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Relationships between coping style, life events, and resilience among nurses in China: a cross-sectional study using structural equation modeling



Ying Huang^{1,2}, Ye Zhou^{1,2}, Xiaofen Zhao³, Weiwei Bian^{1,2*} and Yumei Li^{4*}

Abstract

Background Resilience is the ability to adapt and implement effective actions to maintain mental health during adversity, benefiting patients when exhibited by nurses. It encompasses personal and environmental factors. However, few studies have explored their combined impact on nurses' resilience.

Aims This study investigated the mediating role of coping style in the relationships between life events and resilience among Chinese nurses.

Methods This study employed a cross-sectional correlational design and followed the STROBE guidelines. Convenience sampling was used to recruit 1,068 clinical nurses from government hospitals in China. Data were collected online using three validated self-reported questionnaires between March and April 2022. Pearson's correlation analysis and structural equation modeling were utilized for data analysis.

Results Significant relationships were found between education level, hospital level, professional title, and resilience, as well as between life events, coping style, and resilience. Life events directly and negatively influenced resilience and coping style. Coping style mediated the relationship between life events and resilience.

Conclusions Nursing managers should provide training to enhance nurses' understanding of mental coping strategies for managing challenges. This will help mitigate the emotional impact of stress, thereby improving nurses' ability to adapt to and implement strategies that promote mental well-being in challenging circumstances.

Keywords Coping style, Life event, Nurse resilience, China

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Introduction

Nursing serves as the cornerstone of global healthcare systems, comprising 59% of health professionals worldwide and delivering essential patient care [1]. The profession faces a paradoxical situation: while aging populations and emerging health crises (e.g., COVID-19) are creating unprecedented demand for nursing services [2], the workforce is simultaneously experiencing critical shortages due to retention challenges. Chronic exposure to physical demands, emotional labor, and organizational stressors has led to alarming rates of burnout, with 31-45% of nurses reporting severe emotional exhaustion across international studies [3, 4]. These occupational hazards not only compromise clinicians' mental health but also threaten healthcare quality, as demonstrated by significant correlations between nurse burnout and increased medical errors (r = 0.28, p < 0.01) [5]. This crisis underscores the urgent need for effective stress-buffering mechanisms, particularly the development of psychological resilience - the adaptive capacity to maintain professional functioning amid adversity.

Resilience represents a multidimensional construct encompassing the ability to withstand stressors, recover from challenges, and grow through adversity [6]. Grounded in the Resilience in Illness Model (RIM) [7], this adaptive capacity emerges from dynamic interactions between protective factors (e.g., social support, selfefficacy) and risk factors (e.g., trauma exposure, chronic stress). Meta-analytic evidence indicates resilience predicts 38% of variance in nurses' burnout symptoms [8], while longitudinal studies demonstrate its protective effects against emotional exhaustion [9-11]. The RIM framework posits resilience as both a developmental process and measurable trait that can be cultivated through targeted interventions addressing both individual competencies (e.g., emotion regulation) and systemic supports (e.g., reasonable workloads) [12]. This dual focus makes resilience development particularly valuable for addressing nursing's retention crisis while maintaining care standards during global health workforce shortages.

Life events constitute critical risk factors undermining nurses' resilience, operating through both occupational and personal domains. Professionally, nurses face persistent stressors including interpersonal conflicts (reported by 67% in acute care settings [13]), moral distress from resource constraints [14], and organizational pressures contributing to 43% turnover intent [15]. These workplace challenges intersect with personal life demands, as 58% of nurses simultaneously provide family caregiving [16], creating role conflicts that triple psychological distress risk [17]. Cross-cultural research reveals how structural factors exacerbate these pressures, with 43.8% of Japanese nurses leaving the workforce due to childcare conflicts [18]. In China's context, where 96.6% of nurses are female [19] and cultural norms assign women 2.1× more domestic labor than men [20], these challenges are particularly acute. Confucian values emphasizing familial duty create additional stress for nurses managing dual caregiving roles, with 72% reporting work-family interference severely impacts mental health [21]. This intersection of professional and sociocultural stressors creates unique resilience challenges requiring culturallyinformed solutions.

Coping strategies serve as crucial mediators in the resilience process, with positive coping style, also called courageous coping (proactive, solution-focused approaches), demonstrating particularly strong protective effects. Evidence from 37 studies confirms positive coping strategies (e.g., positive reappraisal, support-seeking) enhance resilience while reducing burnout incidence by 41% [22–25]. Neurobiological research further reveals these approaches promote prefrontal cortex activation during stress, enabling better emotional regulation [26]. Conversely, negative coping style, also called defensive coping (avoidance, emotional venting), correlates with prolonged stress recovery and 2.3× higher attrition risk [27]. Despite these established relationships, critical knowledge gaps persist regarding: (1) how life events differentially impact Chinese nurses' resilience pathways, and (2) the boundary conditions under which coping strategies most effectively buffer stress. Addressing these gaps could inform targeted interventions for China's nursing workforce, where traditional collectivist values may shape distinct coping-resilience dynamics compared to Western contexts.

Guided by RIM's theoretical framework and addressing these research gaps, this study investigates resilience determinants among Chinese nurses through three focused hypotheses: (1) coping style are positively related to resilience, (2) life events are negatively correlated with resilience, and (3) positive coping style mediating the relationship between life events and resilience (Fig. 1).

Methods

Study design, setting and participants

To investigate the relationships between life events, coping style, and resilience among Chinese nurses, this study used a descriptive cross-sectional design. It followed the guidelines of Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) for observational research.

A cross-sectional study of nurses was conducted from February to March 2022 in the eastern (Tianjin), central (Henan), western (Inner Mongolia), and southern (Shanghai) regions of China. Twelve hospitals (four public tertiary hospitals, four specialized secondary hospitals, and four primary community hospitals) in four provinces were selected using the purposive sampling





Fig. 1 Theoretical framework

method. Hospitals of the same level were similar in size, department settings, and number of nurses. Public tertiary hospitals were twice the size of specialized secondary hospitals and four times the size of primary community hospitals. The researchers planned to send out 1,200 questionnaires; thus, on average, there were 172 nurses from each public tertiary hospital, 86 nurses from each specialized secondary hospital, and 43 nurses from each primary community hospital. All investigators underwent unified training before starting the investigation and could act as investigators when qualified. Permission to conduct the study was acquired from the managers and the medical dispute resolution and human resources departments of the hospitals concerned.

The online survey was conducted using Questionnaire Star Software (https://www.wjx.cn/app/survey.as px), a professional software for online surveys in China, which generated a survey link that could be accessed from mobile phones or computers. At the beginning of the online survey, there was a description explaining the purpose of the study and reminding participants of the matters to pay attention to while filling out the questionnaire. According to the study carried out by Wolf et al. (2012), in the use of structural equation modeling, the sample size is calculated according to the estimation of the free parameters in the model, so that for each free parameter, 5 to 10 samples (observations) are needed. Since we had 93 free parameters in the model, a sample size between 465 and 930 was estimated to be sufficient [28]. Due to the attrition rate of 10%, the sample size expanded to 1026. In total, 1,200 questionnaires were distributed, and 1,112 were returned, of which 1,068 were valid and retained. Before submitting the questionnaire, respondents were prompted to complete unanswered questions. Incomplete questionnaires could not be submitted. In cases where all answers were the same or followed a repeated pattern (e.g., all answers in the questionnaire were A or repeatedly followed the pattern ABCD), the questionnaires were excluded. This ensured questionnaire validity. The recovery rate of the questionnaires was 92.7%, and the effective rate was 96.0%.

The inclusion criteria for this study were: (a) having a nurse qualification certificate as a registered nurse; (b) having at least one year of clinical nursing experience; (c) still being engaged in nursing work (clinical nursing work/nursing management) during the investigation; and (d) voluntary participation without prejudice to the participants' work. The exclusion criteria were: rehire after retirement nurses, refresher nurses, and nurses who had not passed the probation period.

Measures

A descriptive data format was prepared. This included projects that assess the sociodemographic characteristics and conditions of nurses in the workplace, including sex, age, marital status, children, education level, hospital level, type of hospital, work experience, and professional qualifications. Age was categorized as ≤ 25 , 26-35, 36-45, and 45-55 years old. Marital status was categorized as married and single/ divorced. Educational background was classified as technical school, junior college, undergraduate, and master's degree or above. Professional qualifications were categorized as nurse, nurse practitioner, nurse-in-charge, or professor of nursing. Hospital level was classified as primary, secondary, and tertiary. Hospitals were categorized as public, specialized, and

community. Work experience was divided into five categories: ≤ 2 , 3-5, 6-10, 11-20, and ≥ 21 years.

The Chinese version of the Connor-Davidson Resilience Scale (CD-RISC) [29], developed by Yu et al., the face of adversity, trauma, tragedy, threats or even significant sources of stress [30]. The Chinese version comprises 25 self-reported items organized into three factors: optimism, strength, and tenacity. Cronbach's alpha coefficients were 0.85 in the original study, 0.91 in the Chinese study, and 0.87 in this study. The factor loading was 0.41-0.78, and the accumulated variance contribution rate was 55.19%. The scores of each factor were positively correlated with the scores of the scale, with correlation coefficients between 0.21 and 0.72 (p < 0.01). The Chinese CD-RISC consists of 25 items scored on a five-point Likert scale (0 = not true at all; 4 = almost always true). Scores ranged from 0 to 100, with higher scores indicating higher resilience.

The Chinese version of Life Events Scale (LES) developed by Mingyuan et al. [31]. Life Events refer to significant occurrences or experiences in an individual's life [4]. The LES consists of 48 items in three dimensions: family, work or study, and society. Questions are based on the type, influence level, duration of the incident, and the number of occurrences. The score is obtained by multiplying the influence level of the incident by its duration and by the number of occurrences. Higher frequency and longer duration indicate a greater impact. Cronbach's alpha coefficients were 0.74 in the original study and 0.73 in this study. The factor loading was 0.30–0.59, and the accumulated variance contribution rate was 44.98%. Positive correlations were observed between the total score and scores of each factor, with correlation coefficients between 0.30 and 0.79 (*p* < 0.05).

Coping Style refers to the specific strategies, behaviors, and thought processes that individuals use to manage, tolerate, or reduce stress, emotional distress, or challenging situations [1]. Coping style was measured using Chinese version of the Simplified Coping Style Questionnaire [32]. The questionnaire consists of 20 items in two dimensions: positive and negative. The positive dimension refers to the participants' active response to a life event and comprises the first 12 items. The negative dimension refers to the participants' passive response to a life event and comprises the last eight items. Cronbach's alpha coefficients were 0.90 in the original study and 0.89 in this study. The factor loading was 0.29–0.61, and the accumulated variance contribution rate was 48.50%. Positive correlations were observed between the total score and scores of each factor, with correlation coefficients between 0.34 and 0.67 (*p* < 0.05).

Ethical consideration

All participants joined this study voluntarily and provided written informed consent. The study protocol was approved by the Medical Academy Ethics Board of the [Blinded for peer review]. Participants were assured of confidentiality and were informed that they could withdraw from the survey at any time without requiring consent. Accordance -Authors reporting experiments on humans and/or the use of human tissue samples had confirmed that all experiments were performed in accordance with relevant guidelines and regulations.

Data analyses

Data were analyzed using AMOS 23.0 and SPSS 23.0. A p-value of 0.05 was considered statistically significant. Descriptive statistics, including the mean and standard deviation for normally distributed, continuous data, and frequency and proportions for nominal data, were used to summarize the demographic characteristics, life event scores, coping scores, and resilience scores of the participants.

Structural equation modeling using the variance inflation factor, tolerance, and Pearson correlation coefficients was used to assess multicollinearity. The goodness-of-fit index (GFI), normed x2, comparative fit index (CFI), normed fit index (NFI), root mean square residual (RMSR), root mean square error of approximation (RMSEA), and Tucker-Lewis index (TLI) were used to assess the fitness of the hypothetical path model. The results of GFI, CFI, NFI, and TLI were all 0.90 or greater; normed x2 was set as 3 or lower; the RMSEA was 0.08 or lower; and RMSR was 0.05 or lower 40. In addition, multiple square correlations were calculated using exogenous variables of resilience in the path model. Bootstrapping was used to verify the significance of the standardized direct, indirect, and total effect of the factors affecting resilience. Standardized beta coefficients were used to identify the relative degree of influence between variables affecting endogenous variables [33].

Results

Demographic and clinical characteristics

Data from 1068 nurses with a mean age of 34.81(SD = 1.64), ranging from 23 to 55 years, were analyzed. Most of them are female (98.8%). No significant differences in life events were observed between groups, while coping style and resilience varied. Sex, education level, hospital level, and work experience were associated with coping style. Women, participants with more work experience, and those in higher-level hospitals were more likely to adopt positive coping styles than men, participants with less work experience, and those in lower-level hospitals. Significant differences in resilience scores were noted by education level, hospital level, and professional

title. Participants with an undergraduate degree or above and those with a title of Professor of Nursing had the highest resilience scores. Participants in tertiary hospitals also had the highest resilience scores (Table 1).

Correlations and descriptive statistics

The Pearson correlation analysis results are shown in Table 2. Resilience scores were significantly correlated with positive and negative coping (r=0.599, p<0.01;

Table 1 Participant demographics

Variables	n (%)	Mean (SD)				
		Coping style	Life events	Resilience		
Gender		F=6.96	F=0.08	F=0.09		
		(p=0.008)	(p=0.781)	(p=0.758)		
Male	13 (1.2)	8.92 (6.41)	11.23 (16.17)	59.38 (16.31)		
Female	1055 (98.8)	13.76 (6.58)	12.79 (20.22)	58.34 (12.13)		
Age (years)		F=0.76	F=0.66	F=1.08		
		(p=0.515)	(p=0.574)	(p=0.358)		
≤25	152 (14.2)	13.78 (7.20)	12.83 (22.75)	57.57 (12.05)		
26–35	575 (53.8)	13.45 (6.62)	12.28 (19.82)	58.49 (12.51)		
36–45	254 (23.8)	14.00 (6.20)	12.92 (18.94)	57.84 (11.29)		
45–55	87 (8.1)	14.39 (6.43)	15.54 (21.30)	60.24 (12.77)		
Marital status		F=0.22	F=0.09	F=2.08		
		(p=0.804)	(p=0.917)	(p=0.126)		
Single	317 (29.7)	13.68 (7.05)	12.87 (21.51)	58.46 (12.53)		
Married	725 (67.9)	13.75 (6.34)	12.68 (19.61)	58.47 (12.01)		
Divorced	26 (2.4)	12.88 (7.94)	14.31 (19.49)	53.54 (12.48)		
Children		F=0.55	F=0.20	F=0.02		
		(p = 0.460)	(p = 0.653)	(p = 0.890)		
Have children	410 (38.4)	13.52 (7.04)	11.07 (14.04)	58.28 (12.00)		
No children	658 (61.6)	13.82 (6.30)	11.05 (15.20)	58.39 (12.31)		
Education level		F=5.10	F=0.40	F=12.83		
		(p=0.002)	(p=0.752)	(p=0.000)		
Technical school	48 (4.5)	13.65 (6.95)	15.21 (30.40)	55.94 (14.44)		
Junior college	510 (47.8)	12.99 (6.66)	12.92 (20.39)	56.83 (11.56)		
Undergraduate	500 (46.8)	14.36 (6.39)	12.47 (18.86)	59.78 (12.10)		
Master's or above	10 (0.9)	18.00 (7.47)	8.90 (11.07)	75.80 (14.91)		
Hospital level		F=4.22	F=0.60	F=4.37		
		(p=0.015)	(p=0.550)	(p=0.013)		
Primary	263 (24.6)	14.17 (6.35)	12.40 (19.37)	58.23 (11.66)		
Secondary	197 (18.4)	12.50 (6.79)	14.19 (24.45)	56.17 (9.50)		
Tertiary	608 (56.9)	13.89 (6.60)	12.48 (18.96)	59.11 (13.08)		
Type of hospital		F=7.74	F=0.22	F = 2.40		
		(p=0.000)	(p=0.807)	(p=0.091)		
Public	506 (47.4)	12.88 (6.71)	12.59 (19.34)	57.57 (12.06)		
Specialized	303 (28.4)	14.57 (6.50)	13.41 (22.10)	59.50 (12.90)		
Community	259 (24.3)	14.30 (6.31)	12.39 (19.44)	58.52 (11.50)		
Work experience (years)		F=3.17	F = 1.03	F=0.62		
		(p=0.013)	(p=0.391)	(p=0.065)		
<3	105 (9.8)	14.98 (7.43)	15.16 (25.01)	58.10 (12.10)		
3–5	189 (17.7)	12.53 (6.51)	11.09 (20.68)	57.89 (12.10)		
6–10	284 (26.6)	13.42 (6.56)	12.12 (19.64)	57.85 (12.03)		
11–20	326 (30.5)	13.87 (6.63)	12.77 (18.73)	58.51 (12.63)		
≥21	164 (15.4)	14.41 (5.90)	14.36 (19.78)	59.56 (11.78)		
Professional gualifications		F=4.48	F=1.15	F=5.74		
·		(p=0.004)	(p=0.326)	(p=0.001)		
Nurse	321 (30.1)	13.74 (6.91)	11.44 (20.21)	58.18 (11.95)		
Nurse practitioner	472 (44.2)	13.29 (6.56)	12.76 (19.58)	57.55 (12.44)		
Nurse-in-charge	263 (24.6)	14.13 (6.35)	14.52 (21.40)	59.40 (11.85)		
Professor of nursing	12 (1.1)	19.83 (4.73)	11.08 (11.42)	71.00 (7.58)		

Variables	1	2	3	4	5	6	7	8	9	10
1. Positive coping (coping style)		-	-	-	-		-	-		
2. Negative coping (coping style)	-0.273**	-	-	-	-	-	-	-		
3. Negative life event	-0.558**	0.343**	-	-	-	-	-	-		
4. Positive life event	0.051	0.020	-0.045*	-	-	-	-	-		
5. Optimism (resilience)	0.535***	-0.337**	-0.769**	0.040	_*	-	-	-		
6. Self-improvement (resilience)	0.531**	-0.276**	-0.793**	0.044	0.628**	-	_*	-		
7.Tenacity (resilience)	0.552**	-0.322**	-0.863**	0.012	0.737**	0.724**	_*	_*		
8. Resilience	0.599**	-0.342**	-0.910**	0.030	0.834**	0.871**	0.955**	-		
9.Coping style (total)	0.791**	-0.618**	-0.537**	0.033	0.531**	0.496**	0.523**	0.569**	-	-
10.Life event (total)	0.084**	-0.038	-0.147**	0.522**	-0.142**	-0.179**	-0.114**	-0.154**	-0.089**	-
Mean	22.96	10.80	0.35	5.94	10.25	18.51	29.51	58.28	13.82	12.76
Standard deviation	6.69	5.03	19.82	11.43	2.57	4.02	6.75	12.10	6.59	20.17

Table 2 Correlation matrix of the main study variables (n = 1,068)

*p<0.05; ** p<0.01

Table 3 Model fit indicators

Indicator	Value	Acceptable	Ideal
		Limitation	Limitation
x2/df	3.508	< 5	< 3
RMSEA(Foot Mean Square Error Approimation)	0.048	< 0.08	< 0.05
SRMR(the standardized root mean squae residual)	0.041	< 0.08	< 0.05
GFI (Goodness of Fit Index)	0.990	> 0.90	> 0.95
AGFI(Adjusted Goodness of Fit Index)	0993	>0.80	> 0.90
NFI Normed Fit Index)	0.991	> 0.90	> 0.95
CFI(Comparative Fit Index)	0.993	> 0.90	> 0.95
TLI Tucker-Lewis Index	0.987	>0.90	>0.95

Table 4 Summary of bootstrapped mediation analyses of the effects of life events on resilience through coping style

Criterion		pathway	Estimated	95% bias-correct- ed Cl	
Resilience	Total effect	c1	-0.870**	0.001	0.515
	Direct effect	C1	-0.399**	-0.518	-0.149
	Indirect effect	ab	-0.471**	-0.621	-0.114

Note: c1, total effect of predictors(life event) on outcome(resilience); C1, direct effect of predictors on outcome while considering role of the mediator; a, effect of the predictors on the mediator; b, effect of the mediator on the outcome; ab indirect effects of life event on resilience through coping style; CI, confidence intervals. **p < 0.01

r=-0.342, *p* < 0.01). Participants with lower negative coping and higher positive coping scores had higher resilience. Additionally, resilience scores were significantly associated with negative life events, Participants with fewer negative life events had higher resilience (*r*=-0.910, p < 0.01).

Structural equation modeling of life events, coping style, and resilience

These indicators fit the data adequately based on the standards of model testing. Life events had a positive direct effect on resilience and coping style, with coping style mediating the relationship between life events and resilience (Table 3).

In Table 4, ab represents the indirect effects of life events on resilience through coping style. The result was significant (β =-0.471,CI[-0.621,-0.114]), suggesting that full mediating effect was significantly different from zero at *p*<0.01. Total effect of predictors (life event) on outcome (resilience) (β =-0.870, t=4.134, *p*<0.01). In Fig. 2, C1 quantify the direct effect of the life events on the resilience while considering the mediating effect of coping style (β =-0.471, t=1.234 *p*<0.01).

Discussion

Our study examined the relationships between life events, resilience, and coping styles among Chinese nurses. Regarding the first hypothesis, the results confirmed that coping style significantly predicted resilience, with the structural model demonstrating excellent fit. Specifically, positive coping strategies - characterized by proactive problem-solving and cognitive reappraisal - showed stronger associations with resilience than negative approaches. These findings align with Ulibarri-Ochoa 's longitudinal study demonstrating that positive coping methods serve as protective factors, reducing psychological distress among nurses facing adverse events [34]. Neurocognitive research suggests this relationship may stem from resilient individuals' enhanced prefrontal activation during stress, enabling more adaptive response selection [35]. Importantly, our results extend these findings to China's unique healthcare context, where collectivist cultural values may amplify the benefits of socially-embedded coping strategies.

Another important finding of study was the significant negative relationship between life events and nurses' resilience, particularly for negative life events which demonstrated stronger detrimental effects. The average life event score among participants was 12.78 ± 20.17 , with approximately 11% scoring above the high-stress



Fig. 2 Mediation of coping style

threshold of 32. Negative life events (13.50 ± 6.68) were reported more frequently than positive ones (5.94 ± 11.43) , consistent with Li et al.'s findings regarding the disproportionate impact of adverse experiences [36]. These results align with existing literature documenting the routine challenges nurses face, including workplace adversities, chronic stress exposure, excessive workloads, and maladaptive coping mechanisms [37-39]. The stressors originated from both professional and personal domains. Professionally, nurses encounter emotionally demanding situations such as medical emergencies, patient mortality, clinical errors, interpersonal conflicts with colleagues or patients, and competency evaluations. Simultaneously, they shoulder substantial domestic responsibilities rooted in traditional Chinese family structures, where women typically assume primary roles in household management, childrearing, and eldercare. This dual burden creates a compounding effect, where occupational stressors intersect with familial obligations to chronically activate stress responses. Over time, these persistent negative life events gradually erode psychological resilience, impairing nurses' professional functioning and wellbeing. The current findings corroborate prior research demonstrating that negative experiences exert more profound psychological consequences than positive ones [40], particularly in their capacity to disrupt cognitive processes and decision-making abilities.

Consistent with our third hypothesis, coping style mediated the relationship between life events and

resilience. Specifically, life events exerted both a direct negative effect on resilience and an indirect effect through coping style, supporting a partial mediation model. These findings align with Haase's Resilience in Illness Model (RIM), which posits that negative coping (e.g., avoidance, emotional withdrawal) exacerbates stress-related resilience erosion, whereas positive coping (e.g., problemsolving, cognitive reframing) buffers its impact [41]. Our results extend prior work by demonstrating that nurses habitual use of confrontational problem-solving-likely shaped by professional demands-enhances resilience [42]. However, discrepancies emerge when comparing our findings with Li et al., who reported resilience as a mediator (rather than an outcome) of coping style [43]. This divergence may stem from developmental differences-our sample comprised working adults who, due to accumulated life experience, default to action-oriented coping (e.g., direct problem-solving), whereas Li's study focused on adolescents, whose coping strategies are more emotion-driven (e.g., seeking reassurance). Neurocognitive evidence supports this interpretation: adults exhibit stronger prefrontal cortex engagement during stress, facilitating adaptive coping, whereas adolescents rely more on limbic system responses, making them prone to defensive strategies [44]. When facing negative life events, adults in our study typically engaged in active problem-solving, which enhanced their sense of selfefficacy and subsequently strengthened resilience. When problems were unsolvable, they employed protective

cognitive strategies like downward comparison to maintain psychological equilibrium.

This study had some limitations. First, the data collection process relied on self-reported life events from the preceding 12 months, potentially introducing recall bias. Second, this study primarily examined psychological and external environmental factors, possibly neglecting other influences such as autonomic nervous response patterns, genes, neurotransmitters, and neural pathways. These physiological factors should be the focus of future studies. Third, the nurses recruited for the study had diverse specifications, backgrounds, and qualifications, complicating the thorough analysis of their work environment's influence.

Conclusion

Coping style served as a mediator in the connection between life events and resilience. Nursing managers should provide education to help nurses enhance their awareness of mental coping strategies when confronted with challenges, addressing this pressing and multifaceted issue. The findings from our study offer insights to guide future research on nurse workforce policy, educational initiatives, and the promotion of nurse mental health. Future studies could investigate the types of guidance that would be most impactful in enhancing nurses' coping strategies. Furthermore, beyond organizational assistance, both social and familial support systems require additional focus, given their critical impact on nurses' lives.

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Author contributions

YH: Conceptualization, Writing – original draft, Writing – review & editing. XFZ: Conceptualization, Investigation, Writing – review & editing. YZ: Writing – original draft, Writing – review. WWB: Conceptualization, Data curation, Software, Supervision. YML: Data curation, Investigation, Supervision.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval

All participants provided written informed consent to participate in this study. The study protocol was approved by the Medical Academy Ethics Board of the Ninth People's Hospital, Jiaotong University School of Medicine (approval number SHJY20220331).

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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