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(Degree)
博士（保健学）

(Date of Degree)
2018-03-07

(Date of Publication)
2020-03-07

(Resource Type)
doctoral thesis

(Report Number)
乙第3345号

(URL)
https://hdl.handle.net/20.500.14094/D2003345

博士論文

Violence Exposure and Resulting Psychological Effects Suffered by Psychiatric Visiting Nurses in Japan

（日本における精神科訪問看護師の暴力曝露とその心理的影響）

平成 29 年 10 月 16 日

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Journal of Psychiatric and Mental Health Nursing. 2017; 24: 638–647.
DOI: 10.1111/jpm.12412. Accepted: 19 July 2017

Abstract

Introduction

Psychiatric visiting nurses (PVNs) play a crucial role by providing medical services for community-living individuals with mental disorders in Japan. However, little is known about violence toward PVNs.

Aim

This cross-sectional study investigated violence during visits and the resulting psychological effects for PVNs.

Methods

PVNs were assessed using a violence exposure questionnaire and the Impact of Event Scale-Revised (IES-R-J); a measure of posttraumatic distress.

Result

Thirty-eight (41%) of 94 participants had experienced violence during the previous 12 months and 49 (53%) over their entire career. The most frequent violence was verbal abuse. Career length as a PVN and number of visits per month were significantly positively associated with verbal abuse during the previous 12 months. The IES-R-J scores indicated 28 of the 34 participants who completed the questionnaire exhibited psychological distress for the most traumatic violence during their career and two had a potentially high risk of posttraumatic stress disorder.

Discussion

Policies and strategies aimed at reducing violence in PVN settings should be developed according to characteristics of the violence, as well as the characteristics and work situation of PVNs. Furthermore, the provision of support and a safe workplace environment would be important for PVNs with residual psychological distress.

Keywords: community mental health services, community psychiatry, exposure to violence, nurse, PTSD, workplace violence

Accessible Summary

What is known on the subject?

There is a developing body of research on violence in healthcare workplaces. Although psychiatric visiting nurses (PVNs) are an important group of professionals who provide medical services for people with mental disorders live in the community, little is known about the experiences and characteristics of violence exposure among PVNs, or the characteristics and work situations of PVNs related to violence exposure.

What this paper adds to existing knowledge?

Approximately 40% of participants were exposed to violence during the previous 12 months; approximately 50% had been exposed during their PVN careers in PVN settings. The most frequent violence was verbal abuse. Longer career length as a PVN and greater number of visits per month were both positively associated with verbal abuse during the previous 12 months.

Twenty-eight of the 34 participants (83%) who completed the IES-R-J survey had some residual psychological distress, and two (6%) had a potentially high risk of posttraumatic stress disorder.

What are the implications for practice?

In devising policies and strategies against violence, PVN organizations and administrators should consider the characteristics of the violence, especially verbal abuse, as well as the characteristics and work situations of PVNs that are related to verbal abuse. Furthermore, they might provide relevant information on violence in PVN settings within their violence-prevention manuals or education.

It would be important to provide support and to construct a safe workplace environment for PVNs who are experiencing residual psychological distress.

Relevance Statement

This study clarified the current situation regarding violence toward PVNs, the characteristics and work situations of PVNs associated with violence, and the resulting psychological distress. Our findings contribute to the development of policies and strategies against violence in PVN settings. Particularly, the identified characteristics of violence in PVN settings, and the positive relationship of verbal abuse with PVNs' characteristics and work situations, will be helpful for improving existing policies and strategies against verbal abuse. Furthermore, information on violence-related psychological distress indicates the need for the provision of support and a safe workplace environment for PVNs with residual psychological distress.

Contents

Introduction

Work-related violence is an important issue for workers' health and safety. Healthcare workers are at high risk of violence or assault (Lanctôt and Guay 2014). The International Council of Nurses (ICN) has long viewed violence exposure among nurses as a significant problem. Indeed, the ICN has classified violence as an occupational hazard, which it defines as any element of risk due to the characteristics of nurses' duties or workplace environment that could impair their safety and health (ICN 2007). A previous study identified nursing as one of the professions most at risk for violence (Campbell *et al*. 2011). Spector *et al.* (2014) showed that 31.8% of nurses were exposed to physical violence during the previous 12 months, 62.8% to non-physical violence, and 17.9% to sexual harassment; the respective experiences in their careers were 44.9%, 73.4%, and 39.0%.

To address this problem, the ICN formulated "Guidelines for Coping with Violence in the Workplace" (1999) and published the position statement "Abuse and Violence Against Nursing Personnel" (2000), both of which have been revised several times since their publication. The ICN has additionally formulated guidelines for the health care sector in collaboration with the International Labour Organization (ILO), the World Health Organization (WHO), and Public Services International (PSI) (ILO/ICN/WHO/PSI 2002). These guidelines clearly indicate that not only nursing organizations but also all organizations involved in the health care sector are responsible for enacting and enforcing policies and strategies to prevent violence and ensure a safe workplace environment.

The large-scale closure of psychiatric beds and earlier discharge from inpatient services has resulted in the greater provision of community-based treatment and rehabilitation for people with mental illness. Community mental health (CMH) nurses play an important role in the delivery of services in modern CMH settings (Zeeman *et al*. 2002). CMH nurses practice such services in various locations (Fry *et al*. 2002); by contrast, psychiatric visiting

nurses (PVNs) in Japan are a specialized profession providing psychiatric visiting nursing services specifically in patients' homes. In recent years, Japan has pressed forward in mobilizing PVNs. As a result, in the medical structure of psychiatric departments in Japan, which is currently shifting from hospitalization to community treatment and rehabilitation, PVNs play a central role in CMH services; in fact, their role in CMH service settings is rather similar to that of CMH nurses. Kayama *et al.* (2005) indicated that psychiatric visiting nursing is helpful in preventing re-hospitalization and reducing hospitalization length in Japan. Psychiatric visiting nursing services are offered by over 80% of the 1,000 or so psychiatric hospitals and over 60% of the some 9,000 home visiting nursing stations throughout Japan. However, the rapid expansion of services provided by PVNs in the past decade has produced several potential problems. In particular, the construction and implementation of policies and strategies aiming to prevent or reduce violence, and the treatment of PVNs who have been exposed to such violence, are left to each organization or its administrators.

As with other health professions, several studies have reported on the rates of violence exposure among CMH nurses. Flannery *et al*. (2000) reported that 21.6% of staff in community residences for people with mental disorders were exposed to some form of violence in the past 12 months. Maguire and Ryan (2007) and McKinnon and Cross (2008) further showed that over 80% of Irish and Australian mental health nurses, respectively, including CMH nurses, had experienced violence. These two studies have further shown that CMH nurses are less likely to be exposed to violence than are nurses in inpatient settings. In homecare settings, almost 60% of homecare workers were exposed to some form of violence during the previous 12 months (Hanson *et al*. 2015); to our knowledge, however, no study has yet examined the rates of violence exposure among PVNs.

Cutcliff and Riahi (2013) showed that the factors considered to contribute to violence in

CMH settings can be grouped into categories of patient-related, environmental, mental-healthcare-system-related, and clinician-related factors. Fry *et al*. (2002) showed an association between longer career length as a CMH worker and violence exposure over their entire career. Linsley (2006) further showed that some factors might increase the risk of violence exposure, such as access to alcohol and drugs, availability of weapons, non-adherence to medications, difficulty perceiving deterioration of psychiatric symptoms, visiting with limited manpower (i.e., alone or in a pair), and difficulty notifying colleagues and receiving immediate support during violence crises in CMH settings. However, the relationship between PVNs' characteristics or work situations and violence exposure has not yet been examined. It is important to clarify these relationships as well as the rates of violence exposure because doing so will provide fundamental information for designing effective strategies that aim to reduce the risk of violence toward PVNs.

The influences of violence are also an important issue. In particular, a previous study indicated the psychological influence of violence exposure among nurses, with outcomes such as anger, fear, anxiety, posttraumatic stress disorder (PTSD) symptoms, guilt, self-blame, and feelings of shame; these outcomes have been found among nurses from different countries and cultures, and using different research designs (Needham *et al.* 2005). Assaulted staff have reported a higher level of general impairment at work (Ryan *et al*. 2008), and the psychological distress caused by violence exposure has been found to correlate with negative changes in professional functioning (Yarovitsky *et al*. 2009). In addition, the experience of violence adversely affects the quality of care for patients (Arnetz and Arnetz 2001). However, the residual psychological distress of PVNs exposed to violence has not been examined. It is important to clarify the residual psychological distress of these nurses in order to provide basic information for the appropriate treatment of PVNs exposed to violence. This will help maintain PVNs' professional functioning and ensure the quality of

their patient care.

It is unlikely for PVNs to be able to completely avoid violence exposure, but it is important to help them to limit the risk of violence and reduce the associated residual psychological distress via appropriate policies and strategies. However, there remains insufficient evidence on violence and its related factors in PVN settings. It is therefore possible that a gap exists between the current situation of violence and the policies or strategies deployed to limit such risk of violence in PVN settings. Indeed, the use of inappropriate strategies for preventing violence based on insufficient evidence might have a serious impact on health care professionals (Cavanaugh *et al*. 2014; Magnavita 2014). Most PVN organizations have specific manuals on preparing or dealing with violence as well as treatment for PVNs exposed to violence; these manuals should be based on solid evidence of violence in PVN settings. Therefore, it is necessary to clarify the current situation of violence exposure and residual psychological distress among PVNs. This study is the first study to clarify the situation of violence exposure among PVNs, the relationship between violence exposure and PVNs' characteristics or work situation, and the residual psychological distress of PVNs in Japan.

Aims

The first aim of the present study was to clarify the experience of violence among PVNs and to identify who typically perpetrates the violence against PVNs during visits to people with mental disorders. The second aim was to clarify what characteristics and work situations among PVNs were associated with violence exposure. Finally, the third aim was to clarify the resulting possible psychological effects of violence exposure. The study findings will contribute to the construction of policies and strategies for preventing violence and ensuring safe workplace environments within psychiatric visiting nurses.

Definition of Terms

Various institutions have given definitions of violence, including the International Council of Nurses (2007). To investigate the current situation regarding violence experienced by PVNs during their visits, violence was defined in the present study with reference to preceding research (Fry *et al.* 2002), as follows:

1. Physical Assault: e.g., striking and punching
2. Verbal Abuse: e.g., “I’ll kill you”
3. Sexual Harassment: e.g., touching the chest
4. Threatening Behaviour: e.g., swinging an object as if to strike another person
5. Damage to Property: e.g., breaking an object

These definitions permit the identification of violence that occurs during visits to community-living people with mental disorders in broad terms.

Methods

Study Design

This study employed a cross-sectional design in accordance with the STROBE guidelines.

Sample and Setting

The participants of the present study were PVNs engaged in psychiatric visiting nursing and affiliated with psychiatric visiting nursing stations established in psychiatric hospitals.

The proportion of PVNs who had experienced violence was estimated approximately 50% based on previous studies (Spector *et al*. 2014; Japanese Nursing Association 2004). As such, using large-sample normal approximation and a two-sided 95.0% confidence interval for a single proportion, which would extend 0.05 from the observed proportion for an expected proportion of 0.50, we calculated a required sample size of 385 (Machin *et al*. 2007).

Instrument

The questionnaire was constructed with reference to violence-related guidelines (International Council of Nurses 2007; Japanese Nursing Association 2004) as well as

previous research (Fry *et al.* 2002). The survey content, layout, response format, and ethical aspects were revised repeatedly by the researchers. The questionnaire included items that asked about the following areas:

1) PVNs' characteristics: This section asked for information on participants' characteristics, including gender, age, professional qualifications, type of employment, total length of clinical experience as a nurse, length of experience as a home visiting nurse, length of experience as a psychiatric visiting nurse, experience in the field of mental health care and welfare excluding psychiatric visiting nursing (and, if so, length of that experience).

2) Work situations of PVNs: This section asked for information on PVNs' work situations, including number of visits per month and the psychiatric diagnosis of community-living people that the PVNs were currently visiting (using ICD-10 codes F1–9; F0 was excluded; multiple answers possible).

3) Exposure experiences to each form of violence during visits throughout their career as a PVN (Yes/No).

4) Exposure experiences to each form of violence during visits over the previous 12 months as a PVN (Yes/No); if affirmed, participants were asked to list the frequency of each form of violence and who committed the violence.

5) Form of most stressful traumatic violence and elapsed time since exposure to it as a PVN.

6) Psychological effects of the most stressful traumatic violence exposure as a PVN. These were measured using the Japanese-language version of the Impact of Event Scale-Revised (IES-R-J; Asukai *et al.* 2002). The IES-R is a self-report scale designed to measure the symptoms of psychological trauma. Weiss (2004) modified the IES developed by Horowitz *et al.* (1979) to create a revised version, the IES-R. The IES-R comprises 22 items within three subscales: Intrusion (8 items), Avoidance (8 items), and Hyperarousal (6

items). This scale evaluates symptom severity for the previous 1-week period after various kinds of traumatic events ranging from personal harm to disasters. The participants in the present study were asked to think of a specific stressful traumatic violence event during their visits and to rate any difficulties the violence had caused over the past week. Scores for each item range from 0 to 4. Items are totalled to provide total and subscale scores. When using a cut-off point of 24 or 25 on the IES-R-J, the ranges in sensitivity, specificity, and positive and negative predictive values were 0.75–0.89, 0.71–0.93, 0.44–0.80, and 0.90–0.96, respectively, for distinguishing PTSD and partial PTSD from non-PTSD (Asukai *et al*. 2002); thus, the cut-off for a high risk of PTSD in the present study was set at a total score ≥ 25. Asukai *et al*. (2002) showed that the scale had high retest reliability (r = .86, p = .0001) and good internal consistency for the whole scale and three subscales (Cronbach's coefficient alpha = .92 to .95).

Data Collection

All psychiatric visiting nursing stations within or affiliated with a psychiatric hospital in the Kinki area were approached to participate in this study. Of the 66 departments contacted, 63 agreed to participate. Via their departments, all PVNs affiliated with these nurse stations were sent documentation explaining the research, the survey form, and a return envelope.

Data Analysis

Descriptive statistics were calculated regarding the response rate for questionnaires, participants' characteristics, work situations, experience of violence exposure, the person who was violent, and IES-R-J total and subscale scores.

We employed Chi-square tests or Fisher's exact tests to assess the possible relationships between exposure to each form of violence during the previous 12 months (exposure/non-exposure group) and the PVNs' characteristics (both categorical and continuous); the continuous variables (e.g., age) were analysed by dividing them along the

median into high and low subgroups.

To investigate how participants' characteristics or number of visits per month were associated with violence exposure, binary logistic regressions were performed with exposure to verbal abuse (which was found to be the form of violence PVNs were more frequently exposed to during the previous 12 months) as the dependent variable (exposure/non-exposure). The independent variables were all the participants' characteristics that were associated with exposure to verbal abuse in the previous analysis, as well as number of visits per month. Multicollinearity was assessed using the variance inflation factor. A variance inflation factor over 10 is regarded as indicating serious multicollinearity (Glantz and Slinker 1990).

To assess the relationships between IES-R-J total scores, time elapsed since the most stressful traumatic violence exposure, participants' characteristics (e.g., participants' age), and number of visits per month, correlation analysis was performed. Further, to assess differences in IES-R-J total scores for subgroups based on participants' characteristics (e.g., male/female group), Mann–Whitney U tests were performed.

Statistical analysis was performed using IBM SPSS Statistics 22.0J.

Ethical Considerations

The ethics review board at Kobe University Graduate School of Health Sciences approved this study (Approval no. 17, 2011). PVNs were informed of the purpose of the present study, that their participation was voluntary, and that their refusal to participate would cause them no disadvantage. PVNs were also informed that the study data would only be used in this research, and that personal information would be protected and confidentiality of data maintained. A telephone number and e-mail address were provided to PVNs to obtain additional information. Return of the questionnaire was considered consent for participation in the present study. Thus, PVNs' understanding of the study purpose and consent to

participate were assumed based on a returned questionnaire.

Results

A total of 226 questionnaires were mailed to 63 stations, and 98 questionnaires were returned. Four were blank or mostly incomplete, resulting in 94 questionnaires, or a response rate of 42%. Participants' characteristics and work situations are provided in Table 1.

(Table 1)

Exposure to Each form of Violence during PVNs' Career and over the Previous 12 Months

The experiences to each form of violence exposure are shown in Table 2. Verbal abuse was the most prevalent, followed by threatening behaviour.

(Table 2)

Exposure Frequency and Violent Person for Each form of Violence during the Previous 12 Months

Exposure frequencies of each form of violence during the previous 12 months are shown in Table 3. Except for verbal abuse, each form of violence had a reported frequency of 1–2. For verbal abuse, almost half of those exposed had experienced it 3 or more times during the previous 12 months. Participants reported that most of the violent incidents were committed by patients. However, in one case each of verbal abuse and threatening behaviour, the violence was committed by the patient and family together.

(Table 3)

Relationship of Participants' Characteristics and Work Situation with Exposure to Violence during the Previous 12 Months

Chi-square tests or Fisher's exact tests were performed to examine relationships of exposure to each form of violence with participants' characteristics and number of visits per month.

No significant relationships were found between gender and physical violence (p = 1.000, Fisher's exact test), verbal abuse, $\chi^2(1, N = 93) = 1.16$, p = .281, sexual harassment (p = .446), threatening behaviour (p = 1.000), and damage to property (p = 1.000). No significant relationships were found between age and physical violence (p = .617), verbal abuse, $\chi^2(1, N = 94) = 0.05$, p = .820, sexual harassment (p = .523), threatening behaviour, $\chi^2(1, N = 94) = 2.23$, p = .135, and damage to property (p = .617). No significant relationships were also found between professional qualification and any form of violence: physical violence (p = 1.000), verbal abuse (p = .751), sexual harassment (p =1.000), threatening behaviour (p = .202), and damage to property (p = .454). Furthermore, no significant relationships were found between type of employment and any form of violence: physical violence (p = 1.000), verbal abuse (p = .621), sexual harassment (p =1.000), threatening behaviour (p = .147), and damage to property (p = 1.000).

Significant relationships were found between length of experience as a nurse and sexual harassment (p = .048). No significant relationships with other forms of violence were found: physical violence (p = .613), verbal abuse, $\chi^2(1, N = 93) = 0.38$, p = .536, threatening behaviour, $\chi^2(1, N = 93) = 0.88$, p = .348, and damage to property (p = 1.000). No significant relationships were found between length of experience as a home visiting nurse and any form of violence: physical violence (p = 1.000), verbal abuse, $\chi^2(1, N = 89) = 2.00$, p = .158, sexual harassment (p = .327), threatening behaviour, $\chi^2(1, N = 89) = 0.84$, p = .359, and damage to property (p = .621).

Significant relationships were also found between length of experience as a psychiatric home visiting nurse and verbal abuse, $\chi^2(1, N = 93) = 8.43$, p = .004. No significant relationships with other forms of violence were found: physical violence (p = 1.000), sexual harassment (p = 1.000), threatening behaviour, $\chi^2(1, N = 93) = 2.11$, p = .146, and damage to property (p = .361). No significant relationships were found between experience in mental

health and welfare, excluding psychiatric home visiting nurses, and any form of violence: physical violence (p = .085), verbal abuse (p = .242), sexual harassment (p = .383), threatening behaviour (p = .055), and damage to property (p = .556).

Furthermore, significant relationships were found between number of visits per month and verbal abuse, $\chi^2(1, N = 93) = 5.05$, p = .025. No significant relationships with other forms of violence were found: physical violence (p = .572), sexual harassment (p = .742), threatening behaviour, $\chi^2(1, N = 93) = 0.72$, p = .395, and damage to property (p = 1.000).

Binary Logistic Regression of Participants' Characteristics and Work Situation Versus Exposure to Verbal Abuse during the Previous 12 Months

A binary logistic regression was performed, with exposure to verbal abuse during the previous 12 months as the dependent variable (exposure/non-exposure) and length of career as a PVN and number of visits per month as independent variables. No multicollinearity was indicated because the variance inflation factors for length of career as a PVN (VIF = 1.000) and number of visits per month (VIF = 1.000) in the model were less than 10. A significant regression model was obtained showing that exposure to verbal abuse was associated with length of career as a PVN and number of visits per month (p = .000). PVNs with a career of longer than 72 months showed greater odds of verbal abuse compared to PVNs with a career of 24 months or less (β = 1.81, OR 6.10, 95% CI [1.31, 28.46], p = .021). Furthermore, PVNs who had 31–60 visits per month (β = 1.80 , OR 6.04, 95% CI [1.09, 33.36], p = .039), 61–90 visits (β = 2.13, OR 8.38, 95% CI [1.44, 48.68], p = .018), and more than 90 visits (β = 2.26, OR 9.59, 95% CI [1.66, 55.55], p = .012) also showed a greater odds of reporting verbal abuse compared to PVNs with 30 visits or less (Table 4).

(Table 4)

IES-R-J Scores for the Most Stressful Traumatic Violence Experienced as a PVN and Relationships with Participants' Characteristics or Work Situation

Of the 49 PVNs who reported being exposed to violence, 34 completed the section of the IES-R-J regarding their most stressful traumatic violence experience. The median of the IES-R-J total score was 2.0 (IQR = 5.0, range: 0 to 53) (Table 5). Cronbach's alpha coefficients for the whole scale and three subscales ranged from .86 to .95 for the current study.

(Table 5)

Two of the 34 participants (6%) had scores demonstrating a potentially high risk of PTSD (Figure 1).

(Figure. 1)

The time elapsed since exposure to the most stressful traumatic violence experience captured in the IES-R-J averaged 2.9 years (SD = 3.6, range: 0 to 15). No significant correlation was found between the elapsed time and IES-R-J total score, $r(32) = -.12$, $p = .512$, Spearman's rank correlation.

Relationships between IES-R-J total scores and participants' characteristics, and work situation were examined. No significant relationships were observed between IES-R-J total scores and age, $r(32) = -.06$, $p = .759$, Spearman's rank correlation, length of experience as a nurse, $r(32) = .09$, $p = .626$, length of experience as a home visiting nurse, $r(30) = .14$, $p = .440$, length of experience as a psychiatric home visiting nurse, $r(32) = .16$, $p = .356$, and number of visits per month, $r(31) = -.14$, $p = .433$.

Furthermore, the difference in IES-R-J total scores for subgroups based on participants' characteristics was examined with Mann–Whitney *U* tests. No significant differences were observed in IES-R-J total scores for gender, $U(34) = 57.00$, $Z = -1.94$, $p = .053$, professional qualification, $U(34) = 28.50$, $Z = -0.26$, $p = .795$, type of employment, $U(33) = 12.50$, $Z = -0.37$, $p = .709$, and experience in mental health and welfare, excluding psychiatric home visiting nurses, $U(34) = 92.00$, $Z = -0.49$, $p = .621$.

Discussion

Experience of Violence Exposure

Our results showed that 41% of participants had experienced some form of violence during the previous 12 months. Compared with a previous study on violence exposure among mental health nurses, including CMH nurses (McKinnon and Cross 2008), PVNs had a rather lower rate of violence exposure. In CMH settings, Rao *et al*. (2007) showed a number of patient characteristics associated with violence exposure, such as the severity of patients' mental illness or severe substance use. The low rate of violence exposure among PVNs might be due to the severity of patients' mental illness or the low proportion of PVNs who were visiting patients with substance use problems.

In contrast, PVNs had a higher exposure rate than staff in community residential facilities for people with mental disorders (Flannery *et al*. 2000). Fry *et al*. (2002) showed that nurses have a greater risk of violence among all CMH staff because they are often in close contact with patients in order to perform physical assessments and treatments. Therefore, it must be emphasized in the policies of PVN organizations that PVNs are at risk of violence because of the characteristics of their work.

PVNs' rate of experiencing violence over their entire career (53%) was lower than was that of CMH workers (Fry *et al.* 2002). In comparison with that of Fry *et al.* (2002), our participants' length of career as a PVN was shorter (114.8 mo. vs. 55.2 mo., respectively). As McKinnon and Cross (2008) showed, it is natural that the cumulative rate of violence exposure would increase the longer a nurse works in an at-risk environment.

Form of Violence and Violent Person in PVN Settings

Although PVNs had a lower exposure to each form of violence than CMH staff, including CMH nurses in previous studies (Gale *et al*. 2009; Fry *et al*. 2002), they were more frequently exposed to verbal abuse than any other form of violence. Furthermore,

CMH nurses were almost always exposed to violence from patients, with only a few being exposed to violence from a combination of patients and their families (McKinnon and Cross 2008); our findings for PVNs were consistent with these patterns. Therefore, PVN organizations and administrators should develop their policies and strategies to suit the fact that PVNs will experience verbal abuse from patients. However, there is a need for further research on the details of patients who engage in violence in PVN settings, because we could not determine in this study whether PVNs were exposed to frequent verbal abuse from multiple patients or repeated verbal abuse from patients with specific characteristics such as severity of illness (Rao *et al*. 2007).

Characteristics and Work Situations of PVNs Associated with Violence Exposure

Fry *et al*. (2002) illustrated an association between longer length of career as a CMH worker and violence exposure throughout the entire career. In the present study, during the previous 12 months, longer career length as a PVN was positively associated with verbal abuse. This association suggested that more experienced nurses might be in charge of visiting patients with more severe mental health problems that are associated with a high risk of violence (Rao *et al*. 2007). Therefore, it is necessary to provide education targeting experienced PVNs in assessing and dealing with a high risk of verbal abuse. In addition, experienced PVNs might be able to better recognize patients' aggressive behaviour as related to violence. Therefore, it is also important to provide clear definitions and examples of verbal abuse in their policies.

In the present study, during the previous 12 months, a greater number of visits per month was positively associated with exposure to verbal abuse. By implementing a greater number of visits to at-risk environments, the risk of violence exposure would naturally increase. In addition, Farrell *et al*. (2006) indicated that the lack of sufficient time to provide care to patients is one of the major factors related to distress among nurses. Zamperion *et al*. (2010)

showed that violence would occur when patients felt dissatisfaction with services. Thus, a lack of sufficient time to provide care to patients in PVN settings might cause both nurses' and patients' dissatisfaction. Furthermore, a lack of sufficient time might also cause insufficient or inappropriate implementation of practices for the risk of violence (Canton *et al*. 2009). In future studies, it would be necessary to clarify the details of the influence of a greater number of visits per month in order to improve current strategies against verbal abuse.

Psychological Distress of PVNs after the Most Stressful Traumatic Violence Experience

In the present study, 34 of 49 participants who were exposed to some form of violence during their PVN career completed the IES-R-J. It is unknown why the remaining 15 participants did not complete the scale. They might have viewed violence exposure as a non-stressful experience or might not have wanted to answer the IES-R-J because of an excessive burden related to residual psychological distress.

Six of the 34 participants (18%) who answered the IES-R-J reported no psychological distress, but 28 (82%) experienced some residual psychological distress. Further, two of the 34 (6%) had a potentially high risk of PTSD. The proportion of participants with a potentially high risk of PTSD was higher than that in the general population (6% vs. 4%, Javidi and Yadollahie 2012), and was consistent with a previous study of support workers in community care settings (Gale *et al*. 2009).

Gerberich *et al*. (2004) showed that the psychological distress due to exposure remained even after several years had passed, and our findings among PVNs do not contradict this. Because of the lack of a specific relation between residual psychological distress and participants' characteristics or work situations, policies must take into account that residual psychological distress can occur in any PVN after exposure to violence. Furthermore, as Ryan *et al*. (2008) found in inpatient settings, PVNs with residual psychological distress or

PTSD symptoms might experience a high level of difficulty in performing psychiatric visit nursing. Therefore, it is necessary to provide support and construct a safe workplace environment for PVNs with residual psychological distress.

Understanding the experience and characteristics of violence in PVN settings, the characteristics and work situations of PVNs associated with violence exposure, and the resulting psychological distress in PVNs is important to develop the policies and strategies to prevent violence exposure and treat PVNs with residual psychological distress. This study provides important insights into violence within PVN settings.

Limitations

The foremost limitations of the present study were the small number of participants and the possibility of Type 2 error. Another limitation of this study is the possibility of type I error due to the numerous statistical comparisons performed without adjustment for multiple tests. Furthermore, the wide confidence intervals for the odds ratios calculated in the logistic regression analysis can be attributed to our small sample size. We also expect that not limiting the number of independent variables might have influenced the validity of the model; the number of independent variables has been known to affect the validity of logistic regression analyses in particular (Peduzzi 1996). Additionally, participants who had been exposed to violence might have been more likely to participate in this study. Therefore, the experience rate of violence exposure in the present study might have been inflated. The possibility of non-response bias must be considered due to the low survey response rate.

PVNs were shown the definition of violence and examples of the five forms of violence in the questionnaire. However, it might have been difficult for them to categorize the form of violence if an event included a wide range of actions, such as verbal abuse, threatening behaviour, or sexual harassment. Thus, the experience of each form of violence might have been affected by single events involving combinations of different forms of violence.

Our study employed a cross-sectional design; therefore, causal relationships could not be ascertained. The experience of violence exposure might have involved recall bias, which could have affected our findings. Furthermore, we targeted PVNs in the Kinki area of Japan; thus, generalizability is limited because of the potential for regional differences in violence exposure.

Further, Asukai *et al*. (2002) set the cut-off point at a total score ≥ 25. However, a previous study in another region used the IES-R and set the cut-off point at a total score ≥ 33 (Gale *et al*. 2009). The lower cut-off point might have inflated the proportion of participants with a potentially high risk of PTSD. In addition, participants were asked to respond based on their symptoms related to the most stressful traumatic violence event. However, a previous study indicated that cumulative violence exposure can be associated with posttraumatic stress (Cavanaugh *et al*. 2014). Thus, cumulative experiences of violence exposure in PVNs might have affected scores on the IES-R-J.

Implications for Practice

PVNs in Japan have a high possibility of being exposed to verbal abuse and some who are exposed to violence experience residual psychological distress. Performing visiting nursing services with a sufficient workforce might help improve PVNs' safety as well as the quality of care for patients. However, Fry *et al*. (2002) showed that the existence of multiple staff does not reduce the risk of violence. Furthermore, the guidelines on violence and aggressive behaviour formulated by the National Institute for Health and Care Excellence (NICE) (2015) indicated that health care organizations should ensure the enforcement of their policies regarding violence, as well as keeping these policies up-to-date. The organizations or administrators of PVNs could integrate our findings into their policies, such as identifying which PVNs might have a higher risk of violence exposure, especially verbal abuse, as well

as the fact that PVNs who are exposed to violence might develop residual psychological distress.

The organizations or administrators of PVNs might also reflect our findings into their violence-prevention strategies, such as educating PVNs about the risk and potential severity of violence exposure, as well as the relationship between characteristics or work situations of PVNs and verbal abuse in PVN settings. The NICE guidelines (2015) have similarly shown that staff working in community and primary care settings must perform risk assessments for violence and aggression on service users and their caregivers. In PVN settings, risk assessments of violence and aggression should include mention of PVNs' characteristic and work situation related to verbal abuse or could even involve discussing those potential factors related to violence with patients, caregivers, and other professionals.

Finally, it is important to provide support and construct a safe workplace environment for PVNs who are experiencing residual psychological distress. It might also helpful to train PVNs in violence management techniques suited to the characteristics of the violence in PVN settings, such as breakaway, de-escalation, or removing themselves (NICE 2015), as this could help to reduce the traumatic impact of violence when it occurs (Martin and Daffern 2006).

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Figure

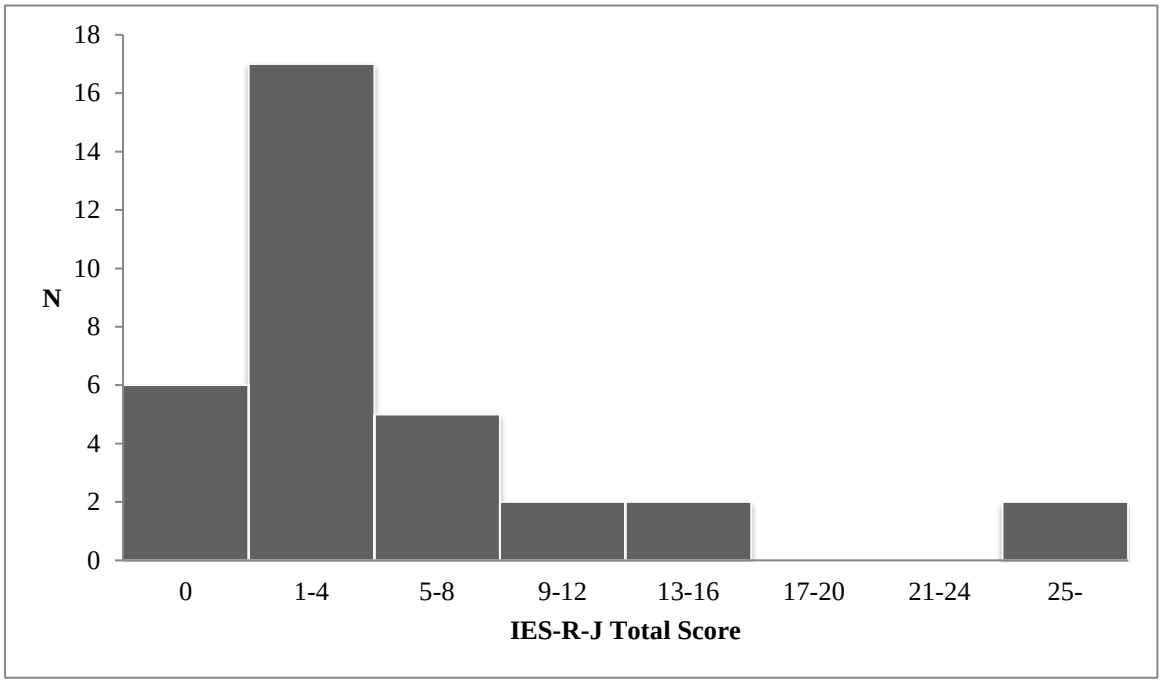

Figure 1. ***Distribution of IES-R-J total scores for the most stressful traumatic violence experiences in PVNs' careers***

IES-R-J: Japanese-language version of the Impact of Event Scale-Revised

Tables

Table 1. ***Participants' characteristics and work situation***

Characteristics and work situation	***N* (%) or Mean ± SD or Median (range)**
Gender	
Male	21 (22)
Female	73 (78)
Age	46.1 ± 9.1
License	
Registered nurse	81 (86)
Licensed practical nurse	13 (14)
Employment	
Full-time	86 (92)
Part-time	5 (5)
Non-response	3 (3)
Total length of clinical experience (years)	19.8 (3.7–42.6)
Length of experience in home visiting nursing (years)	4.9 (0.1–25.0)
Length of experience in psychiatric visiting nursing (years)	4.6 (0.1–25.0)
Experience at other psychiatric regions excluding psychiatric visiting nursing	
Yes	77 (82)
No	17 (18)
Length of experience at other psychiatric regions (years)	11.8 (0.3–40.5)
Number of visits per month	59.0 ± 40.7
Psychiatric diagnosis of community-living people currently visited by PVNs (ICD-10, excluding F-0; multiple answers allowed)	
F1: Mental and behavioral disorders due to psychoactive substance use	31 (33)
F2: Schizophrenia, schizotypal, and delusional disorders	90 (96)
F3: Mood (affective) disorders	73 (78)
F4: Neurotic, stress-related, and somatoform disorders	43 (46)
F5: Behavioral syndromes associated with physiological disturbances and physical factors	13 (14)
F6: Disorders of adult personality and behavior	33 (36)
F7: Mental retardation	42 (45)

F8: Disorders of psychological development	20 (22)
F9: Behavioral and emotional disorders with onset usually occurring in childhood and adolescence	8 (9)

PVNs: Psychiatric visiting nurses

Table 2. ***Violence exposure by violence form and timeframe***

	N (%)	
	Career	Previous 12 months
Overall	49 (53)	38 (41)
Physical assault	18 (20)	3 (4)
Verbal abuse	38 (41)	27 (29)
Sexual harassment	14 (15)	10 (11)
Threatening behaviour	19 (21)	13 (14)
Damage to property	10 (11)	4 (5)

Table 3. ***Frequency distribution of violence exposure during the previous 12 months***

	N (%)			
	1–2 times	3–4 times	5–10 times	Over 10 times
Physical assault (n = 3)	3 (100)	0 (0)	0 (0)	0 (0)
Verbal abuse (n = 27)	14 (52)	7 (26)	3 (11)	3 (11)
Sexual harassment (n = 10)	7 (70)	0 (0)	3 (30)	0 (0)
Threatening behaviour (n = 13)	10 (77)	1 (8)	2 (15)	0 (0)
Damage to property (n = 4)	3 (75)	0 (0)	1 (25)	0 (0)

Table 4. ***PVNs' factors related to exposure to verbal abuse during the previous 12 months***

Factor	*β*	*p*	Odds Ratio (95% CI)
Length of experience as a PVN			
24 months or less	Reference		
25–48 months	1.46	.069	4.31 (0.89–20.79)
49–72 months	1.60	.076	4.93 (0.85–28.73)
More than 72 months	1.81	.021*	6.10 (1.31–28.46)
Number of visits per month			
30 times or less	Reference	.	
31–60 times	1.80	.039*	6.04 (1.09–33.36)
61–90 times	2.13	.018*	8.38 (1.44–48.68)
More than 90 times	2.26	.012*	9.59 (1.66–55.55)

Logistic regression analysis

* $p < .05$

Table 5. ***IES-R-J scores for the most stressful traumatic violence experience in PVNs' careers***

	IES-R-J score		
	Median	Interquartile range	Range
Total (n = 34)	2.0	5.0	0–53
Subscale			
Intrusion	1.0	3.0	0–19
Avoidance	1.0	3.0	0–19
Hyperarousal	1.0	1.0	0–15
Physical assault (n = 2)	3.0	-	1–5
Verbal abuse (n = 13)	3.0	8.0	1–15
Sexual harassment (n = 5)	1.0	4.0	0–5
Threatening behaviour (n = 2)	2.0	-	1–3
Damage to property (n = 0)	-	-	-
Multiple violence (n = 12)	2.5	9.0	0–53

IES-R-J: Japanese-language version of the Impact of Event Scale-Revised

Acknowledgments

We are grateful for the participants' support and cooperation in this study. We are also grateful to the research students.

Funding

This research was supported by JSPS KAKENHI Grant-in-Aid for Young Scientists (B) Grant Number 22792265.