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## Review Article

# Workplace Violence Toward Mental Healthcare Workers Employed in Psychiatric Wards



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## ABSTRACT

**Background:** Workplace violence (WPV) against healthcare workers (HCWs) employed in psychiatric inpatient wards is a serious occupational issue that involves both staff and patients; the consequences of WPV may include increased service costs and lower standards of care. The purpose of this review was to evaluate which topics have been focused on in the literature and which are new in approaching the concern of patient violence against HCWs employed in psychiatric inpatient wards, in the past 20 years. **Methods:** We searched for publications in PubMed and Web of Science using selected keywords. Each article was reviewed and categorized into one or more of the following four categories based on its subject matter: risk assessment, risk management, occurrence rates, and physical/nonphysical consequences.

**Results:** Our search resulted in a total of 64 publications that matched our inclusion criteria. The topics discussed, in order of frequency (from highest to lowest), were as follows: “risk assessment,” “risk management,” “occurrence rates,” and “physical/nonphysical consequences.” Schizophrenia, young age, alcohol use, drug misuse, a history of violence, and hostile-dominant interpersonal styles were found to be the predictors of patients’ violence.

**Conclusion:** Risk assessment of violence by patients appeared the way to effectively minimize the occurrence of WPV and, consequently, to better protect mental HCWs. We found paucity of data regarding psychologic sequelae of WPV. According to these findings, we suggest the need to better investigate the psychologic consequences of WPV, with the aim of checking the effective interventions to assist HCW victims of violence and to prevent psychologic illness.

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## 1. Introduction

Workplace violence (WPV) by patients against healthcare workers (HCWs) who work in acute psychiatric inpatient wards is a worldwide concern that has significant implications for both patients and staff [1,2]. A recent systematic meta-analysis of studies conducted by Iozzino et al [3] showed that almost one in five patients admitted to acute psychiatric units may commit an act of violence; male gender, diagnosis of schizophrenia, substance use, and a lifetime history of violence were linked with violence. Violent attacks may not only cause somatic injuries, but can also have psychological consequences with high rates of stress and other sequelae for mental health staff and for the organization [4,5]; anger, fear or anxiety, post-traumatic stress disorder symptoms,

guilt, self-blame and shame [6], decreased job satisfaction and increased intent to leave the organization [7], and lowered health-related quality of life [8] were found to be the consequences of workers’ short- or long-term exposure to WPV. Organizational-level outcomes of WPV may include high staff turnover and difficulty with nurse retention [9,10], decreased morale, hostile work environments [11], absenteeism, more frequent medical errors, more workplace injury claims [12,13], economic costs due to disability leaves, and reduced quality of patient care [14]. The economic burden of physical and psychological consequences of WPV against HCWs is significant, and accounts for approximately 30% of the overall costs of ill health and accidents [15]. Moreover, workers’ disability and the consequent need of temporary staff increase service costs and have been linked to lower standards of

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care [16]; in fact, the perceived threat of violence may result in greater use of coercive measures such as seclusion, restraint, and enforced medication, which patients often describe as traumatic [17] and can, in turn, trigger aggressive responses from patients instead of engagement and cooperation with treatment [18,19]. Although they have been highlighted the potential predictors of patients' violence at workplace, such predictors have more limited value in emergency clinical settings compared with community or forensic settings [3]; in fact, in the emergency setting with acute admittance of unknown patients, these predictors are often unknown.

The purpose of this review was to evaluate which topics have been focused on in the literature and which are new in approaching the concern of patients' violence against HCWs employed in psychiatric inpatient wards, in the past 20 years.

## 2. Materials and methods

We sought articles from two common literature databases: PubMed and Web of Science. Selected keywords were used to identify articles for the purposes of this review. The keywords were as follows: violence, psychiatric inpatient ward, mental healthcare worker, assault, prediction, prevalence, occupational risk, safety measures, risk assessment, and risk management. The keywords were systematically combined together in order to conduct the literature search. For example, "mental healthcare worker," AND "violence" AND "occupational risk" was one combination. There were a total of 45 combinations of keywords, and all combinations were applied to each of the two databases. We aimed to identify original research articles (i.e., nonreviews) using the above-mentioned keywords with the following exclusion criteria: (1) studies not written in English; (2) studies not published after January 1996 (the year 1996 was chosen with the aim to analyze the research studies of the past 20 years); (3) studies not regarding acute psychiatric inpatient wards; and (4) studies that were not full reports (i.e., letters to the editor). Every full-text article that met the inclusion criteria was reviewed and categorized into one or more of the following four categories based on its subject matter: risk assessment (articles aimed at the identification of the potential hazards of patient violence as well as the likelihood that they will occur), risk management (articles targeted on the way to reducing the hazard to an acceptable level to protect workers), occurrence rates (e.g., incidence or prevalence of patient violence), physical/nonphysical consequences (e.g., injuries or mental disorder following patient violence). According to the Health and Safety Executive, the work-related violence was defined as follows: "Any incident in which a person is abused, threatened or assaulted in circumstances relating to their work. This can include verbal abuse or threats as well as physical attacks" [20].

## 3. Results

Our search of the two literature databases resulted in a total of 85 publications that matched our inclusion criteria. Twenty-one of these were removed because they were deemed irrelevant (i.e., conference proceedings or not concerning HCWs of psychiatric wards). Therefore, 64 papers remained in the study. The topics, discussed in order of frequency from highest to lowest, were the following: "risk assessment," "occurrence rates," "risk management," and "physical/nonphysical consequences." Forty-five papers focused on risk assessment, 19 on occurrence rates, 17 on risk management, and six on physical/nonphysical consequences. Eleven papers discussed both occurrence rates and risk assessment; five papers focused on both risk assessment and risk management, one paper targeted the topics risk management and

physical/nonphysical consequences, one paper focused on occurrence rates and risk management, two papers discussed occurrence rates and physical/nonphysical consequences, and two papers targeted the topics occurrence rates, risk assessment, and risk management (Table 1).

## 4. Discussion

### 4.1. Risk assessment of WPV

The findings of our study suggest that in the last 20 years, the main topic of the checked papers focused on risk assessment, with the aim to identify the potential hazards of patient violence as well as the likelihood that they will occur. Among the 45 studies targeted on risk assessment, 19 focused on the predictors of violent psychiatric patients, 10 focused on the determinants within the psychiatric wards, nine analyzed the predictability of the decision support tools for assessing acute risk of violence in patients, five focused on violent psychiatric patients' gender, and two found it impossible to assess the WPV risk. Regarding the predictors of violence perpetrated by patients, schizophrenia, young age, alcohol use, drug misuse, a history of violence, and hostile-dominant interpersonal styles were found to be the predictors of aggression toward HCWs. The determinants of violence within the psychiatric wards were identified as follows: inadequate HCW–patient relationship, relationship with on-call work and with additional nursing hour per patient day, and a high anxiety level among the staff. The predictability of the tools with regard to patients' violence was analyzed in nine papers: all the nine checked studies claim the predictability of the suggested tools (Violence Screening Checklist (VSC), Historical, Clinical, Risk Assessment-20 (HCR-20), Hare Psychopathy Checklist-Screening Version (PCL-SV), Braset Violence Checklist (BVC), French version of the Dynamic Appraisal of Situational Aggression (DASA-Fr), Clinical risk Assessment Screen of Inpatient Violence (V-Risk 10), Brief Psychiatric Rating Scale (BPRS); furthermore, the adoption of decision support tools for assessing acute risk of violence in patients appeared effective to assess the risk and, consequently, to minimize the occurrence of incidents. In fact, Abderhalden et al [56] observed a relationship between the adoption of a nurse-administrated structured short-term risk assessment during the first days of treatment, and the reduction in severe aggressive incidents (–41%) and decline in the use of coercive measures (–27%) in psychiatric inpatient care. This evidence has been confirmed by Van de Sande et al [80], who observed a significant decrease in the numbers of aggressive incidents (relative risk reduction = –68%,  $p < 0.01$  compared with the controls), number of patients engaging in aggression (relative risk reduction = –50%,  $p < 0.05$ ), and time spent in seclusion (relative risk reduction = –45%,  $p < 0.05$ ). Studies that focused on violent patients' gender did not show concordance: two papers revealed a higher prevalence of violent behavior among females, two revealed the prevalence among males, and one did not check gender differences.

### 4.2. Risk management of WPV

Among the 17 papers focusing on this topic, 16 papers discussed the management interventions targeted to the staff, with regard to training, and one paper focused on the way to minimize the risk factors present in the environment through worksite analysis to identify potential WPV hazards. The strategic training focuses discussed in the papers were the following: constructing the HCW–patient relationship, improving the workers' communication skills, accurate reporting of each violent incident, and improving the labor context through management commitment and employee involvement in a WPV prevention program. With regard to the

**Table 1**  
Summary of literature review findings with tally of articles based on the topics addressed

Study	Occurrence rates	Risk assessment	Risk management	Physical/nonphysical consequences
Bresler & Gaskell 2015 [21]		×		
Szmukler & Rose 2013 [22]		×		
Suguna & Joseph 2016 [23]		×		
Staggs 2015 [24]		×		
Staggs 2013 [25]		×		
Richter & Berger 2006 [4]				×
Inoue et al 2006 [5]				×
Chen et al 2005 [26]				×
Inoue et al 2011 [27]			×	×
Hansen 1996 [28]			×	
Benson et al 2003 [29]		×		
Biancosino et al 2009 [30]	×	×		
Mackay et al 2005 [31]			×	
Hahn et al 2006 [32]			×	
Duxbury et al 2005 [33]		×	×	
Rao et al 2007 [34]		×		
Stubbs & Dickens 2009 [35]	×			
Gale et al 2009 [36]	×			×
Chen et al 2009 [37]	×	×		
Bowers et al 2009 [38]		×		
Moylan & Cullinan 2011 [39]	×			×
Duxbury 2002 [40]			×	
Amore et al 2008 [41]		×		
Chen et al 2008 [42]	×	×		
McKinnon & Cross 2008 [43]	×			
Privitera et al 2005 [44]	×		×	
Maguire & Ryan 2007 [45]	×			
Bilgin & Buzlu 2006 [46]	×			
Lipscomb et al 2006 [47]			×	
Zeng et al 2013 [48]	×	×	×	
Daffern et al 2010 [49]		×	×	
McNiel et al 2003 [50]		×		
Barlow et al 2000 [51]		×		
Boggild et al 2004 [52]		×		
Soliman & Reza 2001 [53]		×		
Nielssen & Large 2012 [54]		×		
Abderhalden et al 2006 [55]		×		
Abderhalden et al 2008 [56]		×		
Beauford et al 1997 [57]			×	
Björkdahl et al 2006 [58]		×		
Bowers et al 2003 [59]		×		
Carr et al 2008 [60]	×	×	×	
Cookson et al 2012 [61]		×		
Dumais et al 2012 [62]		×		
Eaton et al 2000 [63]	×	×		
Ehmann et al 2001 [64]		×		
Grassi et al 2001 [65]	×	×		
Hartvig et al 2011 [66]		×		
Lam et al 2000 [67]		×		
Mellesdal 2003 [68]	×	×		
Nijman et al 1997 [69]			×	
Nijman et al 2002 [70]		×		
Oulis et al 1996 [71]		×		
Owen et al 1998 [9]	×	×		
Raja et al 1997 [72]		×	×	
Raja & Azzoni 2005 [73]	×	×		
Ross et al 2012 [74]			×	
Saverimuttu & Lowe 2000 [75]		×		
Troisi et al 2003 [76]		×		
Vaaler et al 2011 [77]		×		
Daffern et al 2012 [78]			×	
Manfredini et al 2001 [79]		×		
Van de Sande et al 2011 [80]	×	×		

relationship between HCWs and psychiatric patients, Oulis et al [71] observed the effectiveness of interventions targeted on improving workers' skill to approach aggressive psychiatric patients; such interventions included a protocol for talking to patients who exhibited aggressive behavior, discussing treatment goals with the patient shortly after admission, explaining why the ward's door was locked and the exit rules, providing a schedule of staff meetings to explain staff members' absence from the ward, and clarifying the procedure for making an appointment with the psychiatrists. This evidence was confirmed by Hahn et al [32], who showed that mental health nurses' attitudes influence their behavior regarding aggression and violence, and demonstrated that training programs, supported at the organizational level, can positively change such nurses' attitudes about the reasons for patients' aggression and its management.

#### 4.3. Physical/nonphysical consequences of WPV

Five of the six studies focused on this topic concerned the psychic repercussions of the attacks; one paper focused on the physical consequences. The findings of this review showed that between 7.5% and 33% of HCW victims of violence developed psychological symptoms post aggression (anxiety, depression, and avoidance behavior). A survey among mental health nurses showed that 26% of them suffered a serious assault in working life and were seriously injured; the injuries included fractures, eye injuries, and permanent disability [39]. Richter and Berger [4] found that, up to 6 months after the assault, approximately 10% of assaulted victims suffered from post-traumatic stress, women had significantly higher stress symptoms than men, and post-traumatic stress has no dose–response relation with the severity of physical damage caused by the assault in the weeks following the incident.

#### 4.4. Occurrence of WPV

All of the 19 checked studies focused on this topic suffered from differences in the definition of violence against HCWs. Most frequently, the studies focused only on physical assaults; few studies distinguished physical from verbal violence or threats or sexual harassment. Incidents of violence were more frequently studied as occurrences among HCWs than as occurrences for the number of patients or the number of beds. The checked studies revealed that between 24% and 80% of HCWs in acute psychiatric units have been assaulted by a patient at some stage in their careers: verbal assaults affected 46–78.6% of HCWs, threats 43–78.6% of HCWs, and sexual harassment 9.5–37.2% of HCWs. Carr et al [60] estimated 0.55 violent incidents per bed per month in acute psychiatric inpatient units.

#### 4.5. Concluding remarks

The findings of the present review show that patients' violence toward HCWs is a major problem for HCWs, healthcare organizations, and patients. Schizophrenia, young age, alcohol use, drug misuse, a history of violence, and hostile-dominant interpersonal styles were found to be the predictors of patient violence. Despite this evidence, the short-term prediction of threatening and violent behavior in a psychiatric ward, based on such predictors, has more limited value compared with community settings; in fact, in the acute admittance of psychiatric patients, such predictors are frequently unknown [5,8–10]. Risk assessment of patient violence through decision support tools for assessing the acute risk of violence in admitted patients was effective in correctly classifying the patients as becoming aggressive or not; in fact, all the checked papers focusing on this concern showed the accuracy of tool administration in estimating short-term aggression risks during

acute psychiatric admission. Regarding the managing approach to WPV, management commitment and employees' involvement in safety health programs targeted on the specific issues of psychiatric wards, and based on training, appeared to be the way to minimize the risk. In the present review, we found a lack of evidence about the consequences of violence toward HCWs in psychiatric wards; in fact, this topic was analyzed in only a few of the checked articles. Gascon et al [81], in a recent study, revealed that among HCWs both forms of violence, physical and nonphysical aggression, were significantly correlated with the symptoms of burnout (emotional exhaustion, depersonalization, and inefficacy). According to these findings, we suggest the need to better investigate the psychological consequences of WPV toward mental HCWs, with the aim of checking the effective interventions to assist HCW victims of violence and to prevent psychological sequelae.

This study suffers from some limitations. To date, the definition of violence is not unique; selected studies suffer from differences in the above definition. Some studies analyzed only physical violence, others both physical and verbal; therefore, the occurrence of the phenomenon may be underestimated. Furthermore, numerous studies also revealed that in many cases, the incidents of violence are not reported by workers. In the light of what has been described above, to better study the WPV risk, we adopted the violence definition made by the Health and Safety Executive, which is comprehensive of both physical and nonphysical attacks; furthermore, we believe that the phenomenon of under-reporting of attacks is partly mitigated by the significant number of studies that have addressed the topic of "occurrence rate" and considered such limitation.

#### Conflicts of interest

The authors declare that they have no financial or personal relationship with people or organizations that could inappropriately influence the work.

#### References

- [1] Hvidhjelm J, Sestoft D, Skovgaard LT, Bue Bjorner J. Sensitivity and specificity of the Brøset Violence Checklist as predictor of violence in forensic psychiatry. *Nord J Psychiatry* 2014;68:536–42.
- [2] Stevenson KN, Jack SM, O'Mara L, LeGris J. Registered nurses' experiences of patient violence on acute care psychiatric inpatient units: an interpretive descriptive study. *BMC Nursing* 2015;14:35.
- [3] Iozzino L, Ferrari C, Large M, Nielsens O, de Girolamo G. Prevalence and risk factors of violence by psychiatric acute inpatients: a systematic review and meta-analysis. *PLoS One* 2015;10:e0128536.
- [4] Richter D, Berger K. Post-traumatic stress disorder following patient assaults among staff members of mental health hospitals: a prospective longitudinal study. *BMC Psychiatry* 2006;6:15. PMC. Web. 18 Feb. 2017.
- [5] Inoue M, Tsukano K, Muraoka M, Kaneko F, Okamura H. Psychological impact of verbal abuse and violence by patients on nurses working in psychiatric departments. *Psychiatry Clin Neurosci* 2006;60:29–36.
- [6] Nolan P, Dallender J, Soares J, Thomsen S, Arnetz B. Violence in mental health care: the experiences of mental health nurses and psychiatrists. *J Adv Nurs* 1999;30:934–41.
- [7] Sofield L, Salmond S. Workplace violence: a focus on verbal abuse and intent to leave the organization. *Orthop Nurs* 2003;22:274–83.
- [8] Chen C, Huang C, Hwang J, Chen C. The relationship of health-related quality of life to workplace physical violence against nurses by psychiatric patients. *Qual Life Res* 2010;19:1155–61.
- [9] Owen C, Tarantello C, Jones M. Violence and aggression in psychiatric units. *Psychiatr Serv* 1998;49:1452–7.
- [10] Kisa S. Turkish nurses' experience of verbal abuse at work. *Arch Psychiatr Nurs* 2008;22:200–7.
- [11] Pai H, Lee S. Risk factors for workplace violence in clinical registered nurses in Taiwan. *J Clin Nurs* 2011;20:1405–12.
- [12] Roche M, Diers D, Duffield C, Catling-Paull C. Violence toward nurses, the work environment and patient outcomes. *J Nurs Scholarsh* 2009;42:13–22.
- [13] Ito H, Eisen S, Sederer L, Yamada O, Tachimoro H. Factors affecting psychiatric nurses' intention to leave their current job. *Psychiatr Serv* 2001;52:232–4.
- [14] Campbell J, Messing J, Kub J, Agnew J, Fitzgerald S, Fowler B, Sheridan D, Lindauer C, Deaton J, Bolyard R. Workplace violence: prevalence and risk factors in the safe at work study. *J Occup Health Environ Med* 2011;53:82–9.



- [15] Hoel H, Sparks K, Cooper C. The cost of violence/stress at work and the benefits of a violence/stress-free working environment [Internet]. Report commissioned by the International Labour Organization (ILO) Geneva; 2001 [cited 2016 Sep 19]. Available from: [http://www.ilo.org/safework/info/publications/WCMS\\_108532/lang-en/index.htm](http://www.ilo.org/safework/info/publications/WCMS_108532/lang-en/index.htm).
- [16] Audit Commission for Local Authorities and the National Health Service in England and Wales. Change here! Managing change to improve local services. London (UK): Holbrooks Printers Ltd; 2001. p. 52–7.
- [17] Olofsson B, Jacobsson L. A plea for respect: involuntarily hospitalized psychiatric patients' narratives about being subjected to coercion. *J Psychiatr Ment Health Nurs* 2001;8:357–66.
- [18] Daffern M, Mayer M, Martin T. Staff gender ratio and aggression in a forensic psychiatric hospital. *Int J Ment Health Nurs* 2006;15:93–9.
- [19] Fisher WA. Elements of successful restraint and seclusion reduction programs and their application in a large, urban, state psychiatric hospital. *J Psychiatr Pract* 2003;9:7–15.
- [20] Health and Safety Executive (UK). Work-related violence [Internet]. 2016 [cited 2016 Sep 19]. Available from: <http://www.hse.gov.uk/violence/index.htm>.
- [21] Bresler S, Gaskell MB. Risk assessment for patient perpetrated violence: analysis of three assaults against healthcare workers. *Work* 2015;51:73–7.
- [22] Szmukler G, Rose N. Risk assessment in mental health care: values and costs. *Behav Sci Law* 2013;31:125–40.
- [23] Suguna A, Joseph B. Human bite of a staff nurse on a psychiatric unit. *Workplace Health Saf* 2016;64:133–4.
- [24] Staggs VS. Injurious assault rates on inpatient psychiatric units: associations with staffing by registered nurses and other nursing personnel. *Psychiatr Serv* 2015;66:1162–6.
- [25] Staggs VS. Nurse staffing, RN mix, and assault rates on psychiatric units. *Res Nurs Health* 2013;36:26–37.
- [26] Chen SC, Hwu HG, Williams RA. Psychiatric nurses' anxiety and cognition in managing psychiatric patients' aggression. *Arch Psychiatr Nurs* 2005;19:141–9.
- [27] Inoue M, Kaneko F, Okamura H. Evaluation of the effectiveness of a group intervention approach for nurses exposed to violent speech or violence caused by patients: a randomized controlled trial. *ISRN Nurs* 2011;2011:325614.
- [28] Hansen B. Workplace violence in the hospital psychiatric setting. An occupational health perspective. *AAOHN J* 1996;44:575–80.
- [29] Benson A, Secker J, Balfe E, Lipsedge M, Robinson S, Walker J. Discourses of blame: accounting for aggression and violence on an acute mental health inpatient unit. *Soc Sci Med* 2003;57:917–26.
- [30] Biancosino B, Delmonte S, Grassi L, Santone G, Preti A, Miglio R, de Girolamo G., PROGRES-Acute Group. Violent behavior in acute psychiatric inpatient facilities: a national survey in Italy. *J Nerv Ment Dis* 2009;197:772–82.
- [31] Mackay I, Paterson B, Cassells C. Constant or special observations of inpatients presenting a risk of aggression or violence: nurses' perceptions of the rules of engagement. *Psychiatr Ment Health Nurs* 2005;12:464–71.
- [32] Hahn S, Needham I, Abderhalden C, Duxbury JA, Halfens RJ. The effect of a training course on mental health nurses' attitudes on the reasons of patient aggression and its management. *J Psychiatr Ment Health Nurs* 2006;13:197–204.
- [33] Duxbury J, Whittington R. Causes and management of patient aggression and violence: staff and patient perspectives. *J Adv Nurs* 2005;50:469–78.
- [34] Rao H, Luty J, Trathen B. Characteristics of patients who are violent to staff and towards other people from a community mental health service in South East England. *J Psychiatr Ment Health Nurs* 2007;14:753–7.
- [35] Stubbs B, Dickens G. Physical assault by patients against physiotherapists working in mental health settings. *Physiotherapy* 2009;95:170–5.
- [36] Gale C, Arroll B, Coverdale J. The 12-month prevalence of patient-initiated aggression against psychiatrists: a New Zealand national survey. *Int J Psychiatry Med* 2009;39:79–87.
- [37] Chen WC, Hwu HG, Wang JD. Hospital staff responses to workplace violence in a psychiatric hospital in Taiwan. *Int J Occup Environ Health* 2009;15:173–9.
- [38] Bowers L, Allan T, Simpson A, Jones J, Van Der Merwe M, Jeffery D. Identifying key factors associated with aggression on acute inpatient psychiatric wards. *Issues Ment Health Nurs* 2009;30:260–71.
- [39] Moylan LB, Cullinan M. Frequency of assault and severity of injury of psychiatric nurses in relation to the nurses' decision to restrain. *J Psychiatr Ment Health Nurs* 2011;18:526–34.
- [40] Duxbury J. An evaluation of staff and patient views of and strategies employed to manage inpatient aggression and violence on one mental health unit: a pluralistic design. *J Psychiatr Ment Health Nurs* 2002;9:325–37.
- [41] Amore M, Menchetti M, Tonti C, Scarlatti F, Lundgren E, Esposito W, Berardi D. Predictors of violent behavior among acute psychiatric patients: clinical study. *Psychiatry Clin Neurosci* 2008;62:247–55.
- [42] Chen WC, Hwu HG, Kung SM, Chiu HJ, Wang JD. Prevalence and determinants of workplace violence of health care workers in a psychiatric hospital in Taiwan. *J Occup Health* 2008;50:288–93.
- [43] McKinnon B, Cross W. Occupational violence and assault in mental health nursing: a scoping project for a Victorian Mental Health Service. *Int J Ment Health Nurs* 2008;17:9–17.
- [44] Privitera M, Weisman R, Cerulli C, Tu X, Groman A. Violence toward mental health staff and safety in the work environment. *Occup Med (Lond)* 2005;55:480–6.
- [45] Maguire J, Ryan D. Aggression and violence in mental health services: categorizing the experiences of Irish nurses. *J Psychiatr Ment Health Nurs* 2007;14:120–7.
- [46] Bilgin H, Buzlu S. A study of psychiatric nurses' beliefs and attitudes about work safety and assaults in Turkey. *Issues Ment Health Nurs* 2006;27:75–90.
- [47] Lipscomb J, McPhaul K, Rosen J, Brown JG, Choi M, Soeken K, Vignola V, Wagoner D, Foley J, Porter P. Violence prevention in the mental health setting: the New York state experience. *Can J Nurs Res* 2006;38:96–117.
- [48] Zeng JY, An FR, Xiang YT, Qi YK, Ungvari GS, Newhouse R, Yu DS, Lai KY, Yu LY, Ding YM, Tang WK, Wu PP, Hou ZJ, Chiu HF. Frequency and risk factors of workplace violence on psychiatric nurses and its impact on their quality of life in China. *Psychiatry Res* 2013;210:510–4.
- [49] Daffern M, Thomas S, Ferguson M, Podubinski T, Hollander Y, Kulkhani J, Decastella A, Foley F. The impact of psychiatric symptoms, interpersonal style, and coercion on aggression and self-harm during psychiatric hospitalization. *Psychiatry* 2010;73:365–81.
- [50] McNeil DE, Gregory AL, Lam JN, Binder RL, Sullivan GR. Utility of decision support tools for assessing acute risk of violence. *J Consult Clin Psychol* 2003;71:945–53.
- [51] Barlow K, Grenyer B, Ilkiw-Lavalle O. Prevalence and precipitants of aggression in psychiatric inpatient units. *Aust N Z J Psychiatry* 2000;34:967–74.
- [52] Boggild AK, Heisel MJ, Links PS. Social, demographic, and clinical factors related to disruptive behaviour in hospital. *Can J Psychiatry* 2004;49:114–8.
- [53] Soliman AE, Reza H. Risk factors and correlates of violence among acutely ill adult psychiatric inpatients. *Psychiatr Serv* 2001;52:75–80.
- [54] Nielsen O, Large MM. Homicide in psychiatric hospitals in Australia and New Zealand. *Psychiatr Serv* 2012;63:500–3.
- [55] Abderhalden C, Needham I, Dassen T, Halfens R, Haug HJ, Fischer J. Predicting inpatient violence using an extended version of the Brøset Violence-Checklist: instrument development and clinical application. *BMC Psychiatry* 2006 Apr 25;6:17. PMC. Web. 18 Feb. 2017.
- [56] Abderhalden C, Needham I, Dassen T, Halfens R, Haug HJ, Fischer JE. Structured risk assessment and violence in acute psychiatric wards: randomised controlled trial. *Br J Psychiatry* 2008;193:44–50.
- [57] Beauford JE, McNeil DE, Binder RL. Utility of the initial therapeutic alliance in evaluating psychiatric patients' risk of violence. *Am J Psychiatry* 1997;154:1272–6.
- [58] Björkdahl A, Olsson D, Palmstierna T. Nurses' short-term prediction of violence in acute psychiatric intensive care. *Acta Psychiatr Scand* 2006;113:224–9.
- [59] Bowers L, Simpson A, Alexander J. Patient-staff conflict: results of a survey on acute psychiatric wards. *Soc Psychiatry Psychiatr Epidemiol* 2003;38:402–8.
- [60] Carr VJ, Lewin TJ, Sly KA, Conrad AM, Tirupati S, Cohen M, Ward PB, Coombs T. Adverse incidents in acute psychiatric inpatient units: rates, correlates and pressures. *Aust N Z J Psychiatry* 2008;42:267–82.
- [61] Cookson A, Daffern M, Foley F. Relationship between aggression, interpersonal style, and therapeutic alliance during short-term psychiatric hospitalization. *J Ment Health Nurs* 2012;21:20–9.
- [62] Dumais A, Larue C, Michaud C, Goulet MH. Predictive validity and psychiatric nursing staff's perception of the clinical usefulness of the French version of the dynamic appraisal of situational aggression. *Issues Ment Health Nurs* 2012;33:670–5.
- [63] Eaton S, Ghannam M, Hunt N. Prediction of violence on a psychiatric intensive care unit. *Med Sci Law* 2000;40:143–6.
- [64] Ehmann TS, Smith GN, Yamamoto A, McCarthy N, Ross D, Au T, Flynn SW, Altman S, Honer WG. Violence in treatment resistant psychotic inpatients. *Nerv Ment Dis* 2001;189:716–21.
- [65] Grassi L, Peron L, Marangoni C, Zanchi P, Vanni A. Characteristics of violent behaviour in acute psychiatric in-patients: a 5-year Italian study. *Acta Psychiatr Scand* 2001;104:273–9.
- [66] Hartvig P, Roaldset JO, Moger TA, Ostberg B, Björkly S. The first step in the validation of a new screen for violence risk in acute psychiatry: the inpatient context. *Eur Psychiatry* 2011;26:92–9.
- [67] Lam JN, McNeil DE, Binder RL. The relationship between patients' gender and violence leading to staff injuries. *Psychiatr Serv* 2000;51:1167–70.
- [68] Mellesdal L. Aggression on a psychiatric acute ward: a three-year prospective study. *Psychol Rep* 2003;92:1229–48.
- [69] Nijman HL, Merckelbach HL, Allertz WF, a Campo JM. Prevention of aggressive incidents on a closed psychiatric ward. *Psychiatr Serv* 1997;48:694–8.
- [70] Nijman H, Merckelbach H, Evers C, Palmstierna T, Campo J. Prediction of aggression on a locked psychiatric admissions ward. *Acta Psychiatr Scand* 2002;105:390–5.
- [71] Oulis P, Lykouras L, Dascalopoulou E, Psarros C. Aggression among psychiatric inpatients in Greece. *Psychopathology* 1996;29:174–80.
- [72] Raja M, Azzoni A, Lubich L. Aggressive and violent behavior in a population of psychiatric inpatients. *Soc Psychiatry Psychiatr Epidemiol* 1997;32:428–34.
- [73] Raja M, Azzoni A. Hostility and violence of acute psychiatric inpatients. *Clin Pract Epidemiol Ment Health* 2005;1:11. PMC. Web. 18 Feb. 2017.
- [74] Ross J, Bowers L, Stewart D. Conflict and containment events in inpatient psychiatric units. *J Clin Nurs* 2012;21:2306–15.
- [75] Saverimuttu A, Lowe T. Aggressive incidents on a psychiatric intensive care unit. *Nurs Stand* 2000;14:33–6.

- [76] Troisi A, Kustermann S, Di Genio M, Siracusano A. Hostility during admission interview as a short-term predictor of aggression in acute psychiatric male inpatients. *J Clin Psychiatry* 2003;64:1460–4.
- [77] Vaaler AE, Iversen VC, Morken G, Fløvig JC, Palmstierna T, Linaker OM. Short-term prediction of threatening and violent behaviour in an acute psychiatric intensive care unit based on patient and environment characteristics. *BMC Psychiatry* 2011;11:44. PMC. Web. 18 Feb. 2017.
- [78] Daffern M, Day A, Cookson A. Implications for the prevention of aggressive behavior within psychiatric hospitals drawn from interpersonal communication theory. *Int J Offender Ther Comp Criminol* 2012;56:401–19.
- [79] Manfredini R, Vanni A, Peron L, La Cecilia O, Smolensky MH, Grassi L. Day-night variation in aggressive behavior among psychiatric inpatients. *Chronobiol Int* 2001;18:503–11.
- [80] Van de Sande R, Nijman HL, Noorthoos HO. Aggression and seclusion on acute psychiatric wards. Effect of short-term risk assessment. *Br J Psychiatry* 2011;199:473–8.
- [81] Gascon S, Leiter MP, Andrés E, Santed MA, Pereira JP, Cunha MJ, Albesa A, Montero-Marín J, García-Campayo J, Martínez-Jarreta B. The role of aggressions suffered by healthcare workers as predictors of burnout. *J Clin Nurs* 2013;22:3120–9.