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# BMJ Open

## Prevalence and impact of clinical violence towards nursing students

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-027385
Article Type:	Research
Date Submitted by the Author:	19-Oct-2018
Complete List of Authors:	Cheung, Kin; The Hong Kong Polytechnic University, School of Nursing Ching, Shirley SY; The Hong Kong Polytechnic University, School of Nursing Cheng, Samuel Hung Nam; The Hong Kong Polytechnic University, School of Nursing Ho, Simone Siu Man; The Hong Kong Polytechnic University, School of Nursing
Keywords:	Clinical violence, Nursing students, Vertical violence, Verbal abuse, Physical violence

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**Title Page**

**Title:** Prevalence and impact of clinical violence towards nursing students

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## Acknowledgements

The authors would like to thank the nursing students who participated in the study, and the efforts of research personnel (NgaYee Chan, WingHa Chan, PuiYi Chow, HoiYan Fan, ShukFong Fu, MeiFong Lam, ChiYeung Ng, SingFung Ng, ChiWai Wong and LaiMan Wong) to collect data.

## Contributors

KC: Planned the study, recruited participants, performed statistical analysis, finalized the manuscript

SSYC: Wrote and revised the introduction of the manuscript

SHNC: Wrote and revised the methods and results of the manuscript

SSMH: Wrote and revised the discussion of the manuscript

All authors reviewed and approved the final manuscript for submission.

## Funding

None

## Competing Interests

None

## Ethical Approval

This study was approved by The Hong Kong Polytechnic University

## Data Sharing Statement

No additional data available

Word Count: 3414

Number of Tables: 3

## Abstract

### Objectives

Violence studies towards nursing students (NSs) mainly scattered in the West and Middle East; but no studies in Eastern countries. Differences in the nursing education systems and cultures might have contributed to variation in the incidences of clinical violence. The purpose of this study was to investigate the prevalence, associated factors and impact of the clinical violence to NSs.

### Methods

This is a cross-sectional survey study. Convenience sampling was used to recruit university NSs from March to June 2012 in classroom settings.

### Results

Among 1,017 NSs, 37.3% (n=379) experienced clinical violence in their nursing study. The prevalence of verbal abuse (30.6%) was significantly greater than that of physical violence (16.5%). The perpetrators of verbal abuse experienced predominantly from patients (66.8%), hospital staff (29.7%), university supervisors (13.4%), and patients' relatives (13.2%). As for physical violence, patients (91.0%) were the greatest source of assaults. NSs who experienced verbal abuse tended not to take action, not stop nor report the incident, but told their friends/family as compared with those experienced physical violence. Although the negative effects on emotion, clinical performance, and bothersome were significantly greater for verbal abuse than that for physical violence, their intention to leave nursing profession after experiencing either verbal or physical violence was significantly increased as compared to that before the experience ( $p<0.001$ ).

## Conclusions

Our results found moderately high prevalence of clinical violence among NSs. Provision and/or reinforcement of appropriate training about clinical violence is necessary by incorporating violence prevention and management, and crisis interventions into nursing curricula.

(250 words)

## Strengths and limitations of this study

- This cross-sectional study involved a large sample size of 1,017 nursing students from different years of study.
- The response rate of the study was high, 78.41%.
- Although the study sample was from one university, the school of nursing is one of the largest in Hong Kong.
- The recall bias of the cross-sectional design could have affected the results.

### **What is already known about this subject?**

- Clinical violence studies among NSs have not been conducted in Eastern countries. Studies in the West and Middle East are growing but with different focuses such as on the prevalence, various type of violence (i.e. physical violence, bullying, sexual harassment, verbal abuse, horizontal to vertical violence), source of perpetrators, contributing factors and outcomes. But limited studies investigated the impact of clinical violence, particularly on those NSs experienced both verbal and physical violence.

### **What are the new findings?**

- The moderately high prevalence of clinical violence towards NSs in the East was comparable to those of studies conducted in the West and Middle East. For those experienced both verbal and physical violence, their responses to the incident and psychological effects were different. But their intention to leave nursing profession after either incident was the same.

### **How might it impact on clinical practice in the foreseeable future?**

- The study results alert the nursing educators and the clinical administrators the detrimental effect of clinical violence towards NSs; and there is a need to develop anti-violence curricula and policies.

### **Keywords:**

Clinical violence, Nursing students, Vertical violence, verbal abuse, physical violence

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3 Title: Prevalence and impact of clinical violence towards nursing students  
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## 5 **Introduction**

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7  
8 Nursing students (NSs) are the future of the caring profession. Retention of NSs and new  
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10 nursing graduates is one of the strategies to rectify current nursing shortages.<sup>1</sup> Unfortunately,  
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12 however, retention can be problematic, and clinical violence has been shown as one of the  
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14 reasons why NSs consider leaving the profession<sup>2</sup> in the early stages of their education. There  
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16 have been limited studies investigating the prevalence and associated factors of clinical violence.  
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18 One reason for this lack of literature may be the lack of bargaining power that NSs have with  
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20 staff in hospitals and nursing schools.<sup>3</sup>  
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24 Workplace violence affects all workers in all sectors. Nurses have been found in some  
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26 studies to have the highest risk for workplace violence,<sup>4</sup> and in others to be second to security  
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28 guards and police services.<sup>5</sup> They are vulnerable because of frequent and direct contact with  
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30 patients, families, and relatives.<sup>6</sup> Violence towards NSs is a growing concern in nursing  
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32 education, clinical practice and professional development.<sup>7</sup> Comparatively, there have been  
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34 fewer studies investigating clinical violence towards NSs when compared with staff nurses;  
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36 differences were noted in the types, contributing factors and result of clinical violence between  
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38 the two groups.<sup>2 3 8 -10</sup>  
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42 Studies of violence towards NSs have increased in the past ten years, but have mainly  
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44 been scattered among a few countries in the West and Middle East, such as the United Kingdom  
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46 (UK),<sup>2 11</sup> the United States (US),<sup>3 7</sup> South Africa,<sup>9</sup> Australia,<sup>12</sup> and Turkey.<sup>10 13-15</sup> No studies  
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48 have been conducted in Eastern countries. Differences in the nursing education systems and  
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50 cultures might have contributed to variations in the incidences of clinical violence.<sup>16</sup> While three  
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52 years is the most frequent duration of nursing education (i.e. UK, Australia), bachelor programs  
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3 of four years' duration are prevalent in Europe (i.e. Greece, Iceland, The Republic of Ireland,  
4 Israel, Malta, the Netherlands, Portugal, and Sweden), USA, Canada, South Africa<sup>17</sup> and Asian  
5 countries (i.e. Japan, Korea, Macau and Thailand);<sup>18</sup> and four to five years in Hong Kong  
6 (HK).<sup>19</sup> The clinical hours required for registration also vary from a minimum of 800 hours in  
7 Australia<sup>20</sup> to 1400 hours in HK.<sup>21</sup> to 2300 hours in the UK.<sup>22</sup> In addition, NSs in Australia have  
8 been found, on average, to be older than those in HK and Japan.<sup>23</sup> In general, workplaces in the  
9 East are more hierarchical than that in the West.<sup>24</sup>

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19 In existing studies in Western and Middle East countries, the focus has been on the  
20 prevalence and various types of workplace violence (i.e. physical violence, bullying, sexual  
21 harassment, verbal abuse, horizontal to vertical violence), sources of perpetrators, contributing  
22 factors and outcomes. Comparisons of findings are difficult because various definitions and  
23 aspects of clinical violence have been used and studied respectively. In one UK study, nearly  
24 half of the student participants (42.18%) indicated they had experienced bullying/harassment in  
25 the previous year while on clinical placement. One-third (30.4%) had witnessed  
26 bullying/harassment of other students and 19.6% of incidents involved qualified nurses.<sup>2</sup> In  
27 South Africa, verbal violence (verbal abuse, threats, shouting and name-calling) was most  
28 commonly reported (65%), more than physical assault (6%).<sup>9</sup> Perpetrators of non-physical  
29 violence were classmates and students from other years, and nurse educators in South Africa,<sup>9</sup>  
30 and clinical facilitators, preceptors, and nurse managers in Australia.<sup>12</sup> A risk factor that is  
31 specific to NSs is the power hierarchy in the hospitals and schools. In the US, Thomas and  
32 colleagues<sup>3</sup> interviewed junior NSs to investigate their experiences of vertical violence during  
33 clinical rotations. They described the clinical violence towards NSs as “nurses eating their  
34 young” and “violence between individuals with unequal power”. Interestingly, no difference  
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3 was found in prevalence of horizontal violence between bachelor and master students in US .<sup>7</sup> In  
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5 Istanbul, Özcan and colleagues<sup>10</sup> found that student's gender and age was not related to violence  
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7 during clinical practice. Yet, workplace violence can influence NSs' attitudes toward the  
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9 profession and their levels of satisfaction with the work.<sup>2</sup> As a vicious cycle, those who perceive  
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11 horizontal violence as a rite of passage may mimic and continue the behaviors later in their  
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13 careers.<sup>7</sup>  
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17 Despite the fact that workplace violence is an increasingly significant problem  
18  
19 worldwide, clinical violence towards NSs in Eastern countries has not been explored. Thus, the  
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21 purpose of this study was to investigate the prevalence, associated factors and impact of the  
22  
23 clinical violence to NSs.  
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## 26 27 28 **Method**

### 29 30 1. Design and sampling

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32 This was a cross-sectional survey study. Convenience sampling was employed to recruit  
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34 university NSs studying in 3-year higher diploma and 4-year bachelor programmes, in classroom  
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36 settings, from March to June 2012. Ethical approval from the author's university was obtained.  
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### 39 40 2. Instrument

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42 A questionnaire named "Clinical Violence towards NSs" was adapted based on the  
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44 literature review.<sup>16 25 26</sup> Permission to use the questionnaire was obtained from the authors.  
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46 Substantial modifications were made to meet the study objectives. The definition of clinical  
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48 violence used by the International Labour Organization and co-organizations<sup>16</sup> was adopted and  
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50 was stated at the beginning of the questionnaire.  
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54 The questionnaire had three sections. Section one consisted of 11 items to collect the  
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56 NSs' personal information (age, gender, programme and year of study), and their perceptions  
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3 towards clinical violence. They were asked to rate their susceptibility to violence in clinical  
4 placement, how much concern they had about clinical violence, whether they perceived it to be a  
5 part of the nursing job, and their satisfaction with the training provided by their study  
6 programmes. In addition, they were asked to identify the workplace factors contributing to  
7 clinical violence, such as patients or visitors under the influence of alcohol or drugs.  
8 Furthermore, they were asked to indicate if they had witnessed or experienced physical violence  
9 and/or verbal abuse.

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19 Sections two and three of the questionnaire covered the experiences of physical violence  
20 and verbal abuse in the clinical placement respectively. The NSs were required to complete  
21 either or both sections if they had experienced physical violence and/or verbal abuse. Each  
22 section contained 32 items covering four areas: (1) information about the violence (either  
23 physical or verbal) experience including frequency during the study period and the prior 12  
24 months, place of violence, shift involved, and the perpetrators; (2) actions taken in responding to  
25 the violence; (3) reporting behaviors; and (4) impact of the violence on personal emotions,  
26 clinical performance, and intention to leave the nursing profession, as well as how much they  
27 were bothered by it. The impact on personal emotions was assessed by 10 items asking their  
28 feelings about the incident, such as frustration, anger, fear, irritability, sadness, headache,  
29 difficulty in sleeping, shame, depression and low self-esteem. The effect on clinical performance  
30 was evaluated by four items asking if they had lost confidence, had difficulty in concentrating,  
31 provided poor nursing care to patients, and experienced decreased grades for clinical placement.  
32 Furthermore, the participants were asked how bothered they were by the violence, using four  
33 items; repeated, disturbing thoughts or images of the violence; avoiding thinking about the  
34 violence; being “super-alert”; and feeling tired and needing to make an effort to do everything.  
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3 These three subscale impact items used 5-point Likert scales (i.e., 1=not at all to 5=extremely).  
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5 The average of each subscale was used for the data analyses. Higher scores indicated greater  
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7 impact. Last, the participants were asked to evaluate their intentions to leave the nursing  
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9 profession before and after the violence, using a 5-point Likert scale (i.e., 1=never thought to  
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11 5=always thought).  
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15 The study questionnaire was validated by a panel of four local and overseas experts in the  
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17 field of clinical violence and occupational health. The content validity index was 0.98, which  
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19 was considered acceptable.<sup>27</sup> Furthermore, the reliability of the questionnaire was tested with  
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21 two-week test-retest method with 30 NSs. The reliability coefficient was 0.73, which was also  
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23 considered acceptable.<sup>28</sup>  
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## 26 27 28 **Data Analysis** 29

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31 The data were analysed using IBM SPSS Statistics version 23. Descriptive statistics were  
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33 used to present the frequencies, percentages, means, and standard deviations of the variables  
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35 under study. Chi-square and independent t-tests were used to examine the factors (personal and  
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37 workplace), associated with physical violence and/or verbal abuse. For the participants who had  
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39 experienced both physical violence and verbal abuse, dependent t-tests and Wilcoxon signed  
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41 ranks test were used to determine the differences in characteristics (such as responses to the  
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43 incidents and reasons for not reporting them formally) between physical violence and verbal  
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45 abuse, as well as changes in their intentions to leave before and after the experiences of clinical  
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47 violence. A p-value of <0.05 was considered statistically significant.  
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## Patient and public involvement

Patients were not involved in this study.

## Results

A total of 1,297 questionnaires was distributed and 1,017 completed questionnaires were returned, with a response rate of 78.41%.

### 1. Characteristics of the participants and associated factors of clinical violence

Table 1 summarizes the characteristics of the participants. The study gender ratio of 70.4% (female) to 29.6% (male) was consistent with the ratio of the overall numbers of students enrolled in the programmes (68% to 32%). The distribution of NSs across different years of study was an average of 25% in each year. In general, the NSs perceived low susceptibility to (55.9%, n=564) and low concerns about (45.4%, n=461) clinical violence. These perceptions might have been due to their thinking of clinical violence not as part of the nursing job (73.3%, n=737). On the other hand, the NSs considered their training for coping with violence was not adequate (74.6%, n=756). Patient-related factors and heavy workloads of nursing staff were frequently stated as the associated factors for clinical violence.

However, the participants' characteristics changed if they had experienced either physical violence, verbal abuse or both. For instance, their perceived susceptibility to clinical violence ( $p<0.001$ ;  $\chi^2$  60.59) and concerns about it ( $p=0.002$ ;  $\chi^2$  20.44) increased incrementally from those without either physical violence or verbal abuse, with physical violence only, with verbal abuse only, to those having both experiences. The perceived associated factors of clinical violence also changed based on the NSs' experience. The NSs experiencing both physical violence and verbal abuse were more likely to perceive confused patients as the associated

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3 factor. On the other hand, those experiencing physical violence only were more likely to consider  
4 high patient volume as the associated factor. In addition, the NSs receiving verbal abuse only  
5 were more likely to perceive staff shortages as the factor. Interestingly, those without any  
6 experience were more likely to identify alcohol, drug influence and uncaring nursing behaviors  
7 as the factors. Furthermore, as expected, year-four NSs had experienced more clinical violence  
8 than those in other years ( $p < 0.001$ ;  $\chi^2 233.17$ ). Tukey's post-hoc tests further indicated that those  
9 without any clinical violence experience were younger than those with experience ( $F_{3,991} 31.78$ ;  
10  $p < 0.001$ ).

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Table 1. Characteristics of participants and the differences in associated factors reported those with/without either or both of physical violence & verbal abuse (N = 1,017)

	All Participants (N=1,017)	No Experience (N=638)	Physical Violence only (N=68)	Verbal Abuse only (N=211)	Both Physical & Verbal (N=100)	P-value ( $\chi^2$ ; df ; Phi)
Characteristics	Number (%)	Number (%)	Number (%)	Number (%)	Number (%)	
Gender	N = 1,008	N = 634	N = 68	N = 206	N = 100	
Male	298 (29.6%)	191 (30.1%)	16 (23.5%)	63 (30.6%)	28 (28.0%)	0.68
Female	710 (70.4%)	443 (69.9%)	52 (76.5%)	143 (69.4%)	72 (72.0%)	(1.51; 3; 0.04)
Programme of study	N = 1,017	N = 638	N = 68	N = 211	N = 100	
Higher Diploma	420(41.3%)	273 (42.8%)	27 (39.7%)	79 (37.4%)	41 (41.0%)	0.59 (1.96; 3; 0.04)
Bachelor	597 (58.72%)	365 (57.2%)	41 (60.3%)	132 (62.6%)	59 (59.0%)	
Year of study	N = 1,017	N = 638	N = 68	N = 211	N = 100	
Year 1	226 (22.2%)	201 (31.5%)	4 (5.9%)	17 (8.1%)	4 (4.0%)	<0.001
Year 2	236 (23.2%)	172 (27.0%)	11 (16.2%)	47 (22.3%)	6 (6.0%)	(231.31; 9; 0.48)
Year 3	229 (22.5%)	152 (23.8%)	8 (11.8%)	56 (26.5%)	13 (13.0%)	
Year 4	326 (32.1%)	113 (17.7%)	45 (66.2%)	91 (43.1%)	77 (77.0%)	
Perceived susceptibility to violence	N = 1,009	N = 631	N = 68	N = 210	N = 100	
Not at all/A little bit	564 (55.9%)	404 (64.0%)	34 (50.0%)	93 (44.3%)	33 (33.0%)	<0.001
Moderately	253 (25.1%)	142 (22.5%)	21 (30.9%)	59 (28.1%)	31 (31.0%)	(60.59; 6; 0.25)
Quite a bit/Extremely	192 (19.0%)	85 (13.5%)	13 (19.1%)	58 (27.6%)	36 (36.0%)	
Concern about violence	N = 1,015	N = 637	N = 68	N = 210	N = 100	
Not at all/A little bit	461(45.4%)	317 (49.8%)	28 (41.2%)	82 (39.0%)	34 (34.0%)	<0.002
Moderately	311 (30.6%)	189 (29.7%)	26 (38.2%)	63 (30.0%)	33 (33.0%)	(20.44; 6; 0.14)
Quite a bit/Extremely	243 (23.9%)	131 (20.6%)	14 (20.6%)	65 (31.0%)	33 (33.0%)	
Clinical violence as a part of nursing job	N = 1,006	N = 631	N = 165	N = 209	N = 100	
Yes	269 (26.7%)	151 (23.9%)	20 (30.3%)	63 (30.1%)	35 (35.0%)	0.05
No	737 (73.3%)	480 (76.1%)	46 (69.7%)	146 (69.9%)	65 (65.0%)	(7.70; 3; 0.09)
Appropriate coping training on violence	N = 1,014	N = 637	N = 68	N = 209	N = 100	
Not at all/Not very well	756 (74.6%)	486 (76.3%)	47 (69.1%)	149 (71.3%)	74 (74.0%)	0.29
Satisfactorily	226 (22.3%)	136 (21.4%)	16 (23.5%)	52 (24.9%)	22 (21.0%)	(7.28; 6; 0.09)
Well/ Very well	32 (3.2%)	15 (2.4%)	5 (7.4%)	8 (3.8%)	4 (4.0%)	
Contributing factors	N = 1,012	N = 633	N = 68	N = 211	N = 100	
Confused patients	852 (84.2%)	521 (82.3%)	58 (85.3%)	176 (83.4%)	97 (97.0%)	0.003 (14.17; 3; 0.12)
Patients/visitors with alcohol influence	476 (47.0%)	326 (51.5%)	29 (42.6%)	84 (39.8%)	37 (37.0%)	0.003 (14.06; 3; 0.12)
Patients/visitors with drug influence	475 (46.9%)	329 (52.0%)	28 (41.2%)	78 (37.0%)	40 (40.0%)	0.001 (17.71; 3; 0.13)
Shortage of staff	464 (45.8%)	274 (43.3%)	26 (38.2%)	112 (53.1%)	52 (52.0%)	0.03 (9.23; 3; 0.10)
High patient volume	329 (32.5%)	179 (28.3%)	28 (41.2%)	82 (38.9%)	40 (40.0%)	0.003 (13.81; 3; 0.12)
NSs are uncaring	270 (26.7%)	184 (29.1%)	9 (13.2%)	58 (27.5%)	19 (19.0%)	0.01 (11.21; 3; 0.11)
Ward design	130 (12.8%)	72 (11.4%)	9 (13.2%)	32 (15.2%)	17 (17.0%)	0.29 (3.79; 3; 0.06)
	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	One-way ANOVA
Age	N = 995	N = 628	N = 65	N = 208	N = 94	
	21.53 $\pm$ 1.55 (19-30)	21.18 $\pm$ 1.51 (19-27)	22.12 $\pm$ 1.13 (19-24)	22.07 $\pm$ 1.47 (19-26)	22.27 $\pm$ 1.58 (19-30)	p-value <0.001 (F <sub>3,991</sub> 31.78)

## 2. Prevalence and perpetrators of physical violence and verbal abuse

Table 2 shows the comparisons of the prevalence and the perpetrators of clinical violence. Of the 1,017 NSs, 168 (16.5%) and 311 (30.6%) had personally experienced physical violence and verbal abuse respectively in their clinical placements. Of these, 100 (9.8%) had experienced both physical violence and verbal abuse. Thus, a total of 379 participants (37.3%) had experienced clinical violence in their nursing study. However, the NSs had witnessed more physical violence (25.5%, n=259), verbal abuse (43.9%, n=446) or both (17.6%, n=179) than they had actually experienced personally. Furthermore, it was alarming to observe that 4.0% (n=15) of the participants had experienced verbal abuse all the time. Six (1.6%) had experienced physical violence with physical injuries requiring formal treatment.

For the 100 participants who had experienced both physical violence and verbal abuse, the frequency of occurrence of verbal abuse was more than that of physical violence ( $p < 0.001$ ). Compared with physical violence, patients' relatives, university supervisors, hospital clinical instructors, and ward supervisors were more significantly identified as the perpetrators of verbal abuse.



Table 2. Prevalence and perpetrators of clinical violence, and the differences for participants with either physical violence, verbal abuse or both (N=379)

Characteristics	Physical Violence only Number (%)	Verbal Abuse only Number (%)	Students Experienced Both Physical Violence & Verbal Abuse		
			Physical Violence Number (%)	Verbal Abuse Number (%)	Wilcoxon signed ranks test p-value ( $\chi^2$ ; df)
Frequency of experience	N = 68	N= 211	N=100	N=100	
All the time	0 (0.0%)	1 (0.5%)	0 (0.0%)	14 (14.0%)	<0.001 (24.02; 1)
Sometimes	29 (42.6%)	130 (61.6%)	64 (64.0%)	73 (73.0%)	
Once	39 (57.4%)	80 (37.9%)	36 (36.0%)	13 (13.0%)	
Physically injured	N = 67		N=99		
No	47 (70.1%)	NA	73 (73.7%)	NA	
Yes	20 (29.9%)	NA	26 (26.3%)	NA	
Formal treatment	3 (15.0%)	NA	3 (11.5%)	NA	
Typical violence in NSs	N = 65	N=200	N=93	N=99	
No	30 (46.2%)	63 (31.5%)	39 (41.9%)	32 (32.3%)	0.07 (3.24; 1)
Yes	35 (53.8%)	137 (68.5%)	54 (58.1%)	67 (67.7%)	
Attacked by	N = 67	N = 205	N=99	N=100	
Patient	61 (91.0%)	137 (66.8%)	91 (91.9%)	92 (92.0%)	1.00 (0.00; 1)
Relative	0 (0.0%)	27 (13.2%)	1 (1.0%)	22 (22.0%)	<0.001 (21.00; 1)
University supervisor	1 (1.5%)	33 (13.4%)	0 (0.0%)	8 (8%)	0.005 (8.00; 1)
Hospital clinical instructor	1 (1.5%)	31 (15.1%)	3 (3.0%)	17 (17.0%)	0.001 (10.89; 1)
Ward supervisor/senior manager	3 (4.5%)	30 (14.6%)	1 (1.0%)	12 (12.0%)	0.002 (9.31; 1)
Physician	1 (1.5%)	8 (3.9%)	0 (0.0%)	2 (2.0%)	0.16 (2.00; 1)
Other nursing student	0 (0.0%)	2 (1.0%)	0 (0.0%)	1 (1.0%)	0.32 (1.00; 1)
Time of occurrence	N = 66	N = 203	N=99	N=99	
A shift	39 (59.1%)	159 (78.3%)	60 (60.6%)	65 (65.7%)	0.09 (2.94; 1)
P shift	20 (30.3%)	38 (18.7%)	25 (25.3%)	27 (27.3%)	
Night shift	7 (10.6%)	6 (3.0%)	14 (14.1%)	7 (7.1%)	
Area of occurrence	N = 68	N=202	N=99	N=100	
Medical	43 (63.2%)	101 (50.0%)	56 (56.6%)	61 (61.0%)	0.40 (0.71; 1)
Surgical	12 (17.6%)	42 (20.8%)	19 (19.2%)	20 (20.0%)	
Others (rehabilitation, psychiatric, etc)	13 (19.2%)	59 (29.2%)	24 (24.2%)	19 (19.0%)	
	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Pair t-test p-value (t; df)
Number of time in nursing study	N = 68 1.69 $\pm$ 1.12 (1-6)	N = 211 3.00 $\pm$ 3.22 (1-20)	N = 100 2.84 $\pm$ 2.81 (1-20)	N = 100 8.92 $\pm$ 27.99 (1-200)	0.03 (-2.16; 99)
Number of time in last 12 months	N = 68 1.04 $\pm$ 1.00 (0-6)	N = 210 1.74 $\pm$ 2.36 (0-20)	N = 99 1.79 $\pm$ 1.83 (0-10)	N = 100 5.23 $\pm$ 14.21 (0-100)	0.18 (-2.41; 98)

### 3. Responses to and impacts of physical violence and verbal abuse

Table 3 shows that most participants did not take action about the clinical violence or formally report the incidents. Their reasons for not reporting were mainly because the report was not important and useless, they did not know who to report to, or no one encouraged them to

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3 report the incident, Among the 100 participants experienced both physical violence and verbal  
4 abuse, their responses to physical violence and verbal abuse were significantly different. Those  
5 who had experienced verbal abuse were more likely not to take action, ask the perpetrators to  
6 stop, try to defend physically or report the incident, but they would rather tell their friends or  
7 family ( $p<0.05$ ). They perceived that the physical violence could be more preventable than  
8 verbal abuse ( $p<0.001$ ). Although none of the verbal abuse led to formal treatment, there was  
9 significantly more sick leave taken after verbal abuse than after physical violence experiences  
10 ( $p<0.05$ ). The sick leave lasted from one to 10 days. Furthermore, the negative effects on  
11 personal feelings, clinical performance and the extent to which they were bothered by the clinical  
12 violence were significantly greater for verbal abuse than for physical violence ( $p<0.05$ ). The  
13 intention to leave the nursing profession after the clinical violence was consistently higher than  
14 before the clinical violence for participants who had experienced either physical violence, verbal  
15 abuse or both ( $p<0.001$ ).  
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Table 3. Responses to and impacts of clinical violence, and the differences for those with either physical violence, verbal abuse or both (N=379)

Responses after the clinical violence	Physical Violence only Number (%)	Verbal Abuse only Number (%)	Students Experienced Both Physical Violence & Verbal Abuse		
			Physical Violence Number (%)	Verbal Abuse Number (%)	Wilcoxon signed ranks test p-value ( $\chi^2$ ; df)
Responses to the incident	N = 68	N= 204	N=99	N=100	
Took no action	21 (69.1%)	108 (52.9%)	28 (28.3%)	60 (60.0%)	<0.001 (27.46; 1)
Tried to pretend it never happened	3 (4.4%)	53 (26.0%)	12 (12.1%)	19 (19.0%)	0.11 (2.58; 1)
Told the person to stop	22 (32.8%)	29 (14.2%)	54 (54.5%)	28 (28.0%)	<0.001 (19.88; 1)
Told friends/family	11 (16.2%)	51 (25.0%)	14 (14.1%)	28 (28.0%)	0.006 (7.54; 1)
Tried to defend myself physically	18 (26.5%)	14 (6.9%)	26 (26.3%)	16 (16.0%)	0.03 (4.55; 1)
Sought counselling	2 (2.9%)	11 (5.4%)	1 (1.0%)	0 (0.0%)	0.32 (1.00; 1)
Reported incident to a senior staff member	24 (35.3%)	24 (11.8%)	24 (24.2%)	12 (12.0%)	0.01 (6.00; 1)
Sought help from University	2 (2.9%)	5 (2.5%)	1 (1.0%)	0 (0.0%)	0.32 (1.00; 1)
Completed incident/accident form	3 (4.4%)	0 (0.0%)	1 (1.0%)	0 (0.0%)	0.32 (1.00; 1)
Took time off	N = 68	N=203	N=98	N=100	
No	69 (100.0%)	183 (90.1%)	98 (100.0%)	96 (96.0%)	0.046 (4.00; 1)
Yes	0 (0.0%)	20 (9.9%)	0 (0.0%)	4 (4.0%)	
Incident could be prevented	N = 66	N = 204	N=96	N=100	
No	35 (53.0%)	138 (67.6%)	58 (60.4%)	87 (87.0%)	<0.001 (18.78; 1)
Yes	31 (47.0%)	66 (32.4%)	38 (39.6%)	13 (13.0%)	
Formally reported the incident	N = 67	N = 209	N=98	N=95	
No	61 (91.0%)	198 (94.7%)	94 (95.9%)	88 (92.6%)	0.18 (1.80; 1)
Yes	6 (0.0%)	11 (5.3%)	4 (4.0%)	7 (7.4%)	
Reasons for not formally reported	N = 57	N=187	N=91	N=83	
It was not important	43 (75.4%)	104 (55.6%)	58 (63.7%)	54 (65.1%)	0.51 (0.43; 1)
Felt ashamed	3 (5.3%)	3 (1.6%)	4 (4.4%)	3 (3.6%)	0.71 (0.14; 1)
Felt guilty	1 (1.8%)	3 (1.6%)	2 (2.2%)	2 (2.4%)	1.00 (<0.001; 1)
Useless	11 (19.3%)	87 (46.5%)	37 (40.7%)	37 (44.6%)	0.29 (1.14; 1)
Afraid of negative consequences	2 (3.5%)	26 (13.9%)	3 (3.3%)	7 (8.4%)	0.10 (2.78; 1)
Did not know who to report	6 (10.5%)	31 (16.6%)	12 (13.2%)	8 (9.6%)	0.56 (0.33; 1)
No one encourages me to report	9 (15.8%)	29 (15.5%)	7 (7.7%)	6 (7.2%)	0.25 (1.33; 1)
	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Pair t-test p-value (t; df)
Effect of the clinical violence	N = 65	N = 209	N = 100	N = 100	
Negative feeling (average score of 10 items ranged from 1 - 5)	1.49 $\pm$ 0.50 (1-3)	2.04 $\pm$ 0.89 (1-5)	1.59 $\pm$ 0.63 (0-4)	1.81 $\pm$ 0.88 (1-4)	0.006 (-2.81; 99)
Negative effects on clinical performance (average score of 4 items ranged from 1-5)	1.34 $\pm$ 0.50 (1-3)	1.94 $\pm$ 1.00 (1-5)	1.39 $\pm$ 0.64 (1-3.75)	1.65 $\pm$ 0.97 (1-5)	0.008 (-2.70; 99)
Bothered by the incident(s) (average score of 4 items ranged from 1-5)	N=65 1.38 $\pm$ 0.51 (1-3)	N=209 1.95 $\pm$ 0.99 (1-5)	N = 100 1.42 $\pm$ 0.62 (1-4.25)	N = 100 1.61 $\pm$ 0.85 (1-4.5)	0.02 (-2.39; 99)
Intention to leave before the violence	N = 66 1.48 $\pm$ 0.75 (1-4)	N = 210 1.68 $\pm$ 0.55 (1-5)	N = 100 1.47 $\pm$ 0.69 (1-3)	N = 100 1.61 $\pm$ 0.85 (1-5)	
Intention to leave after the violence	N = 66 1.73 $\pm$ 0.90 (1-4)	N = 210 2.18 $\pm$ 1.19 (1-5)	N = 100 1.69 $\pm$ 0.96 (1-5)	N = 100 1.99 $\pm$ 1.20 (1-5)	
	Pair t-test p-value (t; df)		Pair t-test p-value (t; df)		
Difference between intention to leave before and after the violence (before – after)	<0.001 (-4.23, 65)	<0.001 (-8.65, 209)	<0.001 (-4.36; 99)	<0.001 (-4.98; 99)	

## Discussion

To our knowledge, this is the first study with a large sample size of NSs participating in a study of clinical violence in a South East Asian country. Several significant findings have emerged:

### 1. Prevalence of clinical violence

Our study showed that, whilst 37.3% of NSs experienced clinical violence during their nursing studies, the prevalence of verbal abuse (30.6%) was significantly greater than that of physical violence (16.5%). This indicates that the overall clinical violence and verbal abuse rate was moderately high for these NSs. Our findings were, to some extent, comparable to those of studies conducted in other countries, where overall prevalence rates have been reported as 34% in Italy,<sup>14</sup> 35.3% in Iran,<sup>15</sup> 42.2% in UK,<sup>2</sup> and 50.3% in Turkey.<sup>13</sup> However, several studies reported much higher prevalence of verbal abuse of NSs, such as 91.6% in Turkey,<sup>13</sup> 76% in Italy,<sup>14</sup> 73.3% in Iran,<sup>15</sup> and 45.1% in the UK.<sup>11</sup> This relatively higher rate could be explained partly by the differences in the definitions of clinical violence and socioeconomic cultural variations in the studied populations. For instance, Tee et al., in the UK<sup>2</sup>, included racism as a form of abuse. A Turkish study<sup>13</sup> showed that NSs were exposed to considerably higher clinical violence and verbal abuse rates, which may be linked to social violence influenced by economic and cultural issues.<sup>15</sup> Furthermore, Chinese NSs are likely to be more obedient and respectful to their seniors,<sup>24</sup> which may potentially result in lower rate of clinical violence specifically by hospital and/or university staff.

### 2. Perpetrators and associated factors of clinical violence

We found that the perpetrators of the verbal abuse experienced by the NSs were predominantly patients (66.8%), followed by hospital staff (29.7%), university supervisors (13.4%), and patients' relatives (13.2%). Patients (91.0%) were the greatest source of physical

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3 assaults. Our results were largely in agreement with the studies of Ferns et al.<sup>11</sup> and Magnavita et  
4 al.<sup>14</sup> but were inconsistent with others.<sup>2 15</sup> For instance, Tee et al.<sup>2</sup> found that British NSs were  
5 confronted more frequently by hospital staff, including nurses, hospital care assistants and  
6 managers (31.1%) and less frequently by patients and relatives (4.9%-1.2% respectively).  
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8 Nevertheless, these findings confirmed that it is not uncommon for NSs to encounter external  
9 verbal and physical abuse from patients and their relatives. But, unfortunately, despite nursing  
10 being a caring profession, it is a great concern that there is internal violence inflicted by hospital  
11 staff and university supervisors/teachers. Future research is needed to understand the  
12 characteristics of perpetrators, victims, and organizations related to clinical violence towards NSs,  
13 and to study the relationships between these variables to elucidate appropriate tailored initiatives  
14 and intervention approaches to mitigate workplace violence. Research-based knowledge about the  
15 causes and escalating nature of violence incidences would facilitate the planning of interventions.<sup>30</sup>

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31 According to the students who participated in this study, the reasons for being exposed to  
32 clinical violence were attributed to external factors such as confused patients, patient/visitors  
33 affected by alcohol and drugs, staff shortages and high patient volumes. As well, the majority of  
34 NSs (74.6%) recognized that their training about clinical violence was inadequate and  
35 inappropriate. The results of the our study echoed the existing literature investigating that patient-  
36 initiated violence toward nurses is associated with staff, environmental and patient-risk factors  
37 including lack of assault management training, understaffing, and substance abuse.<sup>31</sup> Thus,  
38 incorporating training programmes for NSs in violence prevention and management can be a  
39 fundamental strategy to decrease clinical violence. Early recognition of escalating behaviours and  
40 situations, de-escalating techniques in interpersonal and communication skills, and enhanced  
41 knowledge about medications to control patients' agitation better should be considered on a  
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3 periodical basis, depending on the specific needs.<sup>16</sup> Initiating anti-violence policies, together with  
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5 crisis interventions, to reduce workplace violence, may play a critical role in violence prevention  
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7 strategies as well as improvements to workplace safety. Research evidence has demonstrated that  
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9 multidisciplinary assault reduction teams can be effective in resolving violent incidences<sup>32</sup> and  
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11 decreasing nursing staff injuries.<sup>33</sup>  
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### 14 15 3. Impact of clinical violence

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17 Notably, clinical violence has detrimental effects on NSs. It is noteworthy that all of these  
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19 negative effects on emotion, clinical performance, and the extent to which they were bothered by  
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21 the incidents, were significantly greater for verbal abuse than for physical violence. Additionally,  
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23 clinical violence deterred our future nurses from staying in the profession. Their intention to leave  
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25 the nursing profession after experiencing the clinical violence was significantly increased as  
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27 compared to that before the experience ( $p < 0.001$ ). Moreover, verbal abuse resulted in students'  
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29 absenteeism from work (9.9%). In our study, the NSs who had experienced verbal abuse (78.9%)  
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31 were more likely than those who had experienced physical violence (73.5%) to take no action or  
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33 to pretend the violence had not happened (Table 3). These incidences were rarely reported because  
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35 the students felt that they were either trivial or that reporting would be futile. Our results were  
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37 congruent with other studies.<sup>2 13 14</sup> Violence against NSs not only causes psychological harm, but  
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39 also can affect their clinical performances, compromising the quality of patient care; and more  
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41 importantly may lead them to abandon their profession as the result of the violence. Our findings  
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43 highlight the gaps in current strategies and interventions available to alleviate clinical violence,  
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45 particularly to address verbal abuse from authority figures so as to protect NSs from being victims.  
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51 According to the International Labour Organization's framework guidelines for addressing  
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53 workplace violence in the health sector,<sup>16</sup> clinical violence reduction initiatives and strategies are  
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3 essential and can be presented by both individual and system approaches in hospital settings. It is  
4 suggested that assertiveness empowerment training and self-defence should be provided for NSs  
5 as individual-focused interventions. To improve coping with workplace violence, general well-  
6 being should be promoted by maintaining physical fitness and emotionally stability. As a caring  
7 profession, it is necessary at management level (both educational and clinical) to establish  
8 protocols for reporting, documenting and responding to violence incidents. Increasing NSs'  
9 awareness about how and where to report without fear of criticism or reprisal would help to unveil  
10 violence incidents and tailor appropriate preventive and management strategies. Reported cases  
11 can be referred to counselling services for emotional support and improved coping strategies.  
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24 This study had some limitations. First, the large survey sample was collected from the  
25 school of nursing of one university. Thus, the findings may not be representative of clinical  
26 violence occurrences to NSs in Hong Kong as a whole. However, this school is one of the largest  
27 in the region and our sample included all year groups in two undergraduate pre-registration nursing  
28 programs. Second, despite the high response rate (78.41%), the non-responses to the survey may  
29 potentially have affected the precision of the estimates of the population. Third, the data were self-  
30 reported, so there may have been some recall bias which affected the internal validity. Last, the  
31 cross-sectional design of the study was time-bound, thus it is possible that the clinical violence  
32 situations and characteristics could have changed if the same populations were surveyed at a  
33 different time.  
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## 48 **Conclusions**

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50 Our survey found a moderately high prevalence of clinical violence towards NSs during clinical  
51 placement. This finding adds to the literature showing that the prevalence of and negative impacts  
52 from verbal abuse were significantly higher than physical violence. Our study also revealed that  
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3 clinical violence experience heightened students' intentions to leave the nursing profession.  
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5 Provision and/or reinforcement of appropriate training about clinical violence is necessary and can  
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7 be achieved by incorporating violence prevention and management programmes, and crisis  
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9 interventions into nursing curricula. In the clinical setting, the initiation of anti-violence policies  
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11 would be a step towards reducing workplace violence.  
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STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies*

	Item No	Recommendation	Page No
<b>Title and abstract</b>	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	3
<b>Introduction</b>			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	6
Objectives	3	State specific objectives, including any prespecified hypotheses	8
<b>Methods</b>			
Study design	4	Present key elements of study design early in the paper	8
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	8
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	8
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	8-10
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	8-10
Bias	9	Describe any efforts to address potential sources of bias	10
Study size	10	Explain how the study size was arrived at	8,11
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	10
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	10
		(b) Describe any methods used to examine subgroups and interactions	10
		(c) Explain how missing data were addressed	10
		(d) If applicable, describe analytical methods taking account of sampling strategy	--
		(e) Describe any sensitivity analyses	--
<b>Results</b>			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	11
		(b) Give reasons for non-participation at each stage	--
		(c) Consider use of a flow diagram	--
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	11-13
		(b) Indicate number of participants with missing data for each variable of interest	11-13

Outcome data	15*	Report numbers of outcome events or summary measures	14-17
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	--
		(b) Report category boundaries when continuous variables were categorized	--
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	--
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	--
<b>Discussion</b>			
Key results	18	Summarise key results with reference to study objectives	11-17
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	21
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	18-22
Generalisability	21	Discuss the generalisability (external validity) of the study results	21
<b>Other information</b>			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	--

\*Give information separately for exposed and unexposed groups.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at [www.strobe-statement.org](http://www.strobe-statement.org).

# BMJ Open

## Prevalence and impact of clinical violence towards nursing students in Hong Kong: A cross-sectional study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-027385.R1
Article Type:	Research
Date Submitted by the Author:	25-Feb-2019
Complete List of Authors:	Cheung, Kin; The Hong Kong Polytechnic University, School of Nursing Ching, Shirley SY; The Hong Kong Polytechnic University, School of Nursing Cheng, Samuel Hung Nam; The Hong Kong Polytechnic University, School of Nursing Ho, Simone Siu Man; The Hong Kong Polytechnic University, School of Nursing
<b>Primary Subject Heading</b>:	Epidemiology
Secondary Subject Heading:	Occupational and environmental medicine
Keywords:	Clinical violence, Nursing students, Vertical violence, Verbal abuse, Physical violence

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Manuscripts

**Title Page**

**Title:** Prevalence and impact of clinical violence towards nursing students in Hong Kong: A cross-sectional study

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## Acknowledgements

The authors would like to thank the nursing students who participated in the study, and the efforts of research personnel (NgaYee Chan, WingHa Chan, PuiYi Chow, HoiYan Fan, ShukFong Fu, MeiFong Lam, ChiYeung Ng, SingFung Ng, ChiWai Wong and LaiMan Wong) to collect data.

## Contributors

KC: Planned the study, recruited participants, performed statistical analysis, finalized the manuscript

SSYC: Wrote and revised the introduction section of the manuscript

SHNC: Wrote and revised the methods and results sections of the manuscript

SSMH: Wrote and revised the discussion section of the manuscript

All authors reviewed and approved the final manuscript for submission.

## Funding

None

## Competing Interests

None

## Ethical Approval

This study was approved by The Hong Kong Polytechnic University

## Data Sharing Statement

No additional data available

Number of Tables: 3



## Abstract

### Objectives

Studies of violence towards nursing students (NSs) have been scattered mainly in the West and Middle East, but to date there have been no studies in Eastern countries. Differences in nursing education systems and cultures might have contributed to variations in incidences of clinical violence. The purpose of this study was to investigate the prevalence, associated factors and impact of clinical violence to NSs.

### Methods

This was a cross-sectional survey study. Convenience sampling was used to recruit university NSs from March to June 2012 in classroom settings in Hong Kong. A valid and reliable questionnaire was used to collect the data. 1,297 questionnaires were distributed and 1,017 NSs completed questionnaires, with a response rate of 78.41%.

### Results

Of the 1,017 NSs, 37.3% (n=379) reported having experienced clinical violence during their nursing studies. The prevalence of verbal abuse (30.6%) was significantly greater than that of physical violence (16.5%). The perpetrators of verbal abuse were predominantly patients (66.8%), hospital staff (29.7%), university supervisors (13.4%), and patients' relatives (13.2%). Patients (91.0%) were the greatest source of physically violent assaults. Compared with those who had experienced physical violence, the NSs who had experienced verbal abuse were more likely not to take action, and not to stop or report the incident, but were also more likely to tell their friends/families. Although the negative effects on emotions, clinical performance, and the extent to which they were disturbed by the violence were significantly greater for verbal abuse than that for physical violence, their intention to leave the nursing profession after experiencing

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3 either verbal or physical violence was significantly higher after than before the experience  
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5 (p<0.001).  
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## 10 **Conclusions**

11  
12 Our results found a moderately high prevalence of clinical violence among NSs. Provision and/or  
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14 reinforcement of appropriate training about clinical violence in the nursing curricula is  
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16 necessary.  
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## 22 **Strengths and limitations of this study**

- 23 - This cross-sectional study involved a large sample of 1,017 nursing students from different  
24 years of study.  
25
- 26 - The response rate for the study was high, 78.41%.  
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- 28 - Although the study sample was from one university, the school of nursing is one of the  
29 largest in Hong Kong.  
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- 33 - The recall bias of the cross-sectional design could have affected the results.  
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### **What is already known about this subject?**

- Clinical violence studies of NSs have not been conducted in Eastern countries. Studies in the West and Middle East are increasing, but with different focuses such as the prevalence, various types of violence (i.e. physical violence, bullying, sexual harassment, verbal abuse, horizontal to vertical violence), the main perpetrators, contributing factors and outcomes. However, limited studies have investigated the impact of clinical violence, particularly on NSs having experienced both verbal and physical violence.

### **What are the new findings?**

- The moderately high prevalence of clinical violence towards NSs in the East was comparable to the findings of studies conducted in the West and Middle East. NSs who had experienced both verbal and physical violence had responded differently to these two categories of incidents and the psychological effects were different. Nevertheless, their intention to leave the nursing profession after either incident was the same.

### **How might violence impact on clinical practice in the foreseeable future?**

- The study results alert nursing educators and clinical administrators about the detrimental effect of clinical violence towards NSs, and highlight the need to develop anti-violence curricula and policies.

### **Keywords:**

Clinical violence, nursing students, vertical violence, verbal abuse, physical violence

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3 Title: Prevalence and impact of clinical violence towards nursing students  
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## 5 **Introduction**

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7  
8 Nursing students (NSs) are the future of this particular caring profession. Retention of  
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10 NSs and new nursing graduates is one of the strategies necessary to rectify current nursing  
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12 shortages.<sup>1</sup> Unfortunately, however, retention can be problematic, and clinical violence has been  
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14 shown as one of the reasons why NSs consider leaving the profession<sup>2</sup> in the early stages of their  
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16 education. There have been limited studies investigating the prevalence of clinical violence and  
17  
18 its associated factors. One reason for this lack of literature may be the lack of bargaining power  
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20 that NSs have with staff in hospitals and nursing schools.<sup>3</sup>  
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24 Workplace violence affects all workers in all sectors. Nurses have been found in some  
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26 studies to be at the highest level of risk of workplace violence,<sup>4</sup> and in other studies it has been  
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28 found to be second only to security guards and police services.<sup>5</sup> Nurses are vulnerable because of  
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30 their frequent and direct contact with patients, families, and relatives.<sup>6</sup> Violence towards NSs is a  
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32 growing concern in nursing education, clinical practice and professional development.<sup>7</sup>  
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34 Comparatively, there have been fewer studies investigating clinical violence towards NSs than  
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36 towards staff nurses; differences have been noted in the types, contributing factors and results of  
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38 clinical violence between the two groups.<sup>2,3,8-10</sup>  
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42 Studies of violence towards NSs have increased in the past ten years, but have mainly  
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44 been scattered among a few Western and Middle Eastern countries, such as the United Kingdom  
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46 (UK),<sup>2,11</sup> the United States (US),<sup>3,7</sup> South Africa,<sup>9</sup> Australia,<sup>12</sup> Turkey,<sup>10,13</sup> Italy<sup>14</sup>, and Iran.<sup>15</sup> No  
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48 studies have been conducted in any Eastern countries. Differences in the nursing education  
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50 systems and cultures might have contributed to variations in the incidences of clinical violence.<sup>16</sup>  
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52 While three years is the most frequent duration of nursing education (i.e. in UK and Australia),  
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3 bachelor programmes of four years' duration are prevalent in Europe (i.e. Greece, Iceland, The  
4 Republic of Ireland, Israel, Malta, the Netherlands, Portugal, and Sweden), USA, Canada, South  
5 Africa<sup>17</sup> and Asian countries (i.e. Japan, Korea, Macau and Thailand).<sup>18</sup> In Hong Kong (HK)  
6 programmes are for four to five years<sup>19</sup>. The clinical hours required for registration also vary,  
7 from a minimum of 800 hours in Australia<sup>20</sup> to 1400 hours in HK<sup>21</sup>, to 2300 hours in the UK.<sup>22</sup>  
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9 In addition, NSs in Australia have been found, on average, to be older than those in HK and  
10 Japan.<sup>23</sup> In general, workplaces in the East are more hierarchical than that in the West and this  
11 implies existential inequality.<sup>24</sup> The respect for authority in China may be connected deeply with  
12 rigid social stratification in Chinese feudal societies.<sup>24</sup>  
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16 In existing studies in Western and Middle East countries, the focus has been on the  
17 prevalence and various types of workplace violence (i.e. physical violence, bullying, sexual  
18 harassment, verbal abuse), the main perpetrators, contributing factors and outcomes.  
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20 Comparisons of findings are difficult because various definitions and aspects of clinical violence  
21 have been used and studied. In one UK study, nearly half of the student participants (42.18%)  
22 indicated they had experienced bullying/harassment in the previous year while on clinical  
23 placement. One-third (30.4%) had witnessed bullying/harassment of other students and 19.6% of  
24 incidents had involved qualified nurses as the bullies/harassers.<sup>2</sup> In South Africa, verbal violence  
25 (verbal abuse, threats, shouting and name-calling) was most commonly reported (65%), more  
26 than physical assault (6%).<sup>9</sup> Perpetrators of non-physical violence were classmates and students  
27 from other years (horizontal violence), and nurse educators (vertical violence) in South Africa,<sup>9</sup>  
28 and clinical facilitators, preceptors, and nurse managers in Australia.<sup>12</sup> A risk factor that is  
29 specific to NSs is the power hierarchy in the hospitals and schools. In the US, Thomas and  
30 colleagues<sup>3</sup> interviewed junior NSs to investigate their experiences of vertical violence during  
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3 clinical rotations. They described the clinical violence towards NSs as “nurses eating their  
4 young” and “violence between individuals with unequal power”. Interestingly, no difference  
5 was found in prevalence of horizontal violence between bachelor and master students in the  
6 US.<sup>7</sup> In Istanbul, Özcan and colleagues<sup>10</sup> found that student’s gender and age was not related to  
7 violence during clinical practice. Yet, workplace violence can influence NSs’ attitudes toward  
8 the nursing profession and their levels of satisfaction with their work.<sup>2</sup> Among staff nurses,  
9 younger staff experiencing workplace violence had greater intentions to leave than did the older  
10 ones.<sup>25</sup> Clinical violence was found to lead to uncertainty about their career choices;<sup>26 27</sup> and  
11 affected NSs would consider leaving nursing.<sup>2</sup> As a vicious cycle, those who perceive  
12 horizontal violence as a rite of passage may mimic and continue such behaviors later in their  
13 careers.<sup>7</sup>

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15 Despite the fact that workplace violence is an increasingly significant problem  
16 worldwide, clinical violence towards NSs in Eastern countries has not been explored. Thus, the  
17 purpose of this study was to investigate the prevalence, associated factors and impact of violence  
18 to NSs in clinical settings.

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### Method

#### 1. Design and sampling

This was a cross-sectional survey study. Convenience sampling was employed to recruit university NSs studying in 3-year higher diploma and 4-year bachelor programmes, in classroom settings, from March to June 2012. Ethical approval was obtained from the author’s university. The NSs were informed, verbally and through a written information sheet, about their voluntary participation; their consent was implied if they returned the completed questionnaire. In addition,

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3 they were assured that their decision to participate or not would not affect their academic results.  
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5 No incentive was given for participation.  
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## 10 2. Instrument

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12 A questionnaire named “Clinical Violence towards NSs” was adapted based on the  
13 literature review.<sup>16 28 29</sup> Permission to use the questionnaire was obtained from the authors.  
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15 Substantial modifications were made to meet the study objectives. The definition of clinical  
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17 violence used by the International Labour Organization and co-organizations<sup>16</sup> was adopted and  
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19 was stated at the beginning of the questionnaire.  
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24 The questionnaire had three sections. Section one consisted of 11 items to collect  
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26 personal information (age, gender, programme and year of study), and respondents’ perceptions  
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28 about clinical violence. They were asked to rate their susceptibility to violence in their clinical  
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30 placements, the extent of their concern about clinical violence, whether they perceived it to be a  
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32 part of the nursing job, and their satisfaction with the training provided by their study  
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34 programmes. In addition, they were asked to identify the workplace factors contributing to  
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36 clinical violence, such as patients or visitors under the influence of alcohol or drugs.  
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38 Furthermore, they were asked to indicate if they had witnessed or experienced physical violence  
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40 and/or verbal abuse.  
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44 Sections two and three of the questionnaire covered the experiences of physical violence  
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46 and verbal abuse respectively in the clinical placement. The NSs were required to complete  
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48 either or both sections if they had experienced physical violence and/or verbal abuse. Each  
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50 section contained 32 items covering four areas: (1) information about the violence (either  
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52 physical or verbal) experienced, including frequency during the study period and the prior 12  
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3 months, place of the occurrence of violence, shift involved, and the perpetrators; (2) actions  
4 taken in responding to the violence; (3) reporting behaviors; and (4) impact of the violence on  
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6 personal emotions, clinical performance, how much they were disturbed by the violence, and  
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8 their intention to leave the nursing profession. The impact on personal emotions was assessed by  
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10 10 items asking their feelings about the incident, such as frustration, anger, fear, irritability,  
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12 sadness, headache, difficulty in sleeping, shame, depression or low self-esteem. The effect on  
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14 clinical performance was evaluated by four items asking if they had lost confidence, had  
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16 difficulty concentrating, provided poor nursing care to patients, or experienced decreased grades  
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18 for clinical placement. Furthermore, the participants were asked how disturbed they were by the  
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20 violence, using four items; repeated, disturbing thoughts or images of the violence; avoiding  
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22 thinking about the violence; being “super-alert”; and feeling tired and needing to make an effort  
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24 to do everything. These three subscale impact items were rated using 5-point Likert scales (i.e.,  
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26 1=not at all to 5=extremely). The average of each subscale was used for the data analyses.  
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28 Higher scores indicated greater impact. Last, the participants were asked to evaluate their  
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30 intentions to leave the nursing profession before and after the violence, using a 5-point Likert  
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32 scale (i.e., 1=never thought to 5=always thought).

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40 The study questionnaire was validated by a panel of four local and overseas experts in the  
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42 field of clinical violence and occupational health. The content validity index was 0.98, which  
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44 was considered acceptable.<sup>30</sup> Furthermore, the reliability of the questionnaire was tested using  
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46 the two-week test-retest method with 30 NSs. The reliability coefficient was 0.73, which was  
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48 also considered acceptable.<sup>30</sup>  
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## Data Analysis

The data were analysed using IBM SPSS Statistics version 23. Descriptive statistics were used to present the frequencies, percentages, means, and standard deviations of the variables under study. Missing data were not replaced because the maximum percentage of missing data for the study variables was 0.07%. Chi-square and independent t-tests were used to examine the factors (personal and workplace), associated with physical violence and/or verbal abuse. For the participants who had experienced both physical violence and verbal abuse, dependent t-tests and Wilcoxon signed ranks test were used to determine the differences in characteristics (such as responses to the incidents and reasons for not reporting them formally) between physical violence and verbal abuse, as well as changes in their intentions to leave before and after the experiences of clinical violence. A p-value of  $<0.05$  was considered statistically significant.

## Patient and public involvement

Patients were not involved in this study.

## Results

A total of 1,297 questionnaires was distributed and 1,017 completed questionnaires were returned, with a response rate of 78.41%.

### 1. Characteristics of the participants and associated factors of clinical violence

Table 1 summarizes the participants' characteristics. The gender ratio of 70.4% (female) to 29.6% (male) was consistent with the ratio of the overall numbers of students enrolled in the programmes (68% to 32%). The distribution of NSs across different years of study was an average of 25% per year. In general, about 50% of the NSs perceived low susceptibility to and low concerns about clinical violence. These perceptions might have been due to their thinking that clinical violence is not a part of the nursing job (73.3%, n=737). On the other hand, close to two-thirds of the NSs considered their training for coping with violence was not adequate. Patient-related factors and heavy workloads of nursing staff were frequently stated as the factors associated with clinical violence.

However, the participants' characteristics changed if they had experienced either physical violence, verbal abuse or both. For instance, their perceived susceptibility to clinical violence ( $p < 0.001$ ;  $\chi^2 60.59$ ) and concerns about it ( $p = 0.002$ ;  $\chi^2 20.44$ ) increased incrementally; the lowest ratings were made by those who had not experienced any physical violence or verbal abuse, followed by those who had been exposed to physical violence only, those who had suffered verbal abuse only, and then those having both experiences. The perceived associated factors of clinical violence also changed based on the NSs' experiences. Those experiencing both

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3 physical violence and verbal abuse were more likely to perceive confused patients as the  
4 associated factor. On the other hand, those experiencing only physical violence were more likely  
5 to consider high patient volume as the associated factor. In addition, the NSs receiving only  
6 verbal abuse were more likely to perceive staff shortages as the factor. Interestingly, those  
7 without any experience of either type of violence were more likely to identify alcohol, drug  
8 influence and uncaring nursing behaviors as the factors. Furthermore, as expected, year-four NSs  
9 had experienced more clinical violence than those in other years ( $p < 0.001$ ;  $\chi^2 233.17$ ). Tukey's  
10 post-hoc tests further indicated that those without any clinical violence experience were younger  
11 than those with such experience ( $F_{3,991} 31.78$ ;  $p < 0.001$ ).  
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Table 1. Characteristics of participants and the differences in associated factors reported by those with/without either or both physical violence & verbal abuse (N = 1,017)

	All Participants (N=1,017)	No Experience (N=638)	Physical Violence only (N=68)	Verbal Abuse only (N=211)	Both Physical & Verbal (N=100)	P-value ( $\chi^2$ ; df ; Phi)
Characteristics	Number (%)	Number (%)	Number (%)	Number (%)	Number (%)	
Gender	N = 1,008	N = 634	N = 68	N = 206	N = 100	
Male	298 (29.6%)	191 (30.1%)	16 (23.5%)	63 (30.6%)	28 (28.0%)	0.68
Female	710 (70.4%)	443 (69.9%)	52 (76.5%)	143 (69.4%)	72 (72.0%)	(1.51; 3; 0.04)
Programme of study	N = 1,017	N = 638	N = 68	N = 211	N = 100	
Higher Diploma	420(41.3%)	273 (42.8%)	27 (39.7%)	79 (37.4%)	41 (41.0%)	0.59 (1.96; 3; 0.04)
Bachelor	597 (58.72%)	365 (57.2%)	41 (60.3%)	132 (62.6%)	59 (59.0%)	
Year of study	N = 1,017	N = 638	N = 68	N = 211	N = 100	
Year 1	226 (22.2%)	201 (31.5%)	4 (5.9%)	17 (8.1%)	4 (4.0%)	<0.001
Year 2	236 (23.2%)	172 (27.0%)	11 (16.2%)	47 (22.3%)	6 (6.0%)	(231.31; 9; 0.48)
Year 3	229 (22.5%)	152 (23.8%)	8 (11.8%)	56 (26.5%)	13 (13.0%)	
Year 4	326 (32.1%)	113 (17.7%)	45 (66.2%)	91 (43.1%)	77 (77.0%)	
Perceived susceptibility to violence	N = 1,009	N = 631	N = 68	N = 210	N = 100	
Not at all/A little bit	564 (55.9%)	404 (64.0%)	34 (50.0%)	93 (44.3%)	33 (33.0%)	<0.001
Moderately	253 (25.1%)	142 (22.5%)	21 (30.9%)	59 (28.1%)	31 (31.0%)	(60.59; 6; 0.25)
Quite a bit/Extremely	192 (19.0%)	85 (13.5%)	13 (19.1%)	58 (27.6%)	36 (36.0%)	
Concern about violence	N = 1,015	N = 637	N = 68	N = 210	N = 100	
Not at all/A little bit	461(45.4%)	317 (49.8%)	28 (41.2%)	82 (39.0%)	34 (34.0%)	<0.002
Moderately	311 (30.6%)	189 (29.7%)	26 (38.2%)	63 (30.0%)	33 (33.0%)	(20.44; 6; 0.14)
Quite a bit/Extremely	243 (23.9%)	131 (20.6%)	14 (20.6%)	65 (31.0%)	33 (33.0%)	
Clinical violence as a part of nursing job	N = 1,006	N = 631	N = 165	N = 209	N = 100	
Yes	269 (26.7%)	151 (23.9%)	20 (30.3%)	63 (30.1%)	35 (35.0%)	0.05
No	737 (73.3%)	480 (76.1%)	46 (69.7%)	146 (69.9%)	65 (65.0%)	(7.70; 3; 0.09)
Appropriate coping training on violence	N = 1,014	N = 637	N = 68	N = 209	N = 100	
Not at all/Not very well	756 (74.6%)	486 (76.3%)	47 (69.1%)	149 (71.3%)	74 (74.0%)	0.29
Satisfactorily	226 (22.3%)	136 (21.4%)	16 (23.5%)	52 (24.9%)	22 (21.0%)	(7.28; 6; 0.09)
Well/ Very well	32 (3.2%)	15 (2.4%)	5 (7.4%)	8 (3.8%)	4 (4.0%)	
Contributing factors	N = 1,012	N = 633	N = 68	N = 211	N = 100	
Confused patients	852 (84.2%)	521 (82.3%)	58 (85.3%)	176 (83.4%)	97 (97.0%)	0.003 (14.17; 3; 0.12)
Patients/visitors with alcohol influence	476 (47.0%)	326 (51.5%)	29 (42.6%)	84 (39.8%)	37 (37.0%)	0.003 (14.06; 3; 0.12)
Patients/visitors with drug influence	475 (46.9%)	329 (52.0%)	28 (41.2%)	78 (37.0%)	40 (40.0%)	0.001 (17.71; 3; 0.13)
Shortage of staff	464 (45.8%)	274 (43.3%)	26 (38.2%)	112 (53.1%)	52 (52.0%)	0.03 (9.23; 3; 0.10)
High patient volume	329 (32.5%)	179 (28.3%)	28 (41.2%)	82 (38.9%)	40 (40.0%)	0.003 (13.81; 3; 0.12)
NSs are uncaring	270 (26.7%)	184 (29.1%)	9 (13.2%)	58 (27.5%)	19 (19.0%)	0.01 (11.21; 3; 0.11)
Ward design	130 (12.8%)	72 (11.4%)	9 (13.2%)	32 (15.2%)	17 (17.0%)	0.29 (3.79; 3; 0.06)
	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	One-way ANOVA
Age	N = 995	N = 628	N = 65	N = 208	N = 94	
	21.53 $\pm$ 1.55 (19-30)	21.18 $\pm$ 1.51 (19-27)	22.12 $\pm$ 1.13 (19-24)	22.07 $\pm$ 1.47 (19-26)	22.27 $\pm$ 1.58 (19-30)	p-value <0.001 (F <sub>3,991</sub> 31.78)

Notes: 0-0.06% of missing data

## 2. Prevalence and perpetrators of physical violence and verbal abuse

Table 2 shows the comparisons of the prevalence and the perpetrators of clinical violence. Of the 1,017NSs, 168 (16.5%) and 311 (30.6%) had personally experienced physical violence and verbal abuse respectively in their clinical placements. Of these, 100 (9.8%) had experienced both physical violence and verbal abuse. Thus, a total of 379 participants (37.3%) had experienced clinical violence during their nursing studies. However, the NSs had witnessed more physical violence (25.5%, n=259), verbal abuse (43.9%, n=446) or both (17.6%, n=179) than they had actually experienced personally. Furthermore, it was alarming to observe that 4.0% (n=15) of the participants had experienced verbal abuse all the time (i.e., almost every day during clinical placement). Six (1.6%) had experienced physical violence with physical injuries requiring formal treatment.

For the 100 participants who had experienced both physical violence and verbal abuse, the frequency of occurrence of verbal abuse was more than that of physical violence ( $p<0.001$ ). Patients' relatives, university supervisors, hospital clinical instructors, and ward supervisors were more significantly identified as the perpetrators of verbal abuse than of physical violence.

Table 2. Prevalence and perpetrators of clinical violence, and the differences for participants with either physical violence, verbal abuse or both (N=379)

Characteristics	Physical Violence only Number (%)	Verbal Abuse only Number (%)	Students Experienced Both Physical Violence & Verbal Abuse		
			Physical Violence Number (%)	Verbal Abuse Number (%)	Wilcoxon signed ranks test p-value ( $\chi^2$ ; df)
Frequency of experience	N = 68	N= 211	N=100	N=100	
All the time	0 (0.0%)	1 (0.5%)	0 (0.0%)	14 (14.0%)	<0.001 (24.02; 1)
Sometimes	29 (42.6%)	130 (61.6%)	64 (64.0%)	73 (73.0%)	
Once	39 (57.4%)	80 (37.9%)	36 (36.0%)	13 (13.0%)	
Physically injured	N = 67		N=99		
No	47 (70.1%)	NA	73 (73.7%)	NA	
Yes	20 (29.9%)	NA	26 (26.3%)	NA	
Formal treatment	3 (15.0%)	NA	3 (11.5%)	NA	
Typical violence in NSs	N = 65	N=200	N=93	N=99	
No	30 (46.2%)	63 (31.5%)	39 (41.9%)	32 (32.3%)	0.07 (3.24; 1)
Yes	35 (53.8%)	137 (68.5%)	54 (58.1%)	67 (67.7%)	
Attacked by	N = 67	N = 205	N=99	N=100	
Patient	61 (91.0%)	137 (66.8%)	91 (91.9%)	92 (92.0%)	1.00 (0.00; 1)
Relative	0 (0.0%)	27 (13.2%)	1 (1.0%)	22 (22.0%)	<0.001 (21.00; 1)
University supervisor	1 (1.5%)	33 (13.4%)	0 (0.0%)	8 (8%)	0.005 (8.00; 1)
Hospital clinical instructor	1 (1.5%)	31 (15.1%)	3 (3.0%)	17 (17.0%)	0.001 (10.89; 1)
Ward supervisor/senior manager	3 (4.5%)	30 (14.6%)	1 (1.0%)	12 (12.0%)	0.002 (9.31; 1)
Physician	1 (1.5%)	8 (3.9%)	0 (0.0%)	2 (2.0%)	0.16 (2.00; 1)
Other nursing student	0 (0.0%)	2 (1.0%)	0 (0.0%)	1 (1.0%)	0.32 (1.00; 1)
Time of occurrence	N = 66	N = 203	N=99	N=99	
A shift	39 (59.1%)	159 (78.3%)	60 (60.6%)	65 (65.7%)	0.09 (2.94; 1)
P shift	20 (30.3%)	38 (18.7%)	25 (25.3%)	27 (27.3%)	
Night shift	7 (10.6%)	6 (3.0%)	14 (14.1%)	7 (7.1%)	
Area of occurrence	N = 68	N=202	N=99	N=100	
Medical	43 (63.2%)	101 (50.0%)	56 (56.6%)	61 (61.0%)	0.40 (0.71; 1)
Surgical	12 (17.6%)	42 (20.8%)	19 (19.2%)	20 (20.0%)	
Others (rehabilitation, psychiatric, etc)	13 (19.2%)	59 (29.2%)	24 (24.2%)	19 (19.0%)	
	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Pair t-test p-value (t; df)
Number of times during nursing study	N = 68 1.69 $\pm$ 1.12 (1-6)	N = 211 3.00 $\pm$ 3.22 (1-20)	N = 100 2.84 $\pm$ 2.81 (1-20)	N = 100 8.92 $\pm$ 27.99 (1-200)	0.03 (-2.16; 99)
Number of times during previous 12 months	N = 68 1.04 $\pm$ 1.00 (0-6)	N = 210 1.74 $\pm$ 2.36 (0-20)	N = 99 1.79 $\pm$ 1.83 (0-10)	N = 100 5.23 $\pm$ 14.21 (0-100)	0.18 (-2.41; 98)

Notes: 0-0.07% of missing data

### 3. Responses to and impacts of physical violence and verbal abuse

Table 3 shows that most participants did not take action about the clinical violence or formally report the incidents. Their reasons for not reporting were mainly because they thought it was not important or useless to do so, they did not know who to report to, or no one encouraged them to report the incident. The 100 participants who had experienced both physical violence and verbal abuse responded to physical violence and verbal abuse in significantly different ways. Those who had experienced verbal abuse were more likely not to take action, to ask the perpetrators to stop, to try to defend themselves physically or to report the incident, but they were more likely to tell their friends or family ( $p<0.05$ ). They perceived that physical violence could be more preventable than verbal abuse ( $p<0.001$ ). Although none of the verbal abuse led to formal treatment, there was significantly more sick leave taken after verbal abuse than after physical violence experiences ( $p<0.05$ ). The sick leave lasted from one to 10 days. Furthermore, the negative effects on their personal feelings and clinical performances and the extent to which they were disturbed by the clinical violence were significantly greater for verbal abuse than for physical violence ( $p<0.05$ ). The intention to leave the nursing profession after the clinical violence was consistently higher than before its occurrence for participants who had experienced either physical violence, verbal abuse or both ( $p<0.001$ ).

Table 3. Responses to and impacts of clinical violence, and the differences for those with either physical violence, verbal abuse or both (N=379)

	Physical Violence only Number (%)	Verbal Abuse only Number (%)	Students Experienced Both Physical Violence & Verbal Abuse		
			Physical Violence Number (%)	Verbal Abuse Number (%)	Wilcoxon signed ranks test p-value ( $\chi^2$ ; df)
Responses after the clinical violence					
Responses to the incident	N = 68	N= 204	N=99	N=100	
Took no action	21 (69.1%)	108 (52.9%)	28 (28.3%)	60 (60.0%)	<0.001 (27.46; 1)
Tried to pretend it never happened	3 (4.4%)	53 (26.0%)	12 (12.1%)	19 (19.0%)	0.11 (2.58; 1)
Told the person to stop	22 (32.8%)	29 (14.2%)	54 (54.5%)	28 (28.0%)	<0.001 (19.88; 1)
Told friends/family	11 (16.2%)	51 (25.0%)	14 (14.1%)	28 (28.0%)	0.006 (7.54; 1)
Tried to defend myself physically	18 (26.5%)	14 (6.9%)	26 (26.3%)	16 (16.0%)	0.03 (4.55; 1)
Sought counselling	2 (2.9%)	11 (5.4%)	1 (1.0%)	0 (0.0%)	0.32 (1.00; 1)
Reported incident to a senior staff member	24 (35.3%)	24 (11.8%)	24 (24.2%)	12 (12.0%)	0.01 (6.00; 1)
Sought help from University	2 (2.9%)	5 (2.5%)	1 (1.0%)	0 (0.0%)	0.32 (1.00; 1)
Completed incident/accident form	3 (4.4%)	0 (0.0%)	1 (1.0%)	0 (0.0%)	0.32 (1.00; 1)
Took time off	N = 68	N=203	N=98	N=100	
No	69 (100.0%)	183 (90.1%)	98 (100.0%)	96 (96.0%)	0.046 (4.00; 1)
Yes	0 (0.0%)	20 (9.9%)	0 (0.0%)	4 (4.0%)	
Incident could be prevented	N = 66	N = 204	N=96	N=100	
No	35 (53.0%)	138 (67.6%)	58 (60.4%)	87 (87.0%)	<0.001 (18.78; 1)
Yes	31 (47.0%)	66 (32.4%)	38 (39.6%)	13 (13.0%)	
Formally reported the incident	N = 67	N = 209	N=98	N=95	
No	61 (91.0%)	198 (94.7%)	94 (95.9%)	88 (92.6%)	0.18 (1.80; 1)
Yes	6 (0.0%)	11 (5.3%)	4 (4.0%)	7 (7.4%)	
Reasons for not formally reporting	N = 57	N=187	N=91	N=83	
It was not important	43 (75.4%)	104 (55.6%)	58 (63.7%)	54 (65.1%)	0.51 (0.43; 1)
Felt ashamed	3 (5.3%)	3 (1.6%)	4 (4.4%)	3 (3.6%)	0.71 (0.14; 1)
Felt guilty	1 (1.8%)	3 (1.6%)	2 (2.2%)	2 (2.4%)	1.00 (<0.001; 1)
Useless	11 (19.3%)	87 (46.5%)	37 (40.7%)	37 (44.6%)	0.29 (1.14; 1)
Afraid of negative consequences	2 (3.5%)	26 (13.9%)	3 (3.3%)	7 (8.4%)	0.10 (2.78; 1)
Did not know who to report	6 (10.5%)	31 (16.6%)	12 (13.2%)	8 (9.6%)	0.56 (0.33; 1)
No one encourages me to report	9 (15.8%)	29 (15.5%)	7 (7.7%)	6 (7.2%)	0.25 (1.33; 1)
	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Mean $\pm$ SD (range)	Pair t-test p-value (t; df)
Effect of the clinical violence					
Negative feeling (average score of 10 items ranged from 1 - 5)	N = 65 1.49 $\pm$ 0.50 (1-3)	N = 209 2.04 $\pm$ 0.89 (1-5)	N = 100 1.59 $\pm$ 0.63 (0-4)	N = 100 1.81 $\pm$ 0.88 (1-4)	0.006 (-2.81; 99)
Negative effects on clinical performance (average score of 4 items ranged from 1-5)	N = 65 1.34 $\pm$ 0.50 (1-3)	N=210 1.94 $\pm$ 1.00 (1-5)	N = 100 1.39 $\pm$ 0.64 (1-3.75)	N = 100 1.65 $\pm$ 0.97 (1-5)	0.008 (-2.70; 99)
Disturbed by the incident(s) (average score of 4 items ranged from 1-5)	N=65 1.38 $\pm$ 0.51 (1-3)	N=209 1.95 $\pm$ 0.99 (1-5)	N = 100 1.42 $\pm$ 0.62 (1-4.25)	N = 100 1.61 $\pm$ 0.85 (1-4.5)	0.02 (-2.39; 99)
Intention to leave before the violence	N = 66 1.48 $\pm$ 0.75 (1-4)	N = 210 1.68 $\pm$ 0.55 (1-5)	N = 100 1.47 $\pm$ 0.69 (1-3)	N = 100 1.61 $\pm$ 0.85 (1-5)	
Intention to leave after the violence	N = 66 1.73 $\pm$ 0.90 (1-4)	N = 210 2.18 $\pm$ 1.19 (1-5)	N = 100 1.69 $\pm$ 0.96 (1-5)	N = 100 1.99 $\pm$ 1.20 (1-5)	
	Pair t-test p-value (t; df)		Pair t-test p-value (t; df)		
Difference between intention to leave before and after the violence (before – after)	<0.001 (-4.23, 65)	<0.001 (-8.65, 209)	<0.001 (-4.36; 99)	<0.001 (-4.98; 99)	



Notes: 0-0.05% of missing data

## Discussion

To our knowledge, this has been the first study of clinical violence with a large sample of NSs in a South East Asian country. Several significant findings have emerged:

### 1. Prevalence of clinical violence

Our study showed that, whilst 37.3% of the NSs had experienced clinical violence during their nursing studies, the prevalence of verbal abuse (30.6%) was significantly greater than that of physical violence (16.5%). This indicates that the overall clinical violence and verbal abuse rate was moderately high for these NSs. Our findings were, to some extent, comparable to those of studies conducted in other countries, where overall prevalence rates have been reported as 34% in Italy,<sup>14</sup> 35.3% in Iran,<sup>15</sup> 42.2% in UK,<sup>2</sup> and 50.3% in Turkey.<sup>13</sup> However, several studies reported much higher prevalence of verbal abuse of NSs, such as 91.6% in Turkey,<sup>13</sup> 76% in Italy,<sup>14</sup> 73.3% in Iran,<sup>15</sup> and 45.1% in the UK.<sup>11</sup> The relatively higher rate in the other studies could be explained partly by the differences in the definitions of clinical violence and socioeconomic cultural variations in the studied populations. For instance, Tee et al., in the UK<sup>2</sup>, included racism as a form of abuse. Furthermore, because of cultural values and norms, Chinese NSs are likely to be more obedient and respectful to their seniors,<sup>24</sup> which may potentially result in lower rates of clinical violence specifically by hospital and/or university staff.

### 2. Perpetrators and associated factors of clinical violence

We found that the perpetrators of the verbal abuse experienced by the NSs were predominantly patients (66.8%), followed by hospital staff (29.7%), university supervisors (13.4%), and patients' relatives (13.2%). Patients (91.0%) were the greatest perpetrators of

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3 physical assaults. Our results were largely in agreement with the studies of Ferns et al.<sup>11</sup> and  
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5 Magnavita et al.<sup>14</sup> but were inconsistent with others.<sup>2 15</sup> For instance, Tee et al.<sup>2</sup> found that British  
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7 NSs were confronted more frequently by hospital staff, including nurses, hospital care assistants  
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9 and managers (31.1%) and less frequently by patients and relatives (4.9%-1.2% respectively).  
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11 Despite nursing being caring profession, it is a great concern that there is vertical violence inflicted  
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13 by hospital staff and university supervisors/teachers. However, the reasons for such vertical  
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15 violence are not well understood. Future research is necessary to elucidate the contributing factors  
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17 for such vertical clinical violence. Besides, our findings confirmed that it is not uncommon for  
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19 NSs to encounter verbal and physical abuse from patients and their relatives. Future research is  
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21 also needed to understand the characteristics of perpetrators, victims, and organizations related to  
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23 clinical violence towards NSs, and to study the relationships between these variables to elucidate  
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25 appropriate tailored initiatives and intervention approaches to mitigate workplace violence.  
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27 Research-based knowledge about the causes and escalating nature of violence incidences would  
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29 facilitate the planning of interventions.<sup>31</sup>  
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35 An interesting result was found in our study: there were significant differences between  
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37 NSs with and without clinical violence experiences on perceived susceptibility of, concern about  
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39 and associated factors with clinical violence. NSs with clinical violence experiences commonly  
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41 believed that the reasons for clinical violence were the hospital system (such as staff shortages and  
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43 high patient volume) and confused patients, while those without such experiences blamed NSs'  
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45 uncaring attitudes or patients/visitors under the influence of drugs/alcohol. These differences  
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47 concur with the health belief model.<sup>32</sup> A person's perceived susceptibility and assessment of the  
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49 severity of an event (such as clinical violence) are affected by his/her knowledge and experience  
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51 of that event. Our study found that NSs who had experienced clinical violence perceived  
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3 themselves to be more susceptible and the violence to be more severe than did their counterparts.  
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5 As well, the majority of NSs (74.6%) recognized that their training about clinical violence was  
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7 inadequate and inappropriate. The results of the study echoed the claims in the existing literature  
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9 that clinical violence toward nurses is associated with understaffing, patient-risk factors, and lack  
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11 of assault management training.<sup>33</sup> Thus, incorporating training programmes for NSs in violence  
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13 prevention and management can be a fundamental strategy to decrease clinical violence. Although  
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15 all graduating NSs in our university do undergo violence prevention and management training, our  
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17 study results can inform the revision of the training programme to include how to assess and  
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19 communicate with confused patients in an understaffed clinical environment. Future study is also  
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21 needed to examine whether such training would enhance NSs' competence in managing clinical  
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23 violence. According to the Framework Guidelines for addressing workplace violence in the health  
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25 sector<sup>16</sup>, the areas that should be considered include early recognition of escalating behaviours and  
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27 situations, de-escalating techniques in interpersonal and communication skills, and enhanced  
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29 knowledge about medications to control patients' agitation better. Initiating anti-violence policies,  
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31 together with crisis interventions, to reduce workplace violence, may play a critical role in violence  
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33 prevention strategies as well as improvements to workplace safety. Appropriate policies against  
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35 workplace violence, with priorities given to work ethics, safety, mutual respect, tolerance, equal  
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37 opportunity, and cooperation, should be developed and implemented to address workplace  
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39 violence.<sup>16</sup> Research evidence has demonstrated that early intervention with verbal-escalation  
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41 conducted by multidisciplinary assault reduction teams can be effective in resolving violent  
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43 incidences and decreasing nursing staff injuries by 47% in hospital settings.<sup>34</sup> The  
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45 multidisciplinary assault reduction team is formulated by the nursing supervisor, security  
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3 personnel, the primary physician and nurse, and others involved in the patient's direct care. All  
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5 team members have undergone specialized verbal de-escalation training.  
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### 7 8 3. Impact of clinical violence 9

10 Notably, clinical violence has detrimental effects on NSs. It is noteworthy that all of these  
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12 negative effects on emotion, clinical performance, and the extent to which the respondents were  
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14 disturbed by the incidents, were significantly greater for verbal abuse than for physical violence.  
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16 Additionally, clinical violence deterred our future nurses from staying in the profession. Their  
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18 intention to leave the nursing profession after experiencing clinical violence was significantly  
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20 higher than it was before the experience ( $p < 0.001$ ). Moreover, verbal abuse resulted in students'  
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22 absenteeism from work (9.9%). In our study, the NSs who had experienced verbal abuse (78.9%)  
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24 were more likely than those who had experienced physical violence (73.5%) to take no action or  
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26 to pretend the violence had not happened (Table 3). These incidences were rarely reported because  
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28 the students felt that they were either trivial or that reporting would be futile. Our results were  
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30 congruent with other studies.<sup>2 13 14</sup> Violence against NSs not only causes psychological harm, but  
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32 also can affect their clinical performances, compromising the quality of patient care; more  
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34 importantly, it may lead them to abandon their profession as the result of the violence. Our findings  
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36 highlight the gaps in current strategies and interventions available to alleviate clinical violence,  
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38 particularly to address verbal abuse from authority figures so as to protect NSs from being victims.  
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44 According to the International Labour Organization's framework guidelines for addressing  
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46 workplace violence in the health sector,<sup>16</sup> clinical violence reduction initiatives and strategies are  
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48 essential and can be presented by both individual and system approaches in hospital settings. It is  
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50 suggested that assertiveness empowerment training and self-defence should be provided for NSs  
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52 as individual-focused interventions. To improve coping with workplace violence, general well-  
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3 being should be promoted by maintaining physical fitness and emotional stability. As a caring  
4 profession, it is necessary at management level (both educational and clinical) to establish  
5 protocols for reporting, documenting and responding to incidents of violence. Increasing NSs'  
6 awareness about how and where to report without fear of criticism or reprisal would help to unveil  
7 violence incidents and tailor appropriate preventive and management strategies. Reported cases  
8 can be referred to counselling services for emotional support and improved coping strategies.  
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### 18 **Conclusions**

19  
20 Our survey found a moderately high prevalence of clinical violence towards NSs during clinical  
21 placement. This finding adds to the literature showing that the prevalence of and negative impacts  
22 from verbal abuse were significantly higher than physical violence. Our study also revealed that  
23 experiences of clinical violence heightened students' intentions to leave the nursing profession.  
24 Provision and/or reinforcement of appropriate training about clinical violence are necessary and  
25 can be achieved by incorporating violence prevention and management programmes and crisis  
26 interventions into nursing curricula. In the clinical setting, the initiation of anti-violence policies  
27 would be a step towards reducing workplace violence.  
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STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies*

	Item No	Recommendation	Page No
<b>Title and abstract</b>	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	3
<b>Introduction</b>			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	6
Objectives	3	State specific objectives, including any prespecified hypotheses	8
<b>Methods</b>			
Study design	4	Present key elements of study design early in the paper	8
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	8
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	8
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	8-10
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	8-10
Bias	9	Describe any efforts to address potential sources of bias	10
Study size	10	Explain how the study size was arrived at	8,11
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	10
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	10
		(b) Describe any methods used to examine subgroups and interactions	10
		(c) Explain how missing data were addressed	10
		(d) If applicable, describe analytical methods taking account of sampling strategy	--
		(e) Describe any sensitivity analyses	--
<b>Results</b>			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	11
		(b) Give reasons for non-participation at each stage	--
		(c) Consider use of a flow diagram	--
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	11-13
		(b) Indicate number of participants with missing data for each variable of interest	11-13

Outcome data	15*	Report numbers of outcome events or summary measures	14-17
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	--
		(b) Report category boundaries when continuous variables were categorized	--
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	--
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	--
<b>Discussion</b>			
Key results	18	Summarise key results with reference to study objectives	11-17
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	21
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	18-22
Generalisability	21	Discuss the generalisability (external validity) of the study results	21
<b>Other information</b>			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	--

\*Give information separately for exposed and unexposed groups.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at [www.strobe-statement.org](http://www.strobe-statement.org).