


# BMJ Open Exploring barriers and facilitators in nurses' reporting of patient and visitor violence: a cross-sectional study in China

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## ABSTRACT

**Objectives** The current status of patient and visitor violence (PVV) reporting among nurses has proven insufficient. Therefore, we explored the barriers and facilitators in nurses' reporting of PVV.

**Design** Cross-sectional study.

**Setting** General and specialised hospitals in Jiangsu Province, China.

**Participants** A convenience sampling of 3363 nurses in Jiangsu Province was collected between January and July 2023.

**Main outcome measure** The reporting rate of PVV was assessed by the hospital workplace violence questionnaire-revised version; multivariable logistic regression analyses were performed to determine factors associated with PVV reporting at the 5% significance level.

**Results** Out of the 3363 surveyed nurses, 1813 (53.9%) reported experiencing PVV within the past year. Notably, only 16.1% of these nurses proactively reported PVV incidents after encountering them. Factors that facilitated reporting of PVV comprised being male (OR 1.832, 95% CI 1.083 to 3.101), working in specialised hospitals (OR 2.335, 95% CI 1.517 to 3.594), serving in emergency (OR 1.788, 95% CI 1.105 to 2.892), outpatient (OR 3.153, 95% CI 1.697 to 5.860), paediatrics (OR 3.808, 95% CI 1.976 to 7.338), possessing agreeableness personality (OR 2.112, 95% CI 1.140 to 3.911), prior hearing of PVV (OR 1.749, 95% CI 1.305 to 2.346) and having hospitals that actively encouraged reporting (OR 2.700, 95% CI 1.848 to 3.946) while safeguarding staff interests (OR 2.072, 95% CI 1.010 to 4.248) and emphasising nurses more (OR 2.109, 95% CI 1.123 to 3.958). Conversely, factors impeding nurses from reporting PVV included having night shifts 5–9 times per month (OR 0.481, 95% CI 0.282 to 0.819) and selectively reporting based on the severity of the violence (OR 0.550, 95% CI 0.344 to 0.878).

**Conclusion** The reporting rate of PVV among nurses was notably low. Nursing managers should consider implementing comprehensive measures that address both the facilitating and blocking factors identified in the study. This strategic approach aims to enhance the reporting rate of PVV incidents among nurses, fostering a safer and more supportive environment within healthcare settings.

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Based on previous research and our preliminary qualitative research, identifying scientific, rational, thorough factors facilitating and blocking patient and visitor violence reporting.
- ⇒ Conducted convenience sampling and targeted only nurses in Jiangsu Province in China, making the sample not representative enough.
- ⇒ Cross-sectional design and associations observed do not establish a cause effect relationship.

## INTRODUCTION

Workplace violence (WPV) has emerged as a critical issue in healthcare that cannot be overlooked, and the predominant form of WPV in hospitals is patient and visitor violence (PVV).<sup>1 2</sup> PVV refers to violent behaviour inflicted by patients and their visitors on medical staff in hospitals.<sup>3</sup> Nurses face an elevated risk of PVV due to their prolonged contact with patients,<sup>4–6</sup> with prevalence rates ranging from 56.2% to 87.0%.<sup>7–10</sup> Numerous studies<sup>11–17</sup> have demonstrated that PVV can have varying degrees of negative impacts on nurses, hospitals and society. Nurses subjected to PVV may not only experience physiological discomforts such as chest tightness and headaches but also psychological reactions such as fear, anxiety or depression, resulting in lower job satisfaction, diminished work efficiency and an increased likelihood of resigning.<sup>12 13</sup> For organisations, PVV may contribute to the loss of nursing staff and property damage, significantly affecting the cohesiveness of a nursing team.<sup>14 15</sup> At the societal level, PVV not only disrupts social order and worsens the trust crisis between nurses and patients but also contributes to the economic burden.<sup>16 17</sup> Hence, it becomes imperative to decrease the occurrence of PVV among nurses. Doing so is crucial not only for improving nurses'

occupational well-being but also for nurturing the robust development of the nursing profession.

Underreporting is defined as a failure of the victimised employee to report events to employers, police or other officials.<sup>18</sup> Previous studies of PVV have shown that obtaining a comprehensive understanding of the current status of PVV reporting is a pivotal step in mitigating the incidence of PVV.<sup>19 20</sup> However, it is worth noting that the underreporting rate remains high, with significant regional disparities. Research by Al-Azzam *et al*<sup>21</sup> found that only 32.0% of 1340 nurses in a Jordanian psychiatric department reported PVV. In the USA, a study by Arnetz *et al*<sup>19</sup> revealed that just 12.0% of 2010 healthcare professionals across 42 hospitals reported instances of PVV. Similarly, Cheung *et al*<sup>22</sup> noted that only 29.6% of 850 nurses in Hong Kong were inclined to report violent events. This widespread underreporting among nurses necessitates a proactive examination of the factors involved.

Identifying and addressing these factors are essential to alter this prevailing pattern. A systematic review investigating reasons related to underreporting PVV results in three categories: nursing (personal characteristics, lack of knowledge about reporting PVV, perception of the level of severity), management (lack of support to report) and organisational (lack of policies and procedures, lack of a reporting system, lack of training programmes) factors.<sup>23</sup> Babiarczyk<sup>24</sup> confirmed that female nurses, with less work experience and experiencing a higher frequency of violence, are less likely to report PVV. Moreover, nurses were often hesitant to report if they were unaware of reporting processes or if they viewed violence, particularly verbal abuse, as an inevitable aspect of their job.<sup>25</sup> Organisational support refers to the value that organisations place on the contributions of their members and the concern for their well-being, which has been proven essential to behavioural choices for employees.<sup>26</sup> Research<sup>27 28</sup> has demonstrated that insufficient organisational support such as inadequate reporting procedures, training, policies and systems also contribute to underreporting due to perceptions like ineffective reporting, fear of managerial reprisal, negative performance evaluations, job loss or coworker discrimination. In addition, several researchers have examined the characteristics of violent events and their perpetrators. Pompeii *et al*<sup>29</sup> noted that hospital workers often refrain from reporting if they were not physically harmed or if the event was not serious enough. Meanwhile, the perpetrator's medical condition influences reporting; hospital staff typically express compassion for patients with psychiatric diagnoses but exhibit less tolerance for those who are intoxicated or using illicit drugs. Drori *et al*<sup>30</sup> discussed in more detail from three groups: perpetrator characteristics (identity and psychological state), victim characteristics (demographics and attitudes towards reporting) and violence event characteristics (physical, verbal and sexual violence).

However, these factors are frequently analysed in isolation, neglecting nurses' cognitive factors and personality traits. There is also a lack of systematic examination of

facilitating and obstructing factors within specific clinical contexts. Our team has conducted qualitative research into factors influencing nurses' reporting of PVV, identifying the primary facilitators (a profound understanding of violence, heightened reporting awareness, a positive reporting atmosphere, a secure working environment, supportive managerial attitudes, a streamlined reporting system and comprehensive education and training) and barriers (nurses' introverted personalities, apprehensions about negative repercussions, interference from perpetrators and high workloads).<sup>31</sup> In conclusion, there is a compelling need for a more comprehensive exploration of facilitating and blocking factors in PVV reporting among nurses, building on existing research and insights from our team's work.

Therefore, this study aimed to thoroughly examine the current state and identify both facilitating and blocking factors associated with nurses' PVV reporting, providing empirical evidence that could inform the development of effective coping strategies, ultimately enhancing the reporting rate of PVV.

## METHODS

### Study design

A cross-sectional survey was conducted to investigate the facilitators and barriers of nurses' PVV reporting, taking into account various aspects, including nurses' characteristics, personality traits, work pressure, attitudes towards reporting PVV and the management measures implemented by healthcare organisations. This study was approved by the Medical Ethics Committee of the First Affiliated Hospital of Soochow University (Approval No. 2022551).

### Sampling

From January to July 2023, we employed a convenience sampling to select clinical nurses from various hospitals in Jiangsu Province as study participants. The sample size was determined by  $N = (Z_{1-\alpha/2} / \delta)^2 p(1-p)$ , where  $p$  referred to the past prevalence of PVV reporting (the minimum is 12.0%)<sup>19</sup> and  $\delta$  referred to allowable error (3%). Considering a 95% CI and a 10% non-response rate, the minimum required sample size was 501 participants. The inclusion criteria encompassed the following requirements: (1) registration as a nurse with a valid nursing practice certificate, (2) a minimum of 1 year of practical experience and (3) expression of informed consent coupled with voluntary participation in the study. Conversely, individuals meeting any of the exclusion criteria were not considered: (1) nurses involved in violent incidents with patients outside the hospital, (2) nurses with no direct contact with patients, (3) nurses with a history of mental illness and (4) nurses engaged in advanced studies.

### Data collection

With the approval of hospital managers, emails were dispatched to registered nurses in Jiangsu Province

who met the specified inclusion and exclusion criteria and were selected for participation, inviting them to complete the questionnaire anonymously. The questionnaire comprised two sections: the first part covered the informed consent and the study's purpose and significance, while the second detailed the questionnaire's content (shown in online supplemental additional 2). The email was sent twice, initially and then 10 days later, serving as a reminder. Participants who voluntarily completed the questionnaire within the 4 weeks were considered to have provided informed consent and contributed valid responses.

### Patient and Public Involvement

Patients or public were not involved in the design or planning of the study.

### Instrument

#### Hospital workplace violence (WPV) questionnaire-revised version

Using the revised version of the hospital WPV questionnaire developed by Yang *et al.*<sup>32</sup> as a foundation, we tailored the items to align with the particular needs of our study through a meticulous blend of literature review and consultations with experts. Subsequently, the initial questionnaire underwent a presurvey involving 20 nurses who met the inclusion criteria. This group was intentionally selected to represent diversity in terms of working years, educational backgrounds and departmental affiliations. Throughout the presurvey, feedback from these nurses led to revisions of any confusing or ambiguous questionnaire items, refining the tool into its final version.

The questionnaire explored five sections with a total of 42 items related to PVV reporting. These sections included general information about nurses, the reporting situation of PVV incidents in the past year, a description of the most impactful PVV reporting experience in the past year, nurses' perceptions and attitudes towards PVV reporting, hospitals' attitudes and measures towards PVV reporting. The questionnaire demonstrated good reliability, with an internal consistency (Cronbach's coefficient) of 0.816. Additionally, the mean content validity for each item was 0.916, affirming the robustness and relevance of the questionnaire in effectively capturing the nuances of WPV among nurses.

#### Chinese big five personality inventory brief version

The personality assessment scale used in this study was developed by Wang *et al.*<sup>33</sup> and is designed to evaluate individuals across five dimensions: neuroticism, conscientiousness, agreeableness, openness and extraversion. Each dimension comprises eight entries, resulting in a total of 40 items. A 6-point Likert scale was employed, with '1' indicating complete non-compliance and '6' indicating complete compliance. Scores for each dimension are independent, with higher scores reflecting a greater inclination towards that particular personality trait.

This scale, extensively used in clinical settings, has showcased robust reliability and validity. The overall

Cronbach's alpha coefficient for the entire scale was computed to be 0.802, pointing to a high level of internal consistency. Furthermore, Cronbach's alpha coefficients for the individual dimensions spanned from 0.720 to 0.828, providing additional confirmation of the reliability of each dimension within the scale. The utilisation of this well-established and validated personality assessment tool contributed to the methodological strength of the study, ensuring the accurate measurement of various personality traits among participants.

#### Chinese nurse stressor scale

The scale was employed to assess the work stress levels of nurses and was developed by Li *et al.*<sup>34</sup> It comprises 35 items across five dimensions, encompassing patient care, workload and time allocation, work environment and equipment, the nursing profession, and management and interpersonal relationships. Using a 4-point Likert scale, the total score ranges from 35 to 140. A higher score indicates a greater level of work stress. The scale has demonstrated good reliability and validity and has been extensively used in China, boasting a Cronbach's alpha coefficient of 0.944.

### Data analysis

Statistical analysis was conducted using SPSS 26.0, with a significance level set at  $p < 0.05$  to denote statistical significance. Categorical variables were described using frequency and component ratio (%). Numerical variables adhering to a normal distribution were presented as mean  $\pm$  standard deviation ( $\bar{X} \pm S$ ), while non-normally distributed data were described using the median and quartiles (P25, P75).

The analysis proceeded as follows: nurses' general information, knowledge and attitudes towards PVV reporting; the hospital's attitudes and measures towards nurses' PVV reporting; nurses' personality characteristics; and work stress were examined through univariate analysis using the  $\chi^2$  test or the Mann-Whitney U test.

The dependent variable, whether nurses actively reported PVV, was set, and variables exhibiting statistically significant differences in the univariate analysis were designated as independent variables. Logistic regression analysis was employed for multivariable analysis to explore the factors associated with nurses' proactive reporting of PVV.

## RESULTS

### General information about the study subjects

In total, 3635 questionnaires were distributed, and 3363 valid questionnaires were returned, resulting in an effective response rate of 92.5%. The study comprised a total of 3363 nurses. Among them, 1813 nurses, consisting of 1702 females and 111 males, experienced PVV in the past year. Additionally, 44.7% of the affected nurses held supervisory positions. Regarding marital status, 72.0% were married. The range of their working experience



**Table 1** Reporting rate of different types of patient and visitor violence (n=1813, n (%))

Type of violence	Occurrence Nurses, n	Reporting Nurses, n (%)
Total violence	1813	292 (16.1)
Psychological violence	1781	267 (15.0)
Physical violence	398	96 (24.1)
Sexual violence	120	24 (20.0)

spanned from 1 to 45 years, with a mean age of  $11.52 \pm 7.69$  years. Detailed general information is provided in online supplemental additional 1 table S1.

### Current status of nurses' proactive reporting of patient and visitor violence (PVV)

The survey revealed that out of the 1813 nurses who experienced PVV in the past year, 292 actively reported it, resulting in a reporting rate of 16.1%. The breakdown of reported incidents for different types of PVV is presented in table 1.

According to the survey findings, 87.7% of nurses opted to report PVV verbally, and 80.5% chose to report it to the nurse manager. Further details can be found in online supplemental additional 1 table S2.

In a survey involving 1521 nurses who refrained from reporting PVV after experiencing it, the top three reasons for not reporting were identified as follows: reporting was perceived as unable to solve the problem (52.6%), uncertainty about how to report (48.0%) and a lack of clear hospital requirements for reporting (47.9%). More detailed information is listed in online supplemental additional 1 table S3.

### Factors associated with nurses' proactive reporting of patient and visitor violence (PVV)

#### Univariate analysis

Univariate analysis of the demographic data for the 1813 nurses who experienced PVV in the past year revealed statistically significant differences in PVV reporting based on gender ( $p < 0.001$ ), hospital type ( $p < 0.001$ ), department ( $p < 0.001$ ) and the number of night shifts per month ( $p < 0.001$ ). Detailed results are provided in table 2.

When it comes to personality traits, the study results indicated that the reporting rates of PVV among nurses with neurotic, conscientious, agreeable, open and extroverted personalities were 7.3%, 17.0%, 21.4%, 13.3% and 10.9%, respectively. Statistically significant differences were observed among different personality characteristics ( $p < 0.05$ ). Specific results are shown in online supplemental additional 1 table S4.

As to comparing work pressure, the study results revealed that 22.6% of nurses experiencing mild work pressure, 19.8% of those with moderate work pressure and 8.4% of nurses facing severe work pressure reported PVV. A comparison of the reporting rates of PVV among nurses with varying levels of work stress demonstrated

statistically significant differences ( $p < 0.05$ ). Detailed results can be found in online supplemental additional 1 table S5.

Comparing nurses' perceptions and attitudes towards PVV reporting, the results indicated that factors such as 'Heard of PVV before', 'PVV not worth the fuss', 'The state or attitude of the abuser affects reporting', 'Severity of violence affects reporting', 'Safety of the work environment affects reporting' and 'Media coverage of violence affects reporting' showed statistically significant differences in whether nurses reported PVV ( $p < 0.05$ ). Specific results can be found in table 3.

On comparing the hospitals' approaches and protocols regarding PVV reporting, the results indicated statistically significant differences ( $p < 0.05$ ) for various factors associated with nurses' PVV reporting. These findings are detailed in table 4.

### Multivariable analysis

In this section, the dependent variable was whether nurses reported after experiencing PVV, denoted as follows: reported (1) and unreported (0). Statistically significant variables from the univariate analysis were selected as independent variables. For the multicategorical variable, dummy variables were created for subsequent logistic stepwise regression analysis. The criterion for variable entry was set at  $\alpha = 0.05$ ; specific assignments are outlined in online supplemental additional 1 table S6. The regression analysis suggested that gender, hospital type, work department, night shifts per month, personality traits, heard of PVV before, perceived severity of violence affects reporting, hospitals' attitude and measures on PVV reporting were independent factors associated with nurses whether or not to report a PVV exposure.

Male nurses were more likely to proactive report PVV than female nurses, OR=1.832 (95% CI 1.083 to 3.101). Nurses in specialised hospitals were 2.335 times more likely to report PVV than those in general (95% CI 1.517 to 3.594). Nurses in emergency, outpatient and paediatric were more willing to report PVV than nurses in internal medicine (OR=1.788, 3.153 and 3.808, respectively,  $P < 0.05$ ). Nurses who had 5~9 times night shifts per month were less likely to report PVV than those without night shifts (OR=0.481, 95% CI 0.282 to 0.819). Agreeable nurses were more willing to report PVV than neurotic nurses (OR=2.112, 95% CI 1.140 to 3.911). Compared with nurses who didn't hear of WPV, nurses who heard of WPV were more likely to proactive report PVV (OR=1.749, 95% CI 1.305 to 2.346). Nurses who perceived severity of violence affecting reporting were less likely to proactive report PVV than those perceived that severity of violence did not affect reporting (OR=0.550, 95% CI 0.344 to 0.878). Nurses being encouraged to report were 2.7 times more willing to report PVV than those not being encouraged (95% CI 1.848 to 3.946). When hospitals encourage reporting, defending the interests of the staff and emphasis nurses more, their nurses were more willing to

**Table 2** Reporting rates of patient and visitor violence (PVV) among nurses with different demographic characteristics (n=1813, n (%))

Item	Category	Nurses, n (%)	Whether or not to report a PVV exposure		$\chi^2/Z$	P
			Yes (n=292)	No (n=1521)		
Gender	Male	111 (6.1)	31 (27.9)	80 (72.1)	12.230	<0.001
	Women	1702 (93.9)	261 (15.3)	1441 (84.7)		
Age	<30 years	627 (34.6)	96 (15.3)	531 (84.7)	-1.557*	0.119
	30~39 years	838 (46.2)	127 (15.2)	711 (84.8)		
	40~49 years	286 (15.8)	54 (18.9)	232 (81.1)		
	≥50 years	62 (3.4)	15 (24.2)	47 (75.8)		
Working years	<6 years	399 (22.0)	61 (15.3)	338 (84.7)	-1.448*	0.148
	7~10 years	600 (33.1)	90 (15.0)	510 (85.0)		
	11~15 years	369 (20.4)	57 (15.4)	312 (84.6)		
	≥16 years	445 (24.5)	84 (18.9)	361 (81.1)		
Education level	Junior college	226 (12.5)	39 (17.3)	187 (82.7)	-0.503*	0.615
	College and above	1587 (87.5)	253 (15.9)	1334 (84.1)		
Hospital type	General hospital	1491 (82.2)	185 (12.4)	1306 (87.6)	84.970	<0.001
	Specialised hospital	322 (17.8)	107 (33.2)	215 (66.8)		
Work department	Emergency	363 (20.0)	65 (17.9)	298 (82.1)	123.405	<0.001
	Outpatient	104 (5.7)	36 (34.6)	68 (65.4)		
	Surgery	349 (19.2)	37 (10.6)	312 (89.4)		
	Internal medicine	458 (25.3)	36 (7.9)	422 (92.1)		
	Gynaecology and obstetrics	67 (3.7)	6 (9.0)	61 (91.0)		
	Paediatrics	76 (4.2)	27 (35.5)	49 (64.5)		
	Intensive care unit	59 (3.3)	1 (1.7)	58 (98.3)		
	Psychiatry	275 (15.2)	78 (28.4)	197 (71.6)		
	Others	62 (3.4)	6 (9.7)	56 (90.3)		
Employment form	Staffed employees	777 (42.8)	135 (17.4)	642 (82.6)	3.510	0.173
	Contract employees	1022 (56.4)	153 (15.0)	869 (85.0)		
	Temporary workers	14 (0.8)	4 (28.6)	10 (71.4)		
Position	Nurse	1662 (91.7)	268 (16.1)	1394 (83.9)	-0.074*	0.941
	Head nurse and above	151 (8.3)	24 (15.9)	127 (84.1)		
Title	Nurse	196 (10.8)	32 (16.3)	164 (83.7)	-0.048*	0.962
	Nurse practitioner	616 (34.0)	99 (16.1)	517 (83.9)		
	Nurse supervisor	811 (44.7)	129 (15.9)	682 (84.1)		
	Deputy chief nursing officer and above	190 (10.5)	32 (16.8)	158 (83.2)		
Night shifts per month	No	226 (12.4)	55 (24.3)	171 (75.7)	-4.985*	<0.001
	1~4 times	908 (50.1)	166 (18.3)	742 (81.7)		
	5~9 times	505 (27.9)	43 (8.5)	462 (91.5)		
	≥10 times	174 (9.6)	28 (16.1)	146 (83.9)		
Patients per shift	≤ 8 persons	414 (22.8)	73 (17.6)	341 (82.4)	-0.211*	0.833
	9~11 persons	485 (26.8)	70 (14.4)	415 (85.6)		
	≥12 persons	914 (50.4)	149 (16.3)	765 (83.7)		
Marital status	Married	1306 (72.0)	206 (15.8)	1100 (84.2)	6.124	0.099
	Unmarried	470 (25.9)	76 (16.2)	394 (83.8)		
	Divorcee	36 (2.0)	9 (25.0)	27 (75.0)		

Continued

**Table 2** Continued

			Whether or not to report a PVV exposure			
Item	Category	Nurses, n (%)	Yes (n=292)	No (n=1521)	$\chi^2/Z$	P
Only child	Widowed	1 (0.1)	1 (100.0)	0 (0.0)	0.197	0.658
	Yes	792 (43.7)	131 (16.5)	661 (83.5)		
	No	1021 (56.3)	161 (15.8)	860 (84.2)		
*Using the Mann-Whitney U test.						

**Table 3** Comparison of nurses' perceptions and attitudes on nurses' patient and visitor violence (PVV) reporting (n=1813, n (%))

Item	Category	Nurses, n (%)	Whether or not to report a PVV exposure		$\chi^2$	P
			Yes (n=292)	No (n=1521)		
Heard of PVV before	Yes	519 (28.6)	131 (25.2)	388 (74.8)	44.908	<0.001
	No	1294 (71.4)	161 (12.4)	1133 (87.6)		
PVV was unavoidable at work	Yes	1510 (83.3)	247 (16.4)	1263 (83.6)	0.424	0.515
	No	303 (16.7)	45 (14.9)	258 (85.1)		
PVV not worth the fuss	Yes	204 (11.3)	47 (23.0)	157 (77.0)	8.178	0.004
	No	1609 (88.7)	245 (15.2)	1364 (84.8)		
Nurses need to proactively report PVV	Yes	1720 (94.9)	279 (16.2)	1441 (83.8)	0.328	0.567
	No	93 (5.1)	13 (14.0)	80 (86.0)		
Hospitals should make 'proactive reporting PVV' a rule	Yes	1655 (91.3)	263 (15.9)	1392 (84.1)	0.648	0.421
	No	158 (8.7)	29 (18.4)	129 (81.6)		
Nurses would benefit from PVV reporting training	Yes	1480 (81.6)	249 (16.8)	1231 (83.2)	3.078	0.079
	No	333 (18.4)	43 (12.9)	290 (87.1)		
Coworkers' positive reporting affect reporting	Yes	1190 (65.6)	180 (15.1)	1010 (84.9)	2.461	0.117
	No	623 (34.4)	112 (18.0)	511 (82.0)		
The state or attitude of the abuser affects reporting	Yes	1359 (75.0)	192 (14.1)	1167 (85.9)	15.712	<0.001
	No	454 (25.0)	100 (22.0)	354 (78.0)		
Severity of violence affects reporting	Yes	1452 (80.1)	212 (14.6)	1240 (85.4)	12.230	<0.001
	No	361 (19.9)	80 (22.2)	281 (77.8)		
Safety of the work environment affects reporting	Yes	1447 (79.8)	212 (14.7)	1235 (85.3)	11.229	0.001
	No	366 (20.2)	80 (21.9)	286 (78.1)		
Media coverage of violence affects reporting	Yes	1426 (78.7)	205 (14.4)	1221 (85.6)	14.798	<0.001
	No	387 (21.3)	87 (22.5)	300 (77.5)		
Training on PVV reporting can facilitate reporting	Yes	1374 (75.8)	206 (15.0)	1168 (85.0)	5.204	0.023
	No	439 (24.2)	86 (19.6)	353 (80.4)		
Establishment of a department to deal with PVV could facilitate reporting	Yes	1559 (86.0)	237 (15.2)	1322 (84.8)	6.728	0.009
	No	254 (14.0)	55 (21.7)	199 (78.3)		
Introduction of a non-punitive reporting system could facilitate reporting	Yes	1355 (74.7)	200 (14.8)	1155 (85.2)	7.189	0.007
	No	458 (25.3)	92 (20.1)	366 (79.9)		
Strengthening hospital security could facilitate reporting	Yes	1512 (83.4)	230 (15.2)	1282 (84.8)	5.390	0.020
	No	301 (16.6)	62 (20.6)	239 (79.4)		
Proper media orientation can facilitate reporting	Yes	1325 (73.1)	192 (14.5)	1133 (85.5)	9.506	0.002
	No	488 (26.9)	100 (20.5)	388 (79.5)		

**Table 4** Hospitals' attitudes and measures associate with nurses' patient and visitor violence (PVV) reporting (n=1813, n (%))

Item	Category	Nurses, n (%)	Whether or not to report a PVV exposure		x <sup>2</sup>	P
			Yes (n=292)	No (n=1521)		
Encourage reporting	Yes	856 (47.2)	220 (25.7)	636 (74.3)	110.493	<0.001
	No	957 (52.8)	72 (7.5)	885 (92.5)		
Reporting institution	Yes	520 (28.7)	129 (24.8)	391 (75.2)	40.860	<0.001
	No	1293 (71.3)	163 (12.6)	1130 (87.4)		
Reporting system	Yes	519 (28.6)	127 (24.5)	392 (75.5)	37.650	<0.001
	No	1294 (71.4)	165 (12.8)	1129 (87.2)		
Specialised department	Yes	671 (37.0)	159 (23.7)	512 (76.3)	45.418	<0.001
	No	1142 (63.0)	133 (11.6)	1009 (88.4)		
Reporting training	Yes	504 (27.8)	126 (25.0)	378 (75.0)	40.867	<0.001
	No	1309 (72.2)	166 (2.7)	1143 (87.3)		
Hospital attitude	Defending the interests of the staff	193 (10.6)	54 (28.0)	139 (72.0)	66.090	<0.001
	Deal fairly	998 (55.1)	194 (19.4)	804 (80.6)		
	Ignore it	382 (21.1)	29 (7.6)	353 (92.4)		
	Chastise employees	240 (13.2)	15 (6.3)	225 (93.8)		
Degree of attention	Emphasis doctors more	959 (52.9)	105 (10.9)	854 (89.1)	44.393	<0.001
	Emphasis nurses more	76 (4.2)	23 (30.3)	53 (69.7)		
	Pay attention equally	778 (42.9)	164 (21.1)	614 (78.9)		

report PVV (OR=2.072, 2.109, respectively). More results are shown in [table 5](#).

## DISCUSSION

### Status of nurses' proactive reporting of patient and visitor violence (PVV)

In this study, the reporting rate of nurses after exposure to PVV was 16.1%, notably lower than that reported in Jordan (32.0%),<sup>24</sup> India (23.5%)<sup>35</sup> and Saudi Arabia (16.4%),<sup>36</sup> while surpassing rates in the USA (12.0%).<sup>19</sup> The observed variations could be attributed to differences in geographical regions, hospital systems, survey subjects and survey time.

It is noteworthy that this study revealed that less than half of the nurses opted to report, consistent with the findings of numerous studies on nurses reporting PVV, underscoring the pervasive nature of low PVV reporting rates among nurses. That recurrent pattern of suboptimal reporting, observed in this study and others, posed a significant challenge for hospital managers as it impeded a comprehensive understanding of the true incidence of PVV. Consequently, it is imperative for hospital administrators to focus on the underreporting phenomenon among nurses, identify facilitating and hindering factors and formulate targeted interventions to address PVV occurrences effectively.

### Facilitating factors of nurses' proactive reporting of patient and visitor violence (PVV)

#### Nurses' general information

Within the general information of the surveyed nurses, factors such as gender, hospital type and work department were identified as facilitating factors of nurses' proactive reporting of PVV. Regarding gender, male nurses were more likely to proactive report PVV compared with female nurses (OR=1.832, 95% CI 1.083 to 3.101). This difference might be attributed to personality variations between men and women. Concerning hospital type, nurses in specialised hospitals exhibited a greater inclination to report violence (OR=2.335, 95% CI 1.517 to 3.594). This tendency could be explained by a higher frequency of violent incidents in specialised hospitals, prompting increased managerial emphasis on training in this domain. Consequently, nurses in such settings might possess heightened awareness, contributing to their proactive reporting behaviour.

Additionally, when compared with internal medicine, nurses in the emergency (OR=1.788, 95% CI 1.105 to 2.892), outpatient (OR=3.153, 95% CI 1.697 to 5.860) and paediatric departments (OR=3.808, 95% CI 1.976 to 7.338) demonstrated a higher likelihood of reporting violence. One possible reason behind this could be the elevated incidence of violence in the emergency department, prompting increased managerial focus on PVV training and management. Paediatric nurses, on the other hand, displayed heightened initiative in reporting PVV, primarily linked to the unique nature of paediatric care. Children, being the focal point of parents'



**Table 5** Logistic regression on nurses' patient and visitor violence (PVV) reporting (n=1813)

Item	P	OR	95% CI	
			Lower	Upper
Constant	<0.001	0.032	—	—
Gender (male)	0.024	1.832	1.083	3.101
Specialised hospitals	<0.001	2.335	1.517	3.594
Internal medicine*	<0.001	—	—	—
Emergency	0.018	1.788	1.105	2.892
Outpatient	<0.001	3.153	1.697	5.860
Surgery	0.208	1.384	0.834	2.297
Gynaecology and obstetrics	0.919	1.051	0.403	2.738
Paediatrics	<0.001	3.808	1.976	7.338
Intensive care unit	0.195	0.259	0.034	1.997
Psychiatry	0.552	1.200	0.658	2.186
Others	0.724	0.841	0.321	2.203
No*	0.006	—	—	—
1~4 times	0.287	0.784	0.501	1.227
5~9 times	0.007	0.481	0.282	0.819
≥10 times	0.649	1.156	0.620	2.156
Neuroticism*	0.010	—	—	—
Rigour	0.072	1.742	0.951	3.189
Agreeableness	0.017	2.112	1.140	3.911
Openness	0.760	1.107	0.577	2.124
Extraversion	0.737	0.816	0.249	2.676
Mildly*	0.521	—	—	—
Moderately	0.092	1.819	0.907	3.647
Severe	0.328	1.478	0.675	3.233
Heard of PVV before	<0.001	1.749	1.305	2.346
PVV not worth the fuss	0.596	1.116	0.744	1.672
The state or attitude of the abuser affects reporting	0.298	0.799	0.524	1.218
Severity of violence affects reporting	0.012	0.550	0.344	0.878
Safety of the work environment affects reporting	0.086	1.534	0.941	2.501
Media coverage of violence affects reporting	0.706	0.925	0.616	1.388
Training on PVV reporting can facilitate reporting	0.157	0.772	0.540	1.104
Establishment of a department to deal with PVV could facilitate reporting	0.630	0.905	0.603	1.359
Introduction of a non-punitive reporting system could facilitate reporting	0.906	1.022	0.717	1.455
Strengthening hospital security could facilitate reporting	0.720	0.930	0.627	1.381
Proper media orientation can facilitate reporting	0.331	0.838	0.587	1.197
Encourage reporting	<0.001	2.700	1.848	3.946
Reporting institution	0.568	1.141	0.724	1.799
Reporting system	0.079	0.659	0.414	1.049
Specialised department	0.230	1.259	0.864	1.834
Reporting training	0.563	0.884	0.582	1.343
Chastise employees*	0.220	—	—	—
Defending the interests of the staff	0.047	2.072	1.010	4.248
Deal fairly	0.136	1.622	0.858	3.065
Ignore it	0.446	1.305	0.657	2.593

Continued



Table 5 Continued

Item	P	OR	95% CI	
			Lower	Upper
Emphasis doctors more*	0.052	—	—	—
Emphasis nurses more	0.020	2.109	1.123	3.958
Pay attention equally	0.940	1.012	0.734	1.396

The Hosmer-Lemeshow test value is 5.457 ( $p=0.708>0.05$ ).

Nagelkerke  $R^2=0.253$ ; Cox-Snell  $R^2=0.149$ .

\*Reference group.

attention and the hope of families, prompt paediatric nurses to exercise caution in handling violent conflicts during treatment.<sup>37</sup> This cautious approach leads paediatric nurses to be more inclined to report incidents to administrators, ensuring proper resolution. In the outpatient department, violence often arises from patient dissatisfaction with the hospital's medical environment or processes.<sup>12</sup> Since the root cause of such violence cannot be effectively addressed by outpatient nurses alone, they are more inclined to report incidents to seek assistance from managers for a comprehensive resolution.

Consequently, nursing managers should comprehensively comprehend the PVV reporting rates and reasons for non-reporting across various departments. Tailoring interventions according to hospital type and the specific clinical context of each department is crucial. This approach will empower nursing managers to underscore and guide nurses in establishing a 'zero-tolerance' attitude towards violence in each department of the hospital.

#### Nurses' personality traits

Personality traits, among the factors shaping human behaviour, are psychological structures that actively initiate or guide responses to stimuli, fostering consistent reactions across diverse situations.<sup>14</sup> Individual behaviour often correlates with personality traits, suggesting that nurses with varying personality traits may respond distinctively to violent events. In this study, nurses exhibiting agreeableness personality traits were more inclined to proactively report PVV (OR=2.112, 95% CI 1.140 to 3.911). Wan *et al*<sup>38</sup> have noted that nurses with agreeableness personalities are sociable and predisposed to adopting positive coping styles in adversity. As a result, they tend to actively engage in communication with colleagues or superiors to seek improved solutions after experiencing violence. Conversely, research by Huang *et al*<sup>39</sup> indicates that nurses with introverted or neuroticism personalities, characterised by conservatism, sensitivity and fragility, tend to avoid confrontation and self-blame following violent incidents.

The substantial variation in PVV reporting observed among nurses with different personality traits underscored the importance for nursing managers to implement scientific and targeted interventions based on individual traits. Brandt *et al*<sup>40</sup> emphasise that personality

is malleable and influenced by external environmental factors. Okumura *et al*'s<sup>41</sup> study further affirms that tailored training based on the personality traits of new nurses can stimulate positive emotions and mobilise their proactive engagement. Thus, nursing managers should be attentive to the impact of nurses' personality traits on PVV reporting and consider establishing training programmes focused on personality characteristics. Such initiatives can contribute to cultivating an optimistic and positive attitude among nurses, ultimately promoting higher rates of PVV reporting.

#### Nurses' perceptions and attitudes on patient and visitor violence (PVV) reporting

In this study, nurses who had heard of PVV before were more likely to proactively report it (OR=1.749, 95% CI 1.305 to 2.346). This association might be attributed to the enhanced ability of nurses, well-versed in PVV, to recognise instances of PVV effectively and report them promptly. Understanding PVV empowers nurses to identify and address such incidents in a timely manner.

Managers are advised to delve into nurses' perceptions and attitudes regarding PVV reporting. Tailored training programmes, aligned with the cognitive level of the nursing staff, can deepen their understanding of PVV reporting and underscore the significance of such reporting. Ultimately, the objective is to modify nurses' cognition and enhance their reporting of PVV.

#### Hospitals' attitudes and measures on nurses' patient and visitor violence (PVV) reporting

Veronesi *et al*<sup>27</sup> have observed that nurses' reluctance to report PVV predominantly stems from concerns tied to the work environment, with a primary worry being the potential partial blame from coworkers and leaders for PVV incidents. Simultaneously, an organisational culture that either normalises PVV as part of nurses' daily work or prioritises appeasing patients' interests post-PVV contributes significantly to nurses' decisions not to report PVV.

The findings of this study aligned with the observation that when hospitals actively encourage reporting (OR=2.700, 95% CI 1.848 to 3.946), emphasise the nurses more (OR=2.109, 95% CI 1.123 to 3.958) and proactively defend employees' interests (OR=2.072, 95% CI 1.010 to 4.248), nurses are more likely to

proactively report PVV. Hospitals that prioritise the reporting of violence often instil a heightened awareness in nurses regarding their own exposure to such incidents, thereby promoting reporting. Additionally, encouragement and support from managers following instances of violence further enhance nurses' sense of organisational belonging, fostering internal motivation to report.<sup>42</sup>

Consequently, hospitals are advised to bolster organisational support for nurses in reporting PVV. Continuous improvement of the reporting process, policies and training initiatives will contribute to enhancing nurses' positive perception of PVV reporting and reinforcing their proactive inclination to report.

### Blocking factors of nurses' proactive reporting of patient and visitor violence (PVV)

The findings of this study revealed that nurses with 5–9 night shifts per month exhibited less initiative to report PVV (OR=0.481, 95% CI 0.282 to 0.819). This reluctance could be attributed to the exhaustion associated with night shifts, potentially diminishing their motivation to report. Additionally, the absence of reporting supervision during night shifts might contribute to nurses being hesitant to report violent incidents when working alone.

Furthermore, in this study, nurses who chose to report based on the severity of violence demonstrated less proactivity in reporting PVV (OR=0.550, 95% CI 0.344 to 0.878). Their inclination to report only when they perceived the impact as serious aligned with the findings of a study by Sato *et al.*<sup>43</sup> The reasons behind this trend might be two-fold. First, it could be linked to a lack of awareness, with some nurses assuming that only severe physical injuries qualify as PVV. Second, clinical nurses often face time and energy constraints, leading them to selectively report based on the severity of PVV incidents and potentially overlook less serious instances. Therefore, hospital administrators are encouraged to guide nurses towards comprehensive PVV reporting. Training programmes should be designed to correct nurses' attitudes towards PVV reporting and enhance their awareness of the importance of proactive reporting.

### Limitation

Our study has some limitations that warrant attention and improvement through subsequent research. First, it focused solely on nurses in Jiangsu Province, which may hinder the generalisability of the results due to cultural differences. Furthermore, convenience sampling might have led to the sample not being representative enough. Finally, while our study proposed recommendations based on the facilitating and blocking factors associated with nurses' PVV reporting, these suggestions have not been clinically verified. Therefore, future research should encompass multicentre studies with larger sample sizes to identify further factors and validate the effectiveness of proposed interventions.

### Conclusion

PVV has emerged as a global public health concern, with a pressing need to address the underreporting of incidents among nurses. This study revealed several key factors associated with nurses' reporting of PVV. Males, employed in specialised hospitals, working in emergency, outpatient and paediatric departments, have an agreeableness personality trait, heard of PVV and hospitals' support in encouraging reporting and defending the interests of nurses and were identified as facilitators for reporting. Conversely, factors such as working 5–9 night shifts per month and selective reporting based on the severity of PVV were found to impede nurses from reporting incidents. Future research should delve into intervening factors and actively devise feasible intervention programmes to enhance the current landscape of nurses' PVV reporting.

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