromise their values or principles, they may feel a sense of loss of meaning and purpose in their work. This erosion of professional identity can lead to feelings of helplessness and hopelessness, which in turn contribute to compassion fatigue [8]. Hence, our study further revealed professional identity played a mediating role between moral distress and compassion fatigue (confirming hypothesis 5).

Moral resilience is found to have a positive relationship with professional identity (confirming hypothesis 3). This relationship is consistent with existing literature, although the strength of the association varies across studies. One study reported a low positive correlation between professional identity and moral resilience among nursing students, as determined by a Pearson correlation test, suggesting that while the relationship exists, it may not be particularly strong in certain contexts [33]. In contrast, another study involving practicing nurses found a moderate positive correlation, indicating that as nurses gain professional experience, the relationship between moral resilience and professional identity may strengthen [58]. These findings suggest that the development of professional identity and moral resilience could be influenced by the transition from education to

professional practice. In our study, the findings go further by revealing that moral resilience and professional identity play a chain-mediating role between moral distress and compassion fatigue (confirming hypothesis 5). This suggests that not only are moral resilience and professional identity interconnected, but they also collectively influence how nursing interns experience and cope with the emotional and ethical challenges of their work. The chain-mediating effect underscores the importance of fostering both moral resilience and a strong professional identity in nursing education and practice to mitigate the negative impacts of moral distress and reduce the risk of compassion fatigue. These findings contribute to a deeper understanding of the mechanisms through which moral resilience and professional identity interact and influence the well-being of nursing professionals.

### Limitations

This study provides valuable insights, but some limitations warrant consideration. First, the cross-sectional design limits the ability to infer causality between the investigated variables. Longitudinal studies are necessary to elucidate how moral distress might mitigate the negative effects of compassion fatigue. Second, the study employed a convenience sampling method, recruiting nursing interns from four public junior colleges in Hunan province. While this approach facilitated data collection, it may have introduced sampling bias, limiting the generalizability of the findings. Future studies should consider random sampling techniques to enhance the representativeness of the sample. Despite this limitation, the study provides valuable insights into the factors influencing compassion fatigue among nursing interns. Third, self-reported questionnaires were employed to measure key constructs. This approach introduces the potential for subjective biases from both participants and investigators, potentially inflating the results. Further studies incorporating physiological assessments and ecological momentary assessments are recommended to strengthen the objectivity of data.

### Conclusions

This study contributes to understanding of the complex interplay between moral distress and its downstream effects on nursing interns. Our findings demonstrate a positive association between moral distress and compassion fatigue, suggesting that experiencing ethical dilemmas can lead to emotional exhaustion. Conversely, moral resilience and a strong professional identity emerged as protective factors, exhibiting negative correlations with compassion fatigue. Furthermore, the data support a mediating role for both moral resilience and professional identity, indicating that they buffer the detrimental effects of moral distress on well-being of nursing interns.



### Implications for practice

This study contributes to the growing body of knowledge concerning the association between moral distress, compassion fatigue, and the mediation roles of moral resilience and professional identity among nursing interns. Our findings highlight several practical implications at both organizational and managerial levels.

At the organizational level, healthcare institutions should consider integrating interventions that foster moral resilience into their broader workforce development strategies. This could involve the creation and implementation of comprehensive training programs that include emotional regulation techniques, cognitive reappraisal skills, and the development of robust social support systems. Organizations might also benefit from embedding regular workshops and mentorship programs that focus on ethical decision-making and emotional well-being into their training for nursing interns. These programs should be systematically incorporated into the organizational culture to ensure consistent support for all nursing interns as they navigate complex situations.

Moreover, organizational policies should be designed to promote a work environment where ethical concerns are not only acknowledged but actively addressed. This could include establishing clear channels for open communication and creating a non-punitive environment where nursing interns feel safe to voice their ethical concerns. Institutions might also implement policies that mandate the availability of mental health resources specifically tailored to the needs of nursing interns.

At the managerial level, nursing managers have a crucial role in fostering a supportive culture that prioritizes moral resilience and professional identity. Managers should be trained to recognize the early signs of moral distress and compassion fatigue among their teams. By doing so, they can intervene promptly with appropriate support and resources. Additionally, managers should actively promote and model ethical behavior, encourage reflective practice, and facilitate access to professional support networks. This proactive managerial approach can help nursing interns develop the resilience and professional identity needed to manage ethically challenging situations effectively.

### Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12912-024-02307-y>.

Supplementary Material 1

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### Author contributions

TS: Conceptualization, data curation, formal analysis, methodology, writing & original draft; YX: Methodology, project administration, software; MFJ: formal analysis, methodology; LJY: Conceptualization, methodology, supervision, writing & review & editing; XT: Conceptualization, methodology, supervision, Writing & review & editing. All authors read and approved the final manuscript.

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### Data availability

The datasets generated and/or analysed during the current study are not publicly available due to the participant confidentiality, but are available from the corresponding author on reasonable request.

### Declarations

#### Ethics approval and consent to participate

The present study was approved by the Ethics Committee of the Hunan Traditional Chinese Medical College Medical Ethics Committee, located in Hunan Province, China (YXLL202401004). The survey was conducted anonymously, which fully protected the privacy of the respondents. All data were available only to the research team and were used for the purposes of this study only. All participants provided informed consent and participated voluntarily.

#### Consent for publication

Not applicable.

#### Competing interests

The authors declare no competing interests.

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