

RESEARCH

Open Access



# A cross-sectional survey on the relationship between workplace psychological violence and empathy among Chinese nurses: the mediation role of resilience

Li Li<sup>1,2</sup>, Xiaoli Liao<sup>2\*</sup> and Juan Ni<sup>3</sup>

## Abstract

**Background** Workplace violence is one of the most serious public health issues worldwide in healthcare occupations, nurse is a profession which faces the greatest risk of exposure to workplace violence among healthcare occupations.

**Objective** The present study aimed to explore the relationship between workplace psychological violence and empathy among Chinese nurses, and further examine the mediation role of resilience in this relationship.

**Method** A cross-sectional survey was conducted among a convenience sample of clinical registered nurses in Xinjiang China from 29 September 2023 to 19 October 2023. The online questionnaire, contained the general information form, the Workplace Psychologically Violent Behaviors Instrument, the Jefferson Scale of Empathy-Healthcare Professionals Version, and the Connor-Davidson Resilience Scale, was used to collect data. The IBM SPSS statistics software version 22.0 was used to perform data analyses in forms of descriptive statistics, correlation analysis, and mediation analysis.

**Result** This survey recruited a convenience sample of 1613 clinical registered nurses aged 22 to 55 years who come from diverse ethnicities and worked in different departments. A total of 534 nurse experienced psychological violent, which yielded a positive rate of 33.1% for psychological violent among nurses. Pearson analysis reported a negative correlation between psychological violences and empathy ( $r=-0.724, P<0.01$ ) as well as a negative correlation between psychological violences and resilience ( $r=-0.681, P<0.01$ ). Mediation analysis reported that resilience mediated the negative relationship between psychological violence and empathy, the mediation effect accounted for  $ab/(ab+c')=23.40\%$  of the total effect.

**Conclusion** This study supported an inverse relationship between psychological violence and empathy among Chinese nurses where resilience acted as a protective factor to mediated the negative impacts of psychological violences on empathy. These results directed health policies and clinical interventions to equip nurses with resilience to copy with and recover from workplace psychological violence.

\*Correspondence:

Xiaoli Liao  
liaoxiaoli\_nurse@163.com

Full list of author information is available at the end of the article



© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

**Keywords** Empathy, Nurse, Psychological violence, Resilience, Workplace violence

## Background

Workplace violence refers to incidents where staff members are abused, intimidated, or assaulted under work circumstances [1], which occurs in the forms of physical violence and psychological violence [2]. Workplace psychological violence refers to a kind of psychological terrors in the forms of verbal abuses, insults, threats, attacks, and tortures, which damages physical, mental, spiritual, moral, and social functions of the victims [3]. The International Labor Organization (ILO) reported that healthcare occupation represented a profession confronted the highest risk of exposure to workplace violence [4, 5]. Workplace psychological violence constitutes an occupational hazard and public health issue cross borders, occupations and environments, which attracts attentions from organizations, researchers and medias around the world [6, 7]. Studies converge to support a high prevalence of workplace psychological violence across occupations and industries with fluctuations emerge across different medical systems and national conditions. An umbrella review of meta-analyses examined the prevalence of workplace violence against healthcare workers, which included 14 meta-analyses and involved 674,266 healthcare workers, found that the overall prevalence of workplace violence was 58.7%, the prevalence of physical violence was 20.8%, the prevalence of verbal violence was 66.8%, and the prevalence of sexual harassments was 10.5% [8]. A cross-sectional study investigated the prevalence of workplace violence against healthcare workers during the COVID-19 Pandemic in Israel, which adopted online questionnaires to examine different forms of workplace violence among a total of 486 healthcare workers over the past 6 months, found that 71% of respondents were exposed to workplace violence, 69% of respondents were exposed to verbal or psychological violence, and 11% of respondents were exposed to physical violence [9]. Studies emerge to emphasize the widespread prevalence of workplace psychological violence among healthcare workers from Chinese healthcare systems. A cross-sectional study examined the prevalence of workplace violence towards healthcare workers in China, an international survey questionnaire was distributed among 1028 healthcare workers in a Chinese secondary hospital, found that 5.45% of respondents encountered physical violence while 41.63% experienced psychological violence in the past 12 months [10]. Workplace psychological violence exposure not only impairs the physical status and psychological conditions of healthcare workers, but also job performance and work engagement of healthcare workers [11, 12].

Workplace psychological violence represents one of the grave public health issues across occupations and industries worldwide with detrimental consequences for individuals and organizations. Nurse represents the healthcare profession which faces the highest risk of exposure to workplace psychological violence among healthcare workers [13]. Nurses encounter workplace psychological violence from different perpetrators in terms of colleagues, managers, and patients. A quantitative review examined the prevalence of workplace violence among nurses which included 136 original articles and involved 151,347 nurses, reported a prevalence of 36.4% for physical violence and a prevalence of 66.9% for psychological violence among nurses over the past year [14]. A recent meta-analysis explored the prevalence of workplace violence among Chinese nurses which included 38 original studies and involved 22,968 nurses, found that 67-75% of nurses experienced workplace violence, 11-18% of nurses experienced physical violence, 58-67% of nurses experienced verbal abuse, and 39-48% of nurses experienced threats [15]. Workplace psychological violence constitutes a topic of public health issue and academic research attention, which not only impacts professional performance and workplace resource but also impairs psychological capital and emotional reserve. Previous studies converged to confirm the adverse consequences of workplace psychological violence against nurses, which included decreased job satisfaction and increased psychological symptom as well as decreased medical service quality and increased human resource cost [16]. The high prevalence and serious implication of workplace psychological violence for nurses and hospitals require further characterization of the destructive impacts and identification of the protective factors.

Empathy refers to a cognitive attribute and psychological competency which enables individuals to sense and perceive the thoughts, intentions, and motivations of others [17]. Nurses who experience workplace psychological violence could reduce work passion and impair empathy ability, which provides a clue to the mechanism of how workplace psychological violence impacts nurse outcomes. Previous studies found that the experience of workplace incivility decreased empathy ability and elicited empathy fatigue of victimized nurses [18]. Resilience refers to a personality trait and psychological resource which enables individual to cope with and rebound from failure or adversity [19]. Resilience constitutes a complex and dynamic process among which nurses adopt problem solving skills to address workplace adversity and develop coping strategies to minimize psychological distress [20]. Previous studies found that resilience constituted a

personal resource which alleviated the adverse impacts of workplace psychological violence and maintained the mental health of affected nurses [21]. The National Health Commission of China in 2015 established the “Safe Hospital” policy to build a safe work environment for healthcare workers [22], which urges the identification of protective factors and risk factors for safe work environment in healthcare systems.

Most studies investigated the incidence and the impact of workplace violences among healthcare workers in general, few studies examined the prevalence and consequence of psychological violences among nurses in particular. Furthermore, previous studies mainly focused on the effects of workplace violences on psychosocial health indicators and work indicators, relatively little attention devoted to the impacts of psychological violences on empathy and resilience as well as the correlations of psychological violences and empathy and resilience.

### 1.1 Aim.

The present study aimed to explore the correlations of workplace psychological violences, empathy, and resilience among nurses, test the mediation effect of resilience on the relationship between psychological violence and empathy among nurses, thus provide theoretical references for hospital management and intervention formulation to resist the destructive impacts of workplace psychological violences on nurses.

## Method

The present study was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist for cross-sectional studies [23] (Appendix 1).

### Design

The present study was a cross-sectional survey which was conducted among a convenience sample of clinical registered nurses in Xinjiang province China during the period of September 2023 and October 2023.

### Setting and sample

The present study adopted a convenience sampling method to recruit clinical registered nurses in The First Affiliated Hospital of Xinjiang Medical University, Urumqi, Xinjiang Province, China. The National Bureau of Statistics in 2022 reported that the total number of registered nurses in China was 5.2242 million, the number of registered nurses in Xinjiang was 89,000 composed 1.7% of registered nurses nationwide. The hospital was founded in 1954 which is the first grade-III class A hospital in Xinjiang. The hospital is the medical center of Xinjiang which has 2371 registered nurses and 2700 open beds.

Inclusion criteria were set as: nurses who acquired a Chinese registered nurse license within the valid registration period; nurses who engaged in clinical patient care with work experience of at least one year; nurses who were regular employees of the hospital; nurses who provided informed consent for voluntary participation.

Exclusion criteria were set as: non-hospital nurses, such as training nurses and nursing interns; absent nurses, such as sick leave, personal leave, and further study; non-clinical nurses, such as nurses worked in service departments or supply departments.

### Sample size

The formula  $N = Z_{\alpha/2}^2 \pi(1-\pi) / \delta^2$  was used to calculate the sample size of this cross-sectional survey. The type I error  $\alpha$  was set as 0.05, the  $Z_{\alpha/2}$  was set as 1.96, and the absolute error  $\delta$  was set as 0.03.  $\pi = 50\%$  was set for calculation in order to ensure sufficient size for cross-sectional study [24]. A sample size of 1067 was derived, considering a 20% of invalid questionnaires, a minimum sample size of 1280 was required. Therefore, the recruitment of 1280 participants was sufficient to meet the sample size requirements of this cross-sectional survey.

### Recruitment

Wenjuanxing (<https://www.wjx.cn/>), a professional online questionnaire platform in China, was utilized to create the electronic questionnaire [25]. The social media app WeChat, a popular social communication application in China, was used to distribute the online questionnaire. All questionnaire items were imported into Wenjuanxing, which generated a website link and quick response code to access questionnaire. The research team contacted the directors of occupational department and obtained the investigation permission from the management department. The trained investigators were responsible for clarifying the purpose, content, and requirements of the investigation to participants. The trained investigators sent the website link and quick response code of the online questionnaire to nurses via WeChat, and nurses clicked the link or scanned the quick response code via mobile phones to access questionnaires. The investigated nurses were guaranteed anonymity of their responses, confidentiality of their information, and the voluntary nature of their participations. Questionnaire which submitted in less than 3 min or more than 40 min were considered invalid.

### Variables and measurements

The online questionnaire contained a general information form, the Workplace Psychologically Violent Behaviors Instrument, the Jefferson Scale of Empathy-Healthcare Professionals Version, and the Connor-Davidson Resilience Scale.

### **The general information form**

A general information form was developed to obtain demographic information, which included gender, ethnicity, age, work years, educational level, occupational department, and professional title.

Gender was categorized as “Male” and “Female”. Ethnicity was categorized as “Han nationality”, “Weiwei nationality”, “Hui nationality”, and “Other nationality”. Educational level was divided into three levels in terms of “College and lower”, “Undergraduate”, and “Master and above”. Occupational department was categorized as “Internal medicine department”, “Surgery department”, “Emergency medicine department”, and “Intensive care unit department”. Professional title was classified into three levels in terms of “Primary title”, “Intermediate title”, and “Senior title”.

### **Workplace Psychologically Violent Behaviors Instrument**

The Workplace Psychologically Violent Behaviors Instrument (WPVBI) was used to measure workplace psychological violence among nurses [26, 27]. The WPVBI scale was developed by Dilek and Aytolan [17], and translated and revised by Xu et al. [27]. The WPVBI scale consisted of 32 items and 4 dimensions in terms of isolation from work (11 items), attacks on professional status (9 items), attacks on personality (9 items), and direct negative behavior (3 items). Each item was rated on a 6-point Likert-type scale ranged from 0 “never happened” to 5 “always happened”. The participants were asked to rate each item with reference to their experience in the past year prior to the data collection. The total score (ranged from 0 to 160) of the scale was the sum of the responses of each item, where higher scores indicated more workplace psychologically violence. A mean score of  $\geq 1$  for all 32 items on the scale (mean score = total score/32) indicated positive for psychological violence. The Cronbach's  $\alpha$  coefficient for the scale was 0.96, and the  $\alpha$  coefficients for the dimensions were 0.85–0.94 [28]. The Cronbach's  $\alpha$  coefficient of the scale in this study was 0.96.

### **Jefferson scale of Empathy-Healthcare Professionals Version**

The Jefferson Scale of Empathy-Healthcare Professionals Version (JSE-HP) was used to measure empathy among nurses [29]. The JSE-HP scale consisted of 20 items and 3 dimensions in terms of perspective-taking (10 items), compassionate care (7 items), and standing in patient's shoes (3 items). The scale contained 10 positively scored items and 10 negatively scored items. Each item was answered on a 7-point Likert-type scale, the positively scored items were rated from 1 “strongly disagree” to 7 “strongly agree” and the negatively scored items were rated from 1 “strongly agree” to 7 “strongly disagree”. The sum score (ranged from 20 to 140) of the scale was the sum of the responses of each item, where higher score

indicated greater empathy. The modified scale was validated and translated into Chinese, the Cronbach's  $\alpha$  coefficient for the scale was 0.80 and the split-half reliability coefficients of this scale was 0.79 [30]. The Cronbach's  $\alpha$  coefficient of the scale in this study was 0.86.

### **Connor-Davidson Resilience Scale**

The Connor-Davidson Resilience Scale (CD-RISC) was a self-administered questionnaire to measure psychological resilience among nurses [31]. The CD-RISC was developed by Connor and Davidson [31], and translated and revised by Yu and Zhang [32]. The CD-RISC scale consisted of 25 self-rated items and 3 dimensions in terms of tenacity, strength, and optimism. Each item rated a 5-point Likert-type scale from 0 “not true at all” to 4 “true nearly all the time”. The participants were asked to rate each item with reference to their experience in the past month prior to the data collection. The total score of the scale was the sum of the responses of each item, where higher scores indicated higher resilience capacity. The Cronbach's  $\alpha$  coefficient of the total scale was 0.89, and the reliability coefficient of the Chinese version was 0.91 [33]. The Cronbach's  $\alpha$  coefficient of the scale in this study was 0.93.

### **Data analysis**

The IBM SPSS statistics software version 22.0 (IBM Corp., Armonk, NY, USA) was used to perform data analysis in terms of descriptive statistics, correlation analysis, and mediation analysis. All of the tests were two-tailed and a  $p$ -value of 0.05 was considered statistically significant. Descriptive analysis was performed to calculate means and standard deviation for quantitative data and frequency and percentage for qualitative data. Pearson correlation analysis was performed to explore the relationship between psychological violence, empathy, and resilience. The SPSS PROCESS Macro proposed by Hayes (2012) was used to perform mediation analysis, which examined the mediation role of resilience between psychological violence and empathy [34]. Bootstrap method was adopted to test the significance of the mediation role, bootstrap 95% confidence interval did not contain 0 indicated that mediation analysis was statistically significant. The proportion (%) of mediation effects was equal to the ratio of the mediation effect value to the total effect value which was the sum of the direct effect value and the mediation effect value.

### **Ethical considerations**

This study received ethic approval from the institutional review board of the hospital before data collection began (NO: K202309-41). All procedures were conducted in accordance with the provisions of the Declaration of Helsinki. The research team obtained permission from the

**Table 1** The general characteristics of participants ( $n = 1613$ )

Item	Category	n	%
Gender	Male	90	5.58
	Female	1523	94.42
Ethnicity	Han nationality	884	54.80
	Weiwuer nationality	502	31.12
	Hui nationality	118	7.32
	Other nationality	109	6.76
Age		32.78 ± 14.03	
Work year		10.13 ± 7.27	
Educational level	College and lower	835	51.77
	Undergraduate	760	47.12
	Master and above	18	1.11
Occupational department	Internal medicine department	853	52.88
	Surgery department	608	37.69
	Emergency medicine department	76	4.71
	Intensive care unit department	76	4.71
Professional title	Primary title	564	34.97
	Intermediate title	586	36.33
	Senior title	463	28.7

hospital managers and human resources departments after provided information regarding the purpose and procedures of the investigation. The written informed consent was not obtained from participant because of the anonymous survey approach. The oral informed consent was approved by the institutional review board and provided by the participants. An informed consent form was presented on the cover of the online questionnaire. Participants were deemed to have given consent to participate in the survey when they returned their questionnaires. All participants consciously and voluntarily provided their consent to participate in the survey. Participants were full informed that they could withdraw at any stage of the investigation without any negative consequence. All the data collected from the participants were kept anonymous and confidential to protect their privacy.

## Result

### Demographic characteristics of participants

Table 1 presented the general characteristics of clinical registered nurses recruited in this survey. The online survey retracted 1659 questionnaires, which included 5 questionnaires with contradictory answer on age and work year, 9 questionnaires with less than 3 min response time, 15 questionnaires with identical answers, and 17 questionnaires with zigzag shape answers. The removal of 46 invalid questionnaires yielded a final of 1613 valid questionnaires for effective rate of 97.23%. This survey recruited a total of 1613 clinical registered nurses with a mean age of (32.78 ± 14.03) (as showed in Table 1).

**Table 2** The score of psychological violence, resilience, and empathy

Scale	Dimension	M ± SD
WPVBI scale	Total score	28.72 ± 28.3
	Isolation from work	11.32 ± 9.89
	Attacks on professional status	8.89 ± 9.25
	Attacks on personality	4.45 ± 6.31
	Direct negative behavior	4.06 ± 5.24
CD-RISC scale	Total score	67.06 ± 18.35
	Tenacity	34.48 ± 10.26
	Strength	22.12 ± 6.05
JSE-HP scale	Optimism	10.46 ± 3.08
	Total score	25.35 ± 17.52
	Perspective-taking	13.58 ± 9.11
	Compassionate care	3.94 ± 6.69
	Standing in patient's shoes	7.84 ± 3.22

**Table 3** The correlation analysis of psychological violence, empathy, and resilience

Variables	1	2	3
1. Psychological violence	1		
2. Resilience	-0.681***	1	
3. Empathy	-0.724***	0.626***	1

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$

### Descriptive analysis of psychological violence, resilience, and empathy

Table 2 presented the descriptive statistics results of psychological violence, empathy, and resilience. A total of 534 nurses experienced psychological violences with mean score of  $\geq 1$  on WPVBI scale, which yielded a positive rate of 33.1% among nurses (as showed in Table 2).

### Correlation analysis of psychological violence, resilience, and empathy

Table 3 presented the Pearson analysis results of psychological violence, empathy, and resilience. Pearson analysis reported a negative correlation between psychological violences and empathy ( $r = -0.724$ ,  $P < 0.01$ ) as well as a negative correlation between psychological violences and resilience ( $r = -0.681$ ,  $P < 0.01$ ) (as showed in Table 3).

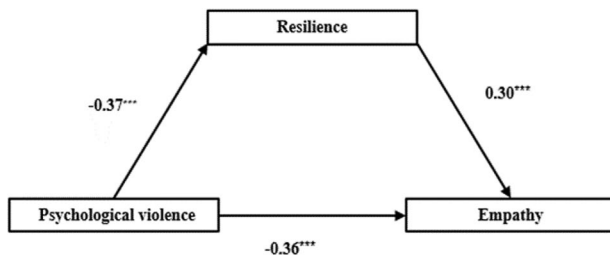
### Mediation analysis of psychological violence, resilience, and empathy

Table 4 presented the mediation analysis results of resilience among the relationship between psychological violence and empathy (as showed in Table 4). Model 4 in SPSS macro program PROCESS was used to examine the mediation role of resilience between psychological violence and empathy, psychological violence was the independent variable (X), resilience was the mediation variable (M), and empathy was the dependent variables (Y). Mediation analysis found that psychological violence negatively predicted resilience,  $a = -0.37$ ,  $SE = 0.01$ ,  $p < 0.001$ ; both psychological violence and resilience



**Table 4** The mediation model of resilience among the relationship between psychological violence and empathy

Variables	Resilience			Empathy		
	$\beta$	SE	t	$\beta$	SE	t
Psychological violence	-0.37	0.01	-37.32***	-0.36	0.01	-24.48***
Resilience				0.30	0.03	10.95***
$R^2$	0.46			0.56		
F	1393.07***			1010.89***		

**Fig. 1** The mediation model of resilience among the relationship between psychological violence and empathy

entered the regression equation, psychological violence negatively predicted empathy,  $c' = -0.36$ ,  $SE = 0.01$ ,  $P < 0.001$ , resilience positively predicted empathy,  $b = 0.30$ ,  $SE = 0.03$ ,  $p < 0.001$ .

Bootstrap method found that resilience partially mediated the negative relationship between psychological violence and empathy,  $ab = -0.11$ ,  $Boot\ SE = 0.03$ , 95% confidence interval [0.23, 0.36].

The mediation effect accounted for  $ab / (ab + c') = 23.40\%$   $-0.37 * 0.30 / (-0.37 * 0.30 + -0.36) = 23.4\%$  of the total effect (as shown in Table 4; Fig. 1).

## Discussion

Workplace psychological violence represents a pervasive public health problem with worldwide concern among healthcare workers, nurses represent a profession which faces the higher risk of exposure to workplace psychological violence among healthcare workers [2]. The present cross-sectional study recruited a convenience sample of 1613 clinical registered nurses to investigate the status of psychological violence, empathy, and resilience among nurses, explore the relationships of psychological violence, empathy, and resilience among nurses, and test the mediation effect of resilience among the relationship between psychological violence and empathy.

This survey recruited a convenience sample of 1613 clinical registered nurses with diversity in demographic characteristics in terms of ethnicity, age, work years, educational level, occupational department, and professional title. Thus, this convenience sample of 1613 clinical registered nurses at the provincial level constituted a representative snapshot of nurses across the national level. The present survey recruited a female dominant sample, which aligned with the patriarchal system in Chinese culture shaped nursing as a female career and providing

care as a female job. The National Health Commission in China supported nurse as a female dominant profession since male constituted only 3% of Chinese registered nurses at the end of the year 2021 [35].

This study found that about 33.1% of clinical registered nurses experienced workplace psychological violence in the past year, which was consistent with previous studies. A cross-sectional study of 1,761 nurses from 9 public tertiary hospitals in 4 provinces reported a prevalence of 59.64% for workplace psychological violence among Chinese nurses [36]. A cross-sectional study examined the prevalence of workplace psychological violence among emergency nurses in China, which recruited a convenience sample of 243 emergency nurses from 10 tertiary hospitals in Beijing, found that 63.3% of emergency nurses experienced psychological violence [3]. A cross-sectional study in southwest China investigated the prevalence of workplace psychological violence against healthcare professionals in a multiethnic area, reported a 5.5% prevalence of physical violence and a 43.7% prevalence of psychological violence among 2036 healthcare professionals in the previous 12 months [37]. The prevalence of workplace psychological violence against nurses in this study fall within the range of prevalence in previous studies which investigated the prevalence of workplace psychological violence against nurses in various clinical departments across diverse geographical regions under the context of Chinese healthcare systems [3, 36, 37]. Previous investigation of workplace psychological violence against nurses in China mainly conducted at provincial levels, which failed to present an accurate picture of workplace psychological violence incidence against nurses in China at national level [38–40]. The prevalence of workplace psychological violence against nurses varied across different studies due to diverse perceptions of psychological violence definition and various measures of psychological violence scales among different studies [8]. The high prevalence of workplace psychological violence urgent the prevention and management of workplace psychological violence at hospital and individual levels. The Chinese State Council promulgated the Regulations on Prevention and Treatment of Medical Disputes in 2018 strengthened the administration of workplace violence and the prevention of workplace violence in policies and regulations.

Pearson analysis reported an inverse correlation between workplace psychological violences and empathy, which implicated that exposure to workplace psychological violences negatively predicted empathy. The findings from this study coincided with findings from previous studies which reported a negative correlation between workplace psychological violences and empathy. Empathy refers to a cognitive attribute which allows nurses to insight, perceive, and experience the concerns, emotions, and perspectives of patients [41, 42]. Exposure to workplace psychological violences not only threatened the health and safety of nurses, but also caused psychological distress and emotional frustration for nurses. Nurses who exposure to workplace psychological violences reduced passions to work and decreased concentrations on care, thus impaired empathy ability and hindered work performance. Lu et al. (2022) preformed a cross-sectional survey to explore the relationship between workplace psychological violences and empathic competence in nurse, the investigation recruited a total of 1954 Chinese nurses from 4 tertiary hospitals in Shandong province, linear regression found that psychological violences was negatively correlated with empathy ability in nurses [43]. Zhang et al. (2017) performed a cross-sectional survey of 3835 Chinese nurses from 28 hospitals, found that nurses with lower level of empathy exhibited higher likelihood of workplace violence [44]. The present study in conjunction with previous studies demonstrated that the experience of workplace psychological violences impaired the empathy of victimized nurses, which emphasized the development of prevention programs and intervention strategies to manage the destructive effects of workplace psychological violences on nurses.

Pearson analysis reported an inverse correlation between workplace psychological violences and resilience, which implicated that exposure to workplace psychological violences negatively predicted resilience. The present study aligned with previous studies which reported a negative correlation between workplace psychological violences and resilience. Nurses experienced workplace psychological violences not only negatively tolerated adverse consequences but also actively mobilized personality resources and psychological capitals to resist psychological violences. Resilience represents a personality resource and psychological capital which enables nurses to copy with pressure events and adapt to stressful contexts in positive manners [45, 46]. Nurses equipped with resilience adopted positive reactions to violences and taken optimistic view toward violences, thus alleviated psychological distress and emotional stress after exposure to psychological violences. Fan et al. (2022) conducted an across-sectional study which involved 349 nurses to explore the relationship between workplace violence and resilience, correlation coefficient

analysis found that workplace violences was negatively associated with resilience [21]. Itzhaki et al. (2015) conducted an across-sectional study which recruited 118 mental health nurses to explore the relationship between workplace violences and resilience, Pearson correlation coefficients found that verbal violences and physical violences were negatively associated with resilience [47]. The findings of this study in concert with findings from previous studies demonstrated that the presence of resilience alleviated the impact of psychological violences among these nurses, which provided theoretical basis for prevention and intervention formulation to resist the destructive effects of psychological violences on nurses.

Mediation analysis supported the mediation effect of resilience among the negative relationship between workplace psychological violences and empathy. Resilience represents one of the most important protective factors which equips nurses with psychological resources and personality capacities to copy with and adapt to psychological violences [48]. Resilience enables nurses to mobilize resources to address workplace adversity and adopt strategies to minimize psychological distress after exposure to psychological violences [49]. Previous studies in line with the present study supported a mediation role of resilience on the relationship between workplace violences and nurse outcomes [21, 50]. The protective factor model of resilience stated that resilience could reduce the cumulative effects of risk factors on negative outcomes, which further supported that resilience as a protective factor could mediated the negative effects of workplace psychological violences on empathy [51].

#### **Limitation**

The self-reported measure of this survey could cause a risk of recall/report bias due to inaccurate responses. Further studies should combine multiple sources of information or/and multiple methods of data collection to overcome the subjective bias from self-reports. The cross-sectional design of this study could preclude a causal inference of these variables. Further studies with experimental and longitudinal designs should be performed to explore more complex interactions among these variables.

#### **Conclusion**

Workplace psychological violence refers to any act of psychological terrors which ranged from verbal abuses to verbal tortures directed toward individual at work or on duty. Workplace psychological violence constitutes both a serious occupational hazard for healthcare workers and a major global concern for healthcare systems. Nurses are the most vulnerable occupational group for workplace psychological violences in healthcare systems, who are subject to psychological violences from colleagues,

leaders, and patients in workplaces [52, 53]. Nurses who exposure to workplace psychological violences experience a series of adverse consequences which includes decreased organization commitment and profession satisfaction as well as increased emotional exhaustion and psychological distress. The prevalence and seriousness of workplace psychological violences among nurses urgent the characterization of negative impacts and protective factors across diverse healthcare systems and cultural contexts. Therefore, the present cross-sectional study recruited a convenience sample of 1613 clinical registered nurses to investigate the status of psychological violences, empathy, and resilience among nurses, and explore the relationships of psychological violences, empathy, and resilience among nurses. The present study supported an inverse relationship between psychological violences and empathy among Chinese nurses where resilience mediated the negative impacts of psychological violences on empathy. Nurses who exposure to workplace psychological violences decreased their empathic ability where resilience acted as a protective factor to buffer the negative impacts of psychological violences on empathy.

### Relevance for clinical practice

Workplace psychological violence constitutes a topic of public health issue and academic research attention, which impairs the personal lives and professional works of nurses as well as increases job dissatisfaction and turnover intention of nurses. Nurses who exposure to workplace psychological violences decreased their empathic ability where resilience acted as a protective factor to buffer the negative impacts of psychological violences on empathy. The present study highlighted the seriousness of workplace psychological violences against nurses and emphasized the importance of resilience in nurses, thus provided theoretical basis for health policies and clinical interventions where equip nurses with resilience to copy with and recover from workplace psychological violences.

### Acknowledgements

The authors thank all participants and researchers involved in this study.

### Author contributions

Li Li: Collect data, and write and review draft. Xiaoli Liao: Conceptualize proposal, design questionnaire, supervise data collection, guide data analysis, and review and edit draft. Juan Ni: Collect data, perform analysis, and review draft. All authors reviewed the manuscript.

### Funding

The authors received no financial support for the research, authorship and/or publication of this article.

### Data availability

The data that support the findings of this study are available from the corresponding author Dr. Xiaoli Liao upon reasonable request.

### Declarations

#### Ethics approval and consent to participate

This study received ethic approval from the First Affiliated Hospital of Xinjiang Medical University (Reference number: K202309-41). The research team obtained permission from the hospital managers and human resources departments after provided information regarding the purpose and procedures of the investigation. The written informed consent was not obtained from participant because of the anonymous survey approach. All procedures were conducted in accordance with the provisions of the Declaration of Helsinki.

#### Consent for publication

Not applicable.

#### 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.

#### Author details

<sup>1</sup>Department of Urology, the First Affiliated Hospital of Xinjiang Medical University, Urumqi, Xinjiang Province, China

<sup>2</sup>Clinical Nursing Teaching and Research Section, The Second Xiangya Hospital, Central South University, Changsha, Hunan Province, China

<sup>3</sup>Hunan Traditional Chinese Medical College, ZhuZhou, Hunan Province, China

Received: 12 November 2023 / Accepted: 12 January 2024

Published online: 01 February 2024

### References

1. Kvas A, Seljak J. Unreported workplace violence in nursing. *Int Nurs Rev.* 2014;61(3):344–51.
2. Zhao S, Liu H, Ma H, et al. Coping with Workplace Violence in Healthcare settings: social support and strategies. *Int J Environ Res Public Health.* 2015;12(11):14429–44.
3. Hu H, Gong H, Ma D, Wu X. Association between workplace psychological violence and work engagement among emergency nurses: the mediating effect of organizational climate. *PLoS ONE.* 2022;17(6):e0268939.
4. Phillips JP. Workplace Violence against Health Care Workers in the United States. *N Engl J Med.* 2016;374(17):1661–9.
5. Ma Y, Wang Y, Shi Y, et al. Mediating role of coping styles on anxiety in health-care workers victim of violence: a cross-sectional survey in China hospitals. *BMJ Open.* 2021;11(7):e048493.
6. Pariona-Cabrera P, Cavanagh J, Bartram T. Workplace violence against nurses in health care and the role of human resource management: a systematic review of the literature. *J Adv Nurs.* 2020;76(7):1581–93.
7. Hasan MI, Hassan MZ, Bulbul MMI, Joarder T, Chisti MJ. Iceberg of workplace violence in health sector of Bangladesh. *BMC Res Notes.* 2018;11(1):702.
8. Sahebi A, Golitaleb M, Moayedi S, et al. Prevalence of workplace violence against health care workers in hospital and pre-hospital settings: an umbrella review of meta-analyses. *Front Public Health.* 2022;10:895818.
9. Dopelt K, Davidovitch N, Stupak A, et al. Workplace violence against Hospital Workers during the COVID-19 pandemic in Israel: Implications for Public Health. *Int J Environ Res Public Health.* 2022;19(8):4659.
10. Liu Y, Zhang M, Li R, et al. Risk assessment of workplace violence towards health workers in a Chinese hospital: a cross-sectional study. *BMJ Open.* 2020;10(12):e042800.
11. Alameddine M, Mourad Y, Dimassi H. A National Study on nurses' exposure to Occupational Violence in Lebanon: prevalence, consequences and Associated factors. *PLoS ONE.* 2015;10(9):e0137105.
12. Al Khatib O, Taha H, Al Omari L, et al. Workplace violence against Health Care Providers in Emergency Departments of Public Hospitals in Jordan: a cross-sectional study. *Int J Environ Res Public Health.* 2023;20(4):3675.
13. Edward KL, Ousey K, Warelow P, Lui S. Nursing and aggression in the workplace: a systematic review. *Br J Nurs.* 2014;23(12):653–9.
14. Spector PE, Zhou ZE, Che XX. Nurse exposure to physical and nonphysical violence, bullying, and sexual harassment: a quantitative review. *Int J Nurs Stud.* 2014;51(1):72–84.



15. Liu X, Yang H, Hu Y, et al. Incidence of workplace violence against nurses among Chinese hospitals: a meta-analysis. *J Nurs Manag.* 2022;30(6):1490–501.
16. Zhang J, Zheng J, Cai Y, Zheng K, Liu X. Nurses' experiences and support needs following workplace violence: a qualitative systematic review. *J Clin Nurs.* 2021;30(1–2):28–43.
17. Wang L, Li H, Chen Q, et al. Mediating effect of workplace violence on the relationship between empathy and professional identity among nursing students. *Front Psychol.* 2022;13:964952.
18. Alshehry AS, Alquwez N, Almazan J, Namis IM, Moreno-Lacalle RC, Cruz JP. Workplace incivility and its influence on professional quality of life among nurses from multicultural background: a cross-sectional study. *J Clin Nurs.* 2019;28(13–14):2553–64.
19. Hart PL, Brannan JD, De Chesnay M. Resilience in nurses: an integrative review. *J Nurs Manag.* 2014;22(6):720–34.
20. Cooper AL, Brown JA, Rees CS, Leslie GD. Nurse resilience: a concept analysis. *Int J Ment Health Nurs.* 2020;29(4):553–75.
21. Fan S, An W, Zeng L, et al. Rethinking zero tolerance: a moderated mediation model of mental resilience and coping strategies in workplace violence and nurses' mental health. *J Nurs Scholarsh.* 2022;54(4):501–12.
22. Liu J, Zheng J, Liu K, et al. Workplace violence against nurses, job satisfaction, burnout, and patient safety in Chinese hospitals. *Nurs Outlook.* 2019;67(5):558–66.
23. von Elm E, Altman DG, Egger M, et al. The strengthening the reporting of Observational studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Lancet.* 2007;370(9596):1453–7.
24. Li Z, Liu Y. *Research methods in nursing.* Beijing: People's Medical Publishing House; 2018.
25. Zheng R, Zhou Y, Fu Y, et al. Prevalence and associated factors of depression and anxiety among nurses during the outbreak of COVID-19 in China: a cross-sectional study. *Int J Nurs Stud.* 2021;114:103809.
26. Dilek Y, Aytolan Y. Development and psychometric evaluation of workplace psychologically violent behaviours instrument. *J Clin Nurs.* 2008;17(10):1361–70.
27. Xu MZ, Chen Y, Chen W et al. Reliability and validity for the Chinese version of the workplace psychologically violent behaviours instrument. *Mod Prev Med.* 2018; (9):5.
28. Bakker AB, Hakanen JJ, Demerouti E, et al. Job resources boost work engagement, particularly when job demands are high. *J Educ Psychol.* 2007;99(2):274.
29. Cheng JF, Lai YM, Livneh H. Establishing reliability and validity of the Chinese version of the Jefferson scale of empathy (healthcare providers version). *J Nurs.* 2011;58:41–8.
30. Yu H, Qiao A, Gui L. Predictors of compassion fatigue, burnout, and compassion satisfaction among emergency nurses: a cross-sectional survey. *Int Emerg Nurs.* 2021;55:100961.
31. Connor KM, Davidson JR. Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC). *Depress Anxiety.* 2003;18(2):76–82.
32. Yu XN, Zhang JX. A comparison between the Chinese version of Ego-resiliency scale and Connor-Davidson resilience scale. *Psychol Sci.* 2007;30(05):1169–71.
33. Ren Y, Zhou Y, Wang S, Luo T, Huang M, Zeng Y. Exploratory study on resilience and its influencing factors among hospital nurses in Guangzhou, China. *Int J Nurs Sci.* 2017;5(1):57–62.
34. Hayes A. Introduction to mediation, moderation, and conditional process analysis. *J Educ Meas.* 2013;51(3):335–7.
35. China Announces. National Health Commission: There are a total of 5.018 million nurses nationwide, with males accounting for 3%. Retrieved from <https://baijiahao.baidu.com/s?id=1732523684378480876&wfr=spider&for=pc>.
36. Liu W, Zhao S, Shi L, et al. Workplace violence, job satisfaction, burnout, perceived organizational support and their effects on turnover intention among Chinese nurses in tertiary hospitals: a cross-sectional study. *BMJ Open.* 2018;8(6):e019525.
37. Jia H, Fang H, Chen R, et al. Workplace violence against healthcare professionals in a multiethnic area: a cross-sectional study in southwest China. *BMJ Open.* 2020;10(9):e037464.
38. Zhao S, Qu L, Liu H, et al. Coping with Workplace Violence against General Practitioners and nurses in Heilongjiang Province, China: Social supports and Prevention Strategies. *PLoS ONE.* 2016;11(6):e0157897.
39. Fu C, Ren Y, Wang G, Shi X, Cao F. Fear of future workplace violence and its influencing factors among nurses in Shandong, China: a cross-sectional study. *BMC Nurs.* 2021;20(1):123.
40. Lu J, Yu Y, Wang B, et al. The mediating role of self-efficacy between workplace violence and PTSD among nurses in Liaoning Province, China: a cross-sectional study. *Front Psychol.* 2023;14:1090451.
41. Wu Y. Empathy in nurse-patient interaction: a conversation analysis. *BMC Nurs.* 2021;20(1):18.
42. Li H, Zhang L, Zhang H et al. Study on the correlation between workplace violence and empathy fatigue of nurses in tumor hospital. *Chin J Practical Nurs.* 2018: 2241–5.
43. Lu Y, Wang J, Huang YQ, et al. Propensity score matching analysis of relationship between workplace psychological violence and empathy ability in nurses. *Chin Mental Health J.* 2022;36(7):603–8.
44. Zhang L, Wang A, Xie X, et al. Workplace violence against nurses: a cross-sectional study. *Int J Nurs Stud.* 2017;72:8–14.
45. Cooper AL, Brown JA, Leslie GD. Nurse resilience for clinical practice: an integrative review. *J Adv Nurs.* 2021;77(6):2623–40.
46. Hsieh HF, Chen YM, Wang HH, et al. Association among components of resilience and workplace violence-related depression among emergency department nurses in Taiwan: a cross-sectional study. *J Clin Nurs.* 2016;25(17–18):2639–47.
47. Itzhaki M, Peles-Bortz A, Kostitsky H, et al. Exposure of mental health nurses to violence associated with job stress, life satisfaction, staff resilience, and post-traumatic growth. *Int J Ment Health Nurs.* 2015;24(5):403–12.
48. Han CY, Chen LC, Lin CC, et al. How emergency nurses develop resilience in the context of Workplace Violence: a grounded theory study. *J Nurs Scholarsh.* 2021;53(5):533–41.
49. Rees C, Wirihana L, Eley R, et al. The effects of Occupational Violence on the Well-being and resilience of nurses. *J Nurs Adm.* 2018;48(9):452–8.
50. Peng J, Luo H, Ma Q, et al. Association between workplace bullying and nurses' professional quality of life: the mediating role of resilience. *J Nurs Manag.* 2022;30(6):1549–58.
51. Chen SY, Yan SR, Zhao WW, et al. The mediating and moderating role of psychological resilience between occupational stress and mental health of psychiatric nurses: a multicenter cross-sectional study. *BMC Psychiatry.* 2022;22(1):823.
52. Nejadshafiee M, Nekoei-Moghadam M, Bahaadinbeigy K, et al. Providing telenursing care for victims: a simulated study for introducing of possibility nursing interventions in disasters. *BMC Med Inform Decis Mak.* 2022;22(1):54.
53. Hadian M, Jabbari A, Sheikhbardsiri H. Workplace violence and influencing factors among paramedic pre hospital paramedic personnel (city and road) in Iran: a quality content analysis. *BMC Emerg Med.* 2021;21(1):124.

## Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.