

DOI: 10.36648/1791-809X.15.11.900

Care Environment with the Aid of Simulation Jaroslav Pekara*

Prague Emergency Medical Services,
Medical College in Prague, Czech
Republic

Abstract

Background: Experience of workplace violence is pervasive in health and social care settings and there is an urgent need for target-group-specific preventative measures. This study investigated the impact of a unique, specifically tailored training programme for de-escalation and prevention of violence in healthcare settings. Through a simulation training for healthcare professionals, aiming at preventing patient and visitor violence, the simulated or standardized patients were shown to play an increasingly important role. Either professional or amateur performers, and sometimes "real" patients, called expert patients, were acting in the simulation. The realism they contribute to the training simulation is an undisputable enhancement of this teaching tool. The main aim of this study was to describe and evaluate the impact of a simulation course on the confidence of health care providers in their management of violent situations and verify if the simulation could provide individual safety space for education. This research was connected with project of Technology Agency of the Czech Republic (Personal educational environment for university students of medical disciplines, project number: TL03000205).

Methods and findings: Our course was designed as a practical 6-hour training and was divided into three parts: (1) training of non-verbal communication and de-escalation; (2) training of the safe restraint of a very restless/violent patient using bed restraints; and (3) training of coping strategies in several simulation scenes tailored to the needs, abilities and background of the participants. All course participants answered two questionnaires. The first focused on the extent and frequency of their experience of violence in the past year; and the second focused on their personal experiences and perceptions, utilizing a scale of self-confidence during contact with a violent patient. In our study 80% of participant's experienced verbal violence and 20% of participants experienced both verbal and physical violence in the year preceding the course. The attacker was most often a patient or a patient's relative, the assaults took place more often during night shifts rather than day shifts. The attendees achieved a most significant progress in the areas of physical intervention during the contact with a violent patient and in their perceived self-confidence in the presence of a violent patient.

Conclusions: This course proved to be beneficial to the participating healthcare providers, in particular regarding their confidence in managing violent situations and in preparing them better for practice. This course also verified that the simulation is very good part of individual education space for students.

Keywords: Violence; Simulation; Prevention; Course; Communication

*Corresponding author:

Jaroslav Pekara

✉ pekara@vszdrav.cz

Prague Emergency Medical Services,
Medical College in Prague, Czech Republic

Citation: Pekara J (2021) Care Environment with the Aid of Simulation. Health Sci J. 15 No. 10: 900.

Received with Revision on: November 04, 2021, **Accepted:** November 18, 2021,
Published: November 25, 2021

Abbreviations: Intensive care unit (ICU); Emergency department (E&A)

Introduction

Of all employment groups, healthcare is the most likely profession

to experience violence at workplace. The incidence of violence there has been rising in the past few years (Joint Commission, 2018). Violence in nursing care might be a complicated and dangerous risk, especially for general nurses in the first line. There is no complete understanding of the incidence of violence in healthcare in the Czech Republic and it is not being addressed

well enough. The issue is not transparent and there are neither standard procedures nor preventive measures in place [1]. There are no specific recommendations for certain professional communities, in particular, how to solve the problem of violence in hospitals [2]. Prehospital and hospital personnel are the first who respond to urgent needs of people and they encounter high prevalence of violence as reported in several studies, indicating the extent of the problem [3]. In some cases, inappropriate patient behaviour may be triggered by unprofessional behaviour of medical professionals [4]. The basic theories of violence include frustration, social learning, and general pattern of violence, violence vs. nonviolence, inequality, subcultural and ecological theory. Several theories of violence, including the “remaining marked for life”, propose “direct correlation between the organizational effects and creating a safe environment”, where managers’ self-awareness, and other contributing factors toward moderating violence, must be taken into account [5]. The main recommendation for the practice is to educate future healthcare workers efficiently and on all levels of the education system. It has been suggested that, as part of the education process, the form of training, incorporating both the engaging in real scenarios and the simulation techniques, can highly credibly convey to nurses the reality of a violent situation with its burden of a significant level of stress [3].

The medical instructors are running this type of a special course in the B. Braun Dialog® centre – the educational institution of the Aesculap Academy® (external stakeholder of Medical College in Prague). The Courses with high-fidelity manikins or actors were developed to train the technical and non-technical skills in medicine. The equipment of the centre enables training of the entire processes and everyday situations in healthcare during simulation classes. One of the courses orientated towards the healthcare providers is the course “Managing Violent Situations in the Health Care Environment” [7]. The main aim of this study is to describe this course in detail and to evaluate its impact on self-perceived confidence of the healthcare providers in managing violent situations and verify if the simulation could provide individual safety space for education.

Course Description

The course was introduced in 2006 and is designed as a simulation training that involves an instructor and a standardized patient (actor). The participants are exposed to various situations concerning violent behaviour, and in the simulated (safe) environment, they practice some de-escalation methods.

The course was designed as a 6-hour event and is divided into three parts. In the first part, the participants practiced non-verbal communication, verbal de-escalation during the commencement of violence and some simple methods of self-defence. The second part includes familiarization with certain rules of the simulation technique. The simulations were designed to train the safe distance, several safe non-verbal and verbal de-escalation strategies, and in addition, the practice of safe restraint of a very restless and violent patient using the bed restraints. The third part of the course was composed of several complex simulation scenes, whose scripts were tailored to the actual needs, abilities,

and background of the participants. In this education centre, the simulation and its environment can be modified to a variety of healthcare environments, for example, a standard ward, intensive care unit (ICU), emergency department (E&A), surgery room, or waiting room, etc. It seems the simulation could be a mandatory part of education for students because thanks the simulation we can prepare safety and individual education space.

The main instructor was a member of the Safety Working Group of the Aesculap Academy and a member of the European Violence in Psychiatry Research Group with more than 10 years’ experience in healthcare as a nurse and paramedic.

This research was connected with project of Technology Agency of the Czech Republic (Personal educational environment for university students of medical disciplines, project number: TL03000205).

Methods

The courses took place in year 2021 (January-September). All course participants answered two questionnaires. The first one focused on their experience with violence in the past year – this questionnaire was used before the course or at its very beginning. The questionnaire was based on the World Health Organization questionnaire for the prevention of violence in the workplace in health care [8], and modified to better suit the actual environment [2]. The second questionnaire focused on the participants’ respective experiences during their contact with violence and utilised a scale of self-confidence during the contact with a violent patient. This questionnaire was modified according to The Validated Confidence Scale [9]. The confidence scale has 11 items with values ranging from 1 (minimum feeling of confidence) to 11 (maximum). The participants answered the questionnaire at the beginning of the course, immediately after the course (paper questionnaire) and 6 months after the completion of the course (an online questionnaire).

As the secondary objective, the respondents’ demographic data, their experience with violence in the past year of their medical practice and a number of risk factors that can increase the occurrence of violence towards the staff and simultaneously reduce patients’ safety in a health facility [6], were collected.

The assessment was carried out using the contingency tables with various degrees of freedom (according to the observed characteristics) with descriptive statistics and a χ^2 test – for independence test. When possible, the Odds Ratio test was used to compare frequencies between the groups. The calculated testing statistics was compared with the critical value $\chi^2(p=0.01)$.

Results

The number of attendees at the course “Managing Violent Situations in the Health Care Environment” in the observed period was 120. There were 20 males and 100 females. The group characteristics included: age; marital status [64,2% attendees (n=77) had partners and 35,8% (n=43) attendees were without partners]; level of education [26,7% (n=32) attendees with secondary nursing school, 45,8% (n=53) attendees with nursing specialization and 29,1% (n=35) attendees with a

university degree]; staff category [73,3% (n=88) nurses, 16,7% (n=20) hospital attendees and 10% (n=12) ward assistants]; and our attendees worked in various departments (ICU, psychiatry, standard department). The respondents' demographic data are summarized in **Table 1**.

Table 2 shows participants' experience with violence in the past year of their medical practice. The questionnaire asked about verbal and physical violence. In the year before the course, 80% of participants (n=96) experienced verbal violence and 20% of participants (n=24) experienced both verbal and physical violence. The attacker was most often a patient (70.8%) or a

patient's relatives (29.2%); the assaults took place more during the night time (60%) than during day shifts (10%).

The risk factors that can increase the occurrence of violence towards the staff and simultaneously reduce patients' safety [6] in a health facility are listed in **Table 3**. The respondents have reported the absence of security workers (88.3%), a long delay when calling a doctor (76.7%), insufficient training in violence prevention (83.3%), shortage of health care staff itself (75%), unprepared restraints (73.3%), and a long wait for the treatment (29.2%) as the most frequent risk factors leading to violence.

Table 4 shows correlations between the selected variables. A factor that proved to be important was partnership (employees without a partner were more often involved in a violent situation). In terms of education, the most exposed to violence were the participants with secondary education (verbal violence 100%, physical 68.8%). In terms of profession, the most frequently affected were the medical orderlies and hospital attendants

Table 1 Demographics information.

	n (120)	%
Gender		
Male	20	16,7
Female	100	83,3
Age		
25-33	35	29,1
34-43	55	45,8
44-53	25	20,8
54-63	5	4,3
Marital status		
with partner	77	64,2
without partner	43	35,8
Level of education		
Nursing school	32	26,7
Nursing specialization	53	44,2
University degree	35	29,1
Staff category		
Ward assistant	12	10
Hospital attendant	20	16,7
Nurse	88	73,3
Department		
standard	20	16,6
ICU	65	54,2
psychiatry	35	29,2
Length of medical practice		
< 1 year	5	4,2
1-5 years	32	26,6
6-10 years	35	29,2
11-20 years	48	40

Table 2 Experience with violence in the past year.

	n (120)	%
Violence type		
Verbal	96	80
Physical	24	20
Attacker		
Patient	85	70,8
Relative	35	29,2
Time of violence by shift		
Day	12	10
Night	72	60

Table 3 Factors associated with higher risk of violent incidents.

	n	%
Absence of security workers	106	88.3
Shortage of health care staff itself	90	75
Insufficient training in violence prevention	100	83.3
Long wait for the treatment	35	29.2
Unprepared restraints	88	73.3
Delay when calling a physician	92	76.7
Other	25	20.8

Table 4 Correlations between the selected variables.

	Violence				P
	verbal	%	physical	%	
Gender					
Male	16	80	8	40	
Female	80	80	16	16	
Age					
25-33	32	91.4	8	22.9	
34-43	34	61.8	3	5.5	
44-53	25	100	8	32	
54-63	5	100	5	100	
Marital status					
with partner	57	74	6	7.8	0.00255925
without partner	39	90.7	18	41.9	
Level of education					
Nursing school	32	100	22	68.8	0.00000181795
Nursing specialization	42	79.2	1	13.2	
University degree	22	62.9	1	2.9	
Staff category					
Ward assistant	12	100	12	100	
Hospital attendant	20	100	10	50	
Nurse	64	72.2	2	2.3	
Length of medical practice					
< 1 year	5	100	3	60	
1-5 years	32	100	10	31.3	
6-10 years	11	31.4	1	2.9	
11-20 years	48	100	10	20.8	

Table 5 Validated Confidence Scale.

Gender	Confidence scale (max. points in scale is 110)		
	Before n (%)	After n (%)	p
Men	53 (48.1)	70 (63.6)	
Women	49 (44.5)	88 (80)	
Length of practice	Before n (%)	After n (%)	
<1	32 (29)	94 (85.5)	0.001278
1-5 years	39 (35.5)	65 (59.1)	
6-10 years	67 (60.9)	79 (71.8)	
11-20 years	65 (59.1)	76 (69.1)	

(experience of verbal violence was reported by 100% of the attendees in both groups; experience of physical violence was reported by 100% of the medical orderlies and 50% of the hospital attendants).

The subsequent research focused on reported self-confidence during the contact with a violent patient. We used the Validated Confidence Scale [9]. **Table 5** shows the average values of all attendees in individual questions before and after the course. All course participants have achieved some improvement. The confidence scale has 11 items with the range of values from 1 (minimum feeling of confidence) to 11 (maximum) and the maximum score on the scale is 110. We registered an increase in reported confidence in the male group ranging from 53 points (48.1%) to 70 points (63.6%), and in the female group from 49 points (44.5%) to 88 points (80%). As regards the length of practice, significant progress was registered among the attendees with less than one-year practice ($p=0.001278$). Among the attendees with 1-5-year practice the progress ranged from 39 (35.5%) to 65 points (59.1%), in the 6-10-years practice group the progress ranged from 67 points (60.9%) to 79 points (71.8%), and in the group with practice between 11-20 years, the progress ranged from 65 points (59.1%) to 76 points (69.1%). The average increase in reported self-confidence among all attendees ranged from 46.3% to 71.5%.

Discussion

Lepiešová et al [11] found in their study about violence against nurses (a group of 1024 nurses) that 97.4% of the questioned staff had been exposed to violence in the past year of their medical practice (96.8% of nurses had been exposed to verbal violence and 83.3% to physical violence). The similar results were found in Poland [7], where the research included 1,498 health care workers (32.9% nurses, 33.6% midwives, 33.5% other medical staff). Each of the examined groups had experienced violence with high incidence in the past 12 months (92% of nurses, 86% of doctors, 74% of midwives). In Germany, the situation is similar – 78% of nurses are exposed to verbal violence (more frequently females), and 56% to physical violence (in this case more frequently males), 63% of whom experience physical violence exclusively in geriatric wards [11]. Higher occurrence of physical violence against men was confirmed also by the participants in our course (40% of males had encountered physical violence, compared to 16% of females). In our study, verbal violence had been experienced by males and females equally (80%) in the past year of practice.

Additional circumstances that can trigger the staff's insecurity during a violent situation include (see Table 3) absence of security workers or a doctor, staff shortage, and unprepared restraints. These are the most significant risk factors increasing the risk of violence against the hospital staff and the patient being injured [5].

A Canadian study concerning violence in out-of-hospital care, found that older respondents with more experience reported fewer incidents than their younger (less experienced) colleagues [1]. The biggest share of violent incidents had been experienced by young nurses also in the study from Germany [11]. In yet another study, Gormley et al. [12] found that participants without a partner reported more violent incidents than people with a partner (OR 1.34, 95%). Similarly, in our study there was significantly higher incidence of violence in the group without a partner ($p=0.002559$). Another significant factor in our study was the level of education. From this perspective, the most exposed to violence were the participants with the secondary level ($p=0.00000181795$) of education (reported verbal violence in this group was 100%, physical 68.8%). In terms of profession, the most frequently affected were the medical orderlies and hospital attendants (verbal violence was reported in 100% in both groups, 100% of physical violence was reported by the medical orderlies, 50% physical violence in the group of hospital attendants). Education can contribute to an individual's level of patience and at the same time can change their perspective of risk (violence), so that the individual attributes greater importance to the consequences of their actions [13].

To illustrate this reasoning, on two emergency departments in London, there has been a decrease in violent incidents thanks to an increase in the number of the university-educated staff [4]. In his study, exploring a prevalence of violence in the Czech healthcare, Pekara [2] found that nurses with the secondary education, had experienced twice the amount of both, the physical violence (55 respondents=62.5%) and verbal violence (266 respondents=68.9%), in comparison to nurses with a university degree, who had experienced less physical violence (33 respondents=37.5%) and verbal violence (120 respondents=31.1%). The average progress of all attendees ranged from 46.3% to 71.5% (**Table 5**). The significant improvement was observed in the group of attendees with the least experience (practice less than one year, $p=0.001278$).

Skellern et al. [9] in a similar study utilising the same confidence scale, found that 1/3 of participants felt unable to effectively protect themselves, prior to undertaking the training. Forty-three percent of their participants have reported a significant increase in their comfort, self-esteem and confidence after attending the training session [14].

It is evident that training in de-escalation and non-restrictive practices is clearly needed within all sectors where there occurs a direct contact with patients or their relatives. These results have clear implications for supporting staff in all health and social care settings [15].

Conclusions

In our study, 80% of participants experienced verbal violence

and 20% of participants experienced both verbal and physical violence in the year preceding the course. The attacker was most often a patient or a patient's relative, and the assaults took place more often during night shifts rather than day shifts.

In terms of education, the most exposed to violence were the participants with secondary education and in terms of profession; the most frequently affected were the medical orderlies and hospital attendants. The attendees achieved the most significant progress in the areas of physical intervention during the contact with a violent patient and in their perceived self-confidence when facing a violent patient. This course utilising simulation proved to be beneficial to the participating healthcare providers regarding their confidence in managing violent situations and in preparing them better for practice. We also showed that simulation should have a mandatory place for students' education. Based on the results, the methodology of the course will be slightly modified and for reflection that it is planned to use the e-portfolio.

References

- 1 Bigham BL, Jensen JL, Tavares W, Drennan IR, Saleem H, et al. (2014) Paramedic self-reported exposure to violence in the emergency medical services (EMS) workplace: a mixed-methods cross-sectional survey. *Prehosp Emerg Care* 18: 489-494.
- 2 Pekara J, Petr H, Treslova M (2017) Prevalence of Violence in Nursing in the Czech Republic. *J Nurs Care* 6: 438.
- 3 Pekara J, Trešlová M, Hulinský P (2014) The Experiences with Nurses Trainings Concerning Prevention of Violence in the Czech Republic in Years 2010-2013. *Psychol Res* 4: 922-927.
- 4 Roche M, Diers D, Duffield C, Catling-Paull C (2010) Violence Toward Nurses, the Work Environment, and Patient Outcomes. *J Nurs Scholarsh* 42: 13-22.
- 5 Hahn S, Müller M, Hantikainen V, Kok G, Dassen T, et al. (2010) Risk factors associated with patient and visitor violence in general hospitals: Results of a multiple regression analysis. *Int J Nurs Stud* 4: 374-385.
- 6 Hahn S, Hantikainen V, Needham I, Kok G, Dassen T, et al. (2012) Patient and visitor violence in the general hospital, occurrence, staff interventions and consequences: a cross-sectional survey. *J Adv Nurs* 68: 2685-2699.
- 7 Kowalczyk K, Jankowiak B, Krajewska-Kułak E, Van Damme-Ostapowicz K, Kowalewska B (2011) Comparison of the level of aggression towards health care workers within Podlaskie Voivodeship. *Int J Occup Med Environ Health* 24: 267-274.
- 8 ILO/ICN/WHO/PSI (2019) Workplace Violence in the Health Sector Country Case Study – Questionnaire. WHO Questionnaire.
- 9 Ivanka T, Skellern J, Treslova M (2015) Violence in health and social care settings training resource package: A multicenter evaluation study. In: Proceedings of the 9th European Congress on Violence in Clinical Psychiatry, Copenhagen.
- 10 Lepiešová M, Tomagová M, Boriková I, Farský I, Žiakova K, et al. (2015) Experience of nurses with in-patient aggression in the Slovak republic. *Cent Eur J Nurs Midwifery* 6: 306-312.
- 11 Schablon A, Zeh A, Wendeler D, Peters C, Wohler C, et al. (2012) Frequency and consequences of violence and aggression towards employees in the German health care and welfare system: a cross-sectional study. *BMJ Open* 2.
- 12 Gormley MA, Crowe RP, Bentley MA, Levine R (2016) A National Description of Violence toward Emergency Medical Services Personnel. *Prehosp Emerg Care* 20: 439-447.
- 13 The Joint Commission (2018) Sentinel Event Alert 59: Physical and verbal violence against health care workers.
- 14 Kitaneh M, Hamdan M (2012) Workplace violence against physicians and nurses in Palestinian public hospitals: a cross-sectional study. *BMC Health Serv Res* 12: 469-477.
- 15 Braunoviny (2021) Year of Pavilion B. Braun Dialogue: The training center trained 2,500 paramedics, the Dialysis Center with specialist outpatient clinics treated over a thousand patients.

Acknowledgement

We would like to thank you B. Braun Dialog® centre – the educational institution of the Aesculap Academy® (external stakeholder of Medical College in Prague) for support of their simulation scene for our findings.

Funding

We declare that our research was connected with project of Technology Agency of the Czech Republic (Personal educational environment for university students of medical disciplines, project number: TL03000205) which supported this article.

Competing and conflicting Interests

There is no conflict of interest.