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Workplace violence, post-traumatic stress disorder symptoms, and personality



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ABSTRACT

Patient violence against staff members in forensic psychiatric institutions is highly prevalent. To date, little is known about individual characteristics that increase the likelihood of being victimized. Therefore, the current cross-sectional study was designed to investigate the extent to which staff members' Post-Traumatic Stress Disorder (PTSD) symptoms and the Big Five personality traits are linked to perceived patient violence. Moreover, it was investigated to what extent staff members' personality affected the association between PTSD symptoms and perceived workplace victimization. Data were obtained from 353 staff members in forensic psychiatric institutions (51.8% female, age, $M = 42.4$, $SD = 12.1$). Regression analyses showed that lower levels of emotional stability and higher reports of PTSD symptoms were associated with experiencing more verbal patient violence, whereas lower levels of openness and higher levels of extraversion were associated with experiencing more physical patient violence. Personality moderated the association between PTSD symptoms and physical victimization with the association being stronger for individuals with higher levels of conscientiousness and lower levels of agreeableness. These findings provide useful information for tailoring interventions in clinical practice aimed at reducing the risk of patient-staff violence.

1. Workplace violence, post-traumatic stress disorder symptoms, and personality

Previous studies have demonstrated that violence against employees is a serious problem that can range from verbal threats to actual physical assaults (Arnetz et al., 1996). Workplace Violence (WV) can occur occasionally or persistently and can lead to severe psychological, emotional and/or physical damage (Aquino & Thau, 2009) or even to fatal outcomes (Tattoli et al., 2019). Some professions face a greater risk of violent victimization than others do. Health care professionals are at a 16 times greater risk to become victimized than other service workers (Elliott, 1997). A survey among 1534 professionals in Dutch inpatient psychiatric facilities revealed that, over a period of 5 years, 8.9% of all respondents had been on sick leave for more than a month due to inpatient violence (Van Leeuwen & Harte, 2011). In forensic psychiatric institutions, staff members are particularly vulnerable to experience patient violence because many residents have a history of violent behavior (Verstegen et al., 2017). Workplace violence can have a negative impact on organizations concerning the functioning and employability of personnel, which can lead to a lower quality of patient care. Besides, there can be immaterial damage for individual victims

such as decreased morale, emotional pain, depression, anxiety, and isolation (Gates, 1995). Victims of WV often report post-traumatic stress disorder (PTSD) symptoms (Hilton et al., 2017). PTSD is a mental disorder characterized by intrusive symptoms (bad memories, nightmares, dissociative reactions, intense psychological distress and/or physiological reactions), avoidance behavior, negative changes in cognition and mood, and hyperarousal. Symptoms of PTSD often manifest in encounters with triggers that remind the affected person of the stressor (American Psychiatric Association [APA], 2013; Kunst et al., 2010). Previous research has shown that a significant proportion of forensic and non-forensic mental health care professionals met the criteria for PTSD (range 16–24%), with the prevalence being higher among workers who were working directly with patients (Hilton et al., 2017; Seto et al., 2020).

Thus, the presence of PTSD among mental health care professionals can possibly be explained by WV. Conversely, PTSD can also be a risk factor for WV and re-victimization (Kuijpers et al., 2012). That is, individuals with PTSD can be excessively irritable, which can lead to interpersonal conflicts and aggression against oneself (Kuijpers et al., 2012). Moreover, they may exhibit emotional anesthetic symptoms (i.e., numbing) that make them less alert to environmental factors

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signaling danger, which might put them at increased risk of being targeted by perpetrators (Chu, 1992). In addition, certain personality characteristics can also increase the risk of victimization. A comprehensive and often used framework of personality is the Five-Factor Model (McCrae & Costa, 1991). Neuroticism refers to emotional stability and adjustment. Neurotic individuals are often nervous, have low self-esteem, and are more likely to display negative emotions, such as anger or frustration. Neuroticism, and especially the facet negative affectivity, has been positively associated with WV (Bogaerts & Van Der Laan, 2013; Nielsen et al., 2017). Extraversion refers to an individual's preference for socializing and seeking excitement (McCrae & Costa, 1991). Several studies pointed to a negative association between extraversion and WV (e.g., Glasø et al., 2007; for a review, see Nielsen et al., 2017). Extroverts enjoy socializing and experience more positivity and higher job satisfaction (Judge et al., 2002). Conversely, introverts show their social reluctance to others making them less desirable to interact with and more likely to become victims of WV. However, recent evidence also suggests that extraversion increases the probability of victimization (Cawvey et al., 2018), indicating that heightened sociability of extroverts may produce more contacts with all types of individuals, including potential perpetrators. Agreeableness refers to the degree to which a person is sympathetic and diplomatic (McCrae & Costa, 1991). Agreeable individuals experience higher levels of well-being (Judge et al., 2002), positive emotions at work, and are less likely to experience WV (Nielsen et al., 2017). Persons low in agreeableness are more suspicious and skeptical (McCrae & Costa, 1991), which may increase tensions with others and potentially evoke WV (Shercliffe & Colotla, 2009). Conscientiousness concerns the degree of organization and motivation of goal-oriented behavior (McCrae & Costa, 1991), and relates to the ability to control impulses. Most studies reported a negative association between conscientiousness and WV (e.g., Glasø et al., 2007; for a review, see Nielsen et al., 2017). Highly conscientious people might be less likely to be exposed to possible incidents of WV, and when incidents occur, they are less likely to escalate them (Arthur & Graziano, 1996). Finally, openness refers to a person's interest in new activities, experiences, and emotions (Judge et al., 2002). Although there is considerable agreement in the literature about a non-significant association between openness and WV (e.g., Glasø et al., 2007; for a review, see Nielsen et al., 2017), a recent study has shown that openness increases the risk of victimization (Cawvey et al., 2018). Highly open individuals thrive on novelty increasing the likelihood of exposing themselves to risky situations.

Beside direct links to WV, personality characteristics may also affect the association between PTSD symptoms and WV. For example, research has shown that the link between trauma severity and PTSD symptoms is stronger at higher levels of neuroticism (Lauterbach & Vrana, 2001). Personality also moderated the association between war-related experiences and PTSD severity, with the association being weaker at higher levels of extraversion, agreeableness, conscientiousness, and openness, and lower levels of neuroticism (Caska & Renshaw, 2013). Moreover, individuals high in extraversion, conscientiousness, and agreeableness reported greater social support (Kitamura et al., 2002; Leskelä et al., 2009), which can buffer the influence of trauma on the development of PTSD symptoms. In contrast, individuals high in neuroticism reported lower social support (Kendler et al., 2002) and hence less protection, which can increase the risk of developing PTSD symptoms. Taken together, personality traits may serve as risk or protective factors for the development of PTSD symptoms.

Despite some empirical support for direct associations of PTSD symptoms and personality with WV, to our knowledge there is no research on the role of personality in the association between PTSD symptoms and patient violence towards forensic staff members. Examining this moderating role may provide insight into protective and risk-enhancing personality characteristics. Therefore, the current study aimed to investigate whether PTSD symptoms and Big Five personality traits are linked to the experience of two types of workplace violence

(i.e., verbal and physical) among staff members. In this study, verbal violence was defined as any intentional act of intimidating and/or threatening another person. Physical violence was defined as any intentional act of harming another person through physical contact. Based on previous findings, we expected that PTSD symptoms and neuroticism would be positively associated with WV, whereas agreeableness, and conscientiousness would be negatively associated with WV. Due to inconsistencies in research about the role of openness and extraversion in the experience of WV, we did not have specific hypotheses about the associations of these personality traits with WV. Finally, we investigated whether the association between PTSD symptoms and WV was contingent upon personality characteristics. Based on previous findings, we expected that neuroticism would strengthen, whereas the other four personality traits would weaken the association between PTSD symptoms and WV. Because WV in mental health care professions is significantly influenced by sex, age, and employees' years of experience (Arnetz et al., 1996), we controlled for these factors in the statistical analysis.

2. Methods

2.1. Procedure

The current study was performed in two high-security forensic psychiatric centers (FPCs) in the Netherlands where convicted offenders are treated, including violent and sex offenders. Participation was voluntary, strictly anonymous, and on the basis of informed consent. Employees who wanted to participate could deposit filled-in questionnaires in sealed boxes placed in staff rooms on the wards. Ethical approval for the research was obtained from the Scientific Research Committee of the FPCs.

2.2. Participants

Participants were staff members (e.g., forensic nurses, social workers, psychologists, and psychomotor therapists) working on a regular basis with forensic psychiatric patients. From 400 distributed questionnaires, 353 were completed, resulting in a response rate of 88.3%. Of the respondents who participated, 183 were female (51.8%) and 166 were male (47.0%); four respondents had missing data on gender but were included in the study. The mean age of the respondents was 42.4 years ($SD = 12.1$, range 22–72). Most respondents were born in the Netherlands (96.4%) and had a degree in professional education (68.6%). On average, respondents had worked for about 8.5 years in the FPCs, and the average number of weekly working hours was 33.3. Verbal victimization by patients in the previous 12 months was reported on by 278 respondents (78.8%), whereas 119 (33.7%) reported on physical victimization. Men reported more verbal, $t(345) = -2.49$, $p < .05$, and physical violence, $t(345) = -3.76$, $p < .001$, than women.

2.3. Measures

2.3.1. Workplace violence

To assess perceived WV inflicted by patients, participants answered two questions about experienced verbal and physical victimization, respectively: (1) "How many times, in the past 12 months, did you find yourself in a situation of verbal aggression (e.g., threats or intimidating remarks) by patients?", and (2) "How many times, in the past 12 months, did you find yourself in a situation of physical aggression by patients?" (e.g., pushing, hitting). Answer categories ranged from 1 = *never/almost never* to 10 = *several times per day*. Higher scores indicated a higher level of experienced victimization.

2.3.2. Post-traumatic stress disorder symptoms

PTSD symptoms were measured using a well-validated 22-item self-

rating inventory for posttraumatic stress disorder (SRIP; Hovens et al., 1994). All items were answered on a 4-point Likert scale ranging from 1 = *never* to 4 = *most of the time*. Higher scores indicated higher levels of PTSD symptoms. An example of an item is “I had recurring unpleasant memories”. A cut-off point of 52 was used to determine if subjects met criteria for ‘clinical PTSD’, and a score between 39 and 51 indicated ‘partial PTSD’ (Hovens et al., 2002). In our sample, three respondents met the criteria for clinical PTSD, 15 respondents met the partial PTSD criteria. Most of the respondents only had some PTSD related symptoms with a score between 22 and 38. Therefore, the PTSD scale was used as a continuous variable. The SRIP scale showed good internal consistency in previous research (Cronbach's $\alpha = 0.90$; Hovens et al., 2002) as well as in this study (Cronbach's $\alpha = 0.88$).

2.3.3. Personality traits

Personality was assessed with the self-reported NEO Five-Factor Inventory (NEO-FFI; McCrae & Costa, 1991), which comprises 60 items measuring the five dimensions. All items were answered on a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Higher scores indicated higher levels on that personality dimension. Examples of items from each subscale are “Sometimes I feel completely worthless” (Neuroticism), “I really enjoy talking to people” (Extraversion), “I am full of ideas” (Openness), “I try to give help to anyone in need” (Agreeableness), and “I have clear set of goals that are important to achieve” (Conscientiousness). The NEO-FFI has been shown validity and utility in many different contexts (McCrae & Costa, 2004). The internal consistency of the five scales was sufficient to good in this study, with the exception of the Openness scale: $\alpha = 0.88$ (Neuroticism), $\alpha = 0.61$ (Extraversion), $\alpha = 0.41$ (Openness), $\alpha = 0.69$ (Agreeableness) and $\alpha = 0.66$ (Conscientiousness). However, we used the scale to allow comparability to previous research (Murray et al., 2009).

2.4. Statistical analysis

All analyses were performed using SPSS v.25.0 (IBM Corp., Armonk, NY, USA). A three-step hierarchical multiple regression analysis was applied to investigate the role of PTSD symptoms and personality WV in perceived WV, as well as a moderating effect of personality on the association between PTSD symptoms and WV (Cohen et al., 2013). After controlling for the effects of the control variables (step 1), and the effect of the control variables and the predictors (step 2), the main effects and interaction effects between PTSD symptoms, the five personality traits, and verbal and physical WV were tested (step 3). An interaction term was used to test the moderation effect. All predictor and moderator variables were mean-centered to facilitate the interpretation of the coefficients as the variables in the study are on different scales (Cohen et al., 2013).

3. Results

Descriptive statistics and correlations for all variables are shown in Table 1. Two sets of regression analyses were performed to investigate the associations of PTSD symptoms and personality characteristics with WV, separately for verbal and physical WV (see Tables 2 and 3). Beforehand, the relevant assumptions were checked to ensure the trustworthiness and credibility of the results. All assumptions were met and fulfilled (see Appendix A).

3.1. Verbal workplace violence

Regression analysis showed that in the first step, sex, age, and employees' years of experience jointly explained 6.1% of the variation in verbal victimization, $R = 0.25$, $F(3, 289) = 6.29$, $p < .001$. Sex and age were significantly associated with verbal victimization. Male (versus female) and younger (versus older) staff members were more

likely to report being verbally violated by patients. In the second step, PTSD symptoms and personality traits were added and explained an additional 5.8% of the variation in verbal WV, $R = 0.35$, $F(9, 283) = 4.25$, $p < .001$. This change in R^2 was significant, $F(6, 283)_{\text{change}} = 3.09$, $p = .006$. More specifically, higher levels of PTSD symptoms and neuroticism were associated with reporting more verbal WV. In the third step, the addition of the interaction terms did not significantly contribute to the explained variance in verbal victimization.

3.2. Physical workplace violence

Next, we tested the regression models for physical WV. Regression analyses showed that in the first step, sex, age, and employees' years of experience significantly explained 4.2% of the variation in physical WV, $R = 0.21$, $F(3, 289) = 4.21$, $p = .006$. Sex was significantly associated with physical victimization showing that male staff members were at higher risk to be physically violated by patients than female staff members. Adding PTSD symptoms and personality traits in the second step explained an additional 3.4% of the variation in physical WV, $R = 0.28$, $F(9, 283) = 2.57$, $p = .008$, however this change in R^2 was not significant. Extraversion was significantly positively and openness was significantly negatively associated with physical victimization. Finally, the addition of the interaction terms explained an additional 5.3% of the variation in physical victimization, $R = 0.36$, $F(14, 278) = 2.93$, $p < .001$, and this change in R^2 was significant, $F(5, 278)_{\text{change}} = 3.38$, $p = .006$. Conscientiousness positively and agreeableness negatively moderated the association between PTSD symptoms and physical victimization (see Fig. 1A and B, respectively). Simple slope analyses indicated that PTSD symptoms were positively associated with physical WV, but only at high levels of conscientiousness, $b = 0.06$, $SE = 0.02$, $p < .01$, 95% CI = 0.02 to 0.10. The Johnson-Neyman significance region suggested that the interaction became significant at mean-centered conscientiousness values of 0.09 and higher, which comprised 54.6% of the sample. For agreeableness, PTSD symptoms were associated with more physical WV in staff members who reported low levels of agreeableness, $b = 0.05$, $SE = 0.01$, $p < .001$, 95% CI = 0.02 to 0.08. The Johnson-Neyman significance region suggested that the interaction became significant at mean-centered agreeableness values of -0.12 and lower, which comprised 50.9% of the sample.

4. Discussion

In this study, we investigated the extent to which PTSD symptoms and personality characteristics are associated with verbal and physical WV in a sample of forensic staff members. Moreover, we examined the extent to which the association between PTSD symptoms and WV depended on Big Five personality traits. Overall, staff members who reported less emotional stability and more PTSD symptoms were more likely to report being victims of verbal patient violence than those without these characteristics. In addition, staff members who scored lower on openness and higher on extraversion were more likely to become victims of physical patient violence. Finally, personality moderated the link between PTSD symptoms and physical victimization with the association being stronger at higher levels of conscientiousness and lower levels of agreeableness.

Consistent with our expectations, staff members who reported more PTSD symptoms were at greater risk to be verbally victimized by patients. These findings are in line with the notion that victimized staff members who reported PTSD symptoms can be excessively irritable, which makes them more likely to be involved in conflict situations (Kuijpers et al., 2012) when interacting with patients, and thus they report more verbal patient abuse. They may also exhibit emotional anesthetic symptoms that make them less attentive to environmental risk factors and thus making them easy targets for aggressors (Chu, 1992).

Table 1
Descriptive statistics and correlations for study variables.

Variable	n	M	SD	Min	Max	1	2	3	4	5	6	7	8	9	10
1. PTSD symptoms	353	28.03	5.75	22.00	59.00	–									
2. Extraversion (range 12–60)	337	40.42	4.98	26.00	54.00	–0.23*	–								
3. Openness (range 12–60)	334	39.51	4.78	27.00	53.00	0.10	0.15**	–							
4. Agreeableness (range 12–60)	340	46.23	4.96	32.00	60.00	–0.15**	0.18**	0.11*	–						
5. Conscientiousness (range 12–60)	338	45.73	4.69	30.00	60.00	–0.25**	0.33**	–0.12**	0.27**	–					
6. Neuroticism (range 12–60)	344	31.54	3.36	23.00	41.00	0.17**	–0.15**	–0.10	–0.18**	–0.26**	–				
7. Years in organization	344	8.51	7.75	0.00	38.00	0.01	–0.04	–0.01	–0.03	–0.4	–0.12*	–			
8. Age	339	42.40	12.12	22.00	72.00	0.03	–0.16**	0.16**	–0.01	–0.05	–0.15**	0.62**	–		
9. Verbal victimization (range 1–10)	351	3.05	1.41	1.00	5.00	0.15**	0.06	–0.03	–0.11*	–0.14**	0.14*	–0.03	–0.12*	–	
10. Physical victimization (range 1–10)	351	1.62	0.98	1.00	5.00	0.09	0.04	–0.11*	–0.07	–0.06	0.03	0.01	0.02	0.43**	–

Note. PTSD = Post-traumatic stress disorder; Min = Minimum; Max = Maximum.

* $p < .05$.

** $p < .01$.

Table 2
Summary of hierarchical regression analysis for variables predicting verbal workplace violence.

Variable	B	SE	95% CI		p
			LL	UL	
Step 1 (CV)					
Sex	0.582	0.167	0.253	0.912	.001
Age	–0.025	0.008	–0.042	–0.009	.003
Years in organization	0.004	0.013	–0.021	0.030	.734
Step 2 (CV and P)					
Sex	0.540	0.171	0.203	0.877	.002
Age	–0.023	0.009	–0.041	–0.006	.008
Years in organization	0.007	0.013	–0.019	0.032	.608
PTSD symptoms	0.035	0.014	0.008	0.062	.013
Neuroticism	0.053	0.026	0.003	0.103	.039
Extraversion	0.026	0.018	–0.009	0.061	.138
Openness	0.001	0.017	–0.034	0.035	.972
Agreeableness	–0.005	0.017	–0.038	0.028	.782
Conscientiousness	–0.025	0.020	–0.063	0.013	.202
Step 3 (CV, P and I)					
Sex	0.564	0.173	0.223	0.905	.001
Age	–0.023	0.009	–0.040	–0.006	.010
Years in organization	0.005	0.013	–0.021	0.031	.717
PTSD symptoms	0.032	0.016	0.001	0.063	.043
Neuroticism	0.060	0.026	0.008	0.111	.024
Extraversion	0.030	0.018	–0.006	0.066	.098
Openness	0.001	0.018	–0.034	0.036	.949
Agreeableness	–0.003	0.017	–0.037	0.030	.841
Conscientiousness	–0.025	0.020	–0.064	0.014	.213
Neuroticism × PTSD symptoms	–0.004	0.004	–0.011	0.003	.282
Extraversion × PTSD symptoms	–0.003	0.003	–0.009	0.003	.274
Openness × PTSD symptoms	0.000	0.003	–0.007	0.007	.954
Agreeableness × PTSD symptoms	5.81	0.003	–0.006	0.006	.984
Conscientiousness × PTSD symptoms	0.001	0.004	–0.007	0.010	.720

Note. CV = control variables, P = predictors, I = interactions, SE = standard error of B; PTSD = post-traumatic stress disorder; CI = confidence interval; LL = lower limit; UL = upper limit.

Furthermore, we found partial support for the hypothesis that personality is associated with victimization by patients. Consistent with previous studies, higher levels of neuroticism were associated with reporting more verbal WV (Bogaerts & Van Der Laan, 2013; Nielsen et al., 2017). Individuals with higher levels of neuroticism tend to have less positive self-views and feel sadder and lonelier compared to those with lower levels of neuroticism and thus, may perceive certain situations more often as threatening (Nielsen & Knardahl, 2015). It might also be that neurotics' lower social competence (Argyle & Lu, 1990) and higher frequency of role conflicts (Nielsen & Knardahl, 2015) predispose them to create or get into situations in which they can become victimized, and consequently report higher levels of victimization. Moreover,

Table 3
Summary of hierarchical regression analysis for variables predicting physical workplace violence.

Variable	B	SE	95% CI		p
			LL	UL	
Step 1 (CV)					
Sex	0.413	0.119	0.178	0.647	.001
Age	0.001	0.006	–0.011	0.013	.857
Years in organization	–0.008	0.009	–0.026	0.011	.408
Step 2 (CV and P)					
Sex	0.361	0.124	0.117	0.604	.004
Age	0.006	0.006	–0.006	0.018	.343
Years in organization	–0.011	0.009	–0.030	0.007	.230
PTSD symptoms	0.018	0.010	–0.002	0.037	.074
Neuroticism	0.003	0.018	–0.033	0.039	.854
Extraversion	0.027	0.013	0.002	0.052	.033
Openness	–0.027	0.013	–0.052	–0.003	.031
Agreeableness	–0.001	0.012	–0.025	0.022	.910
Conscientiousness	–0.017	0.014	–0.045	0.011	.230
Step 3 (CV, P and I)					
Sex	0.380	0.122	0.140	0.620	.002
Age	0.007	0.006	–0.005	0.019	.253
Years in organization	–0.011	0.009	–0.029	0.008	.257
PTSD symptoms	0.021	0.011	–0.001	0.043	.058
Neuroticism	0.006	0.018	–0.029	0.042	.724
Extraversion	0.031	0.013	0.006	0.056	.015
Openness	–0.028	0.012	–0.053	–0.004	.024
Agreeableness	–0.002	0.012	–0.025	0.022	.878
Conscientiousness	–0.015	0.014	–0.042	0.013	.297
Neuroticism × PTSD symptoms	–0.004	0.003	–0.009	0.001	.156
Extraversion × PTSD symptoms	–0.001	0.002	–0.005	0.003	.568
Openness × PTSD symptoms	0.004	0.002	0.000	0.009	.073
Agreeableness × PTSD symptoms	–0.005	0.002	–0.009	–0.001	.007
Conscientiousness × PTSD symptoms	0.009	0.003	0.003	0.014	.003

Note. CV = control variables, P = predictors, I = interactions, SE = standard error of B; PTSD = post-traumatic stress disorder; CI = confidence interval; LL = lower limit; UL = upper limit.

unlike previous research that found no association (Glasø et al., 2007; Nielsen et al., 2017) or a positive association between openness and WV (Cawvey et al., 2018), we found a negative association between openness and physical victimization. Individuals lower in openness tend to be more rigid, uncreative, and conventional (McCrae & Costa, 1991). It could be that these personality characteristics are disadvantageous when dealing with forensic patients who are often characterized by severe psychopathology including personality disorders. Moreover, although we did not hypothesize the relationship between openness and WV, our findings are consistent with recent evidence showing that victimization increases as a function of extraversion (Cawvey et al., 2018). Extroverts are at increased risk to be victimized at work,

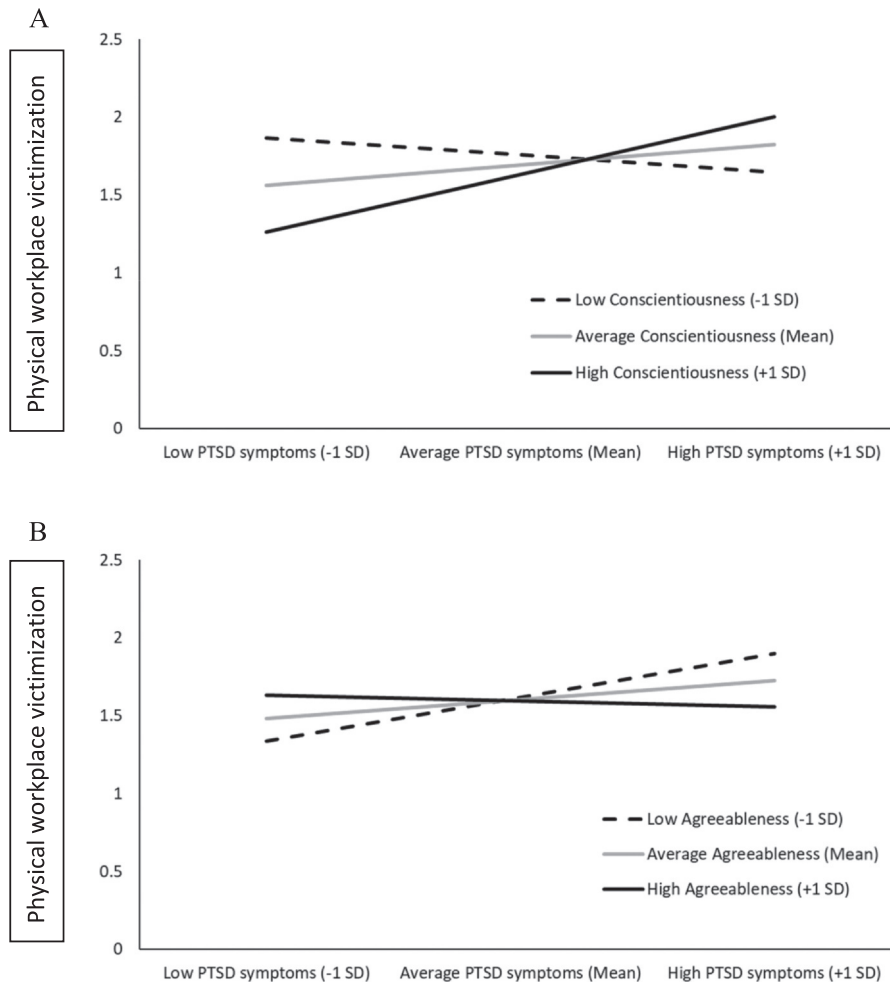


Fig. 1. Plots of simple slopes of the association between PTSD symptoms and physical workplace victimization at high (+1 SD), average (mean), and low (-1 SD) levels of conscientiousness (A) and agreeableness (B).

probably due to their heightened sociability, which may produce more contacts with all types of individuals, including potential perpetrators (Cawvey et al., 2018). They may also annoy others by being too talkative and assertive, which may put them at higher risk to become victims in the workplace (Nielsen & Knardahl, 2015).

Furthermore, we found that agreeableness and conscientiousness significantly moderated the association between PTSD symptoms and physical victimization. Simple slope analyses further showed that PTSD symptoms were positively associated with physical WV, but only at high levels of conscientiousness. For agreeableness, PTSD symptoms were associated with more physical WV in staff members who reported low levels of agreeableness. Highly conscientious individuals are more persistent in the workplace due to their stronger work ethic and higher levels of responsibility relative to those low in this trait (Bipp, 2010). It might thus be that highly conscientious people ignore the presence of PTSD symptoms to meet work goals, which may cause symptoms to even get worse. Consequently, this may lead to an increased likelihood of victimization. Supporting this argument, Bipp (2010) found that highly conscientious employees continued to work despite being ill due to intrinsic factors associated with one's job such as meaningfulness and responsibility. Likewise, persons low in agreeableness tend to be hostile, critical, and overly irritable. Due to some overlapping characteristics between low agreeableness and symptoms of PTSD (e.g., irritability, anger outbursts), it might be that low agreeableness exacerbates symptoms of PTSD and as such strengthens the link between PTSD symptoms and physical victimization. Another potential mechanism through which low agreeableness might influence the experience of

physical victimization may be due to the fact that low (versus high) agreeable individuals receive less social support (Kitamura et al., 2002; Leskelä et al., 2009) and are therefore less protected against the development of PTSD symptoms. Other personality traits did not have a moderating role in the association between PTSD symptoms and victimization. Consistent with the theory of situational strength, personality may play a larger role in responses to less threatening situations. However, when the situation is more threatening (e.g., violence by patients), the behavior might be so largely directed towards avoiding negative outcomes that it overpowers the influence that personality may have on one's psychological and behavioral responses (Meyer et al., 2009).

The current findings also have several limitations. The study design was cross-sectional, therefore causal conclusions cannot be drawn about the role of PTSD symptoms and personality in the experience of WV. More research is needed to investigate causal links, or temporal sequence, between PTSD symptoms, personality, and WV. This is also relevant to investigate whether the experience of WV can further lead to worsening of PTSD symptoms or changes in personality. Another limitation is the use of self-report data, which are hampered by biased reporting. In addition, the Openness scale showed poor internal consistency and therefore, analyses with this scale should be interpreted with caution. Note that the Openness scale is the least reliable scale in other studies as well (e.g., Murray et al., 2009). Replications with a more reliable measure of openness are warranted.

Despite the above limitations, our findings may have important implications for clinical practice. It is important to implement

prevention programs aimed at raising awareness of the risks associated with working in FPCs. Organizations should encourage employees to report incidents of victimization in the workplace and all reports must be taken seriously and addressed quickly and thoroughly (Lens et al., 2013). For professionals suffering from PTSD symptoms, cognitive behavioral therapy (CBT) can be an effective intervention for treating PTSD symptoms (Monson & Shnaider, 2014) and for improving emotion regulation skills (Yang et al., 2020). It is also important to screen employees who are at risk for WV by patients due to certain personality traits and to offer them (preventive) support that would make them more resilient (e.g., strengthening coping). The findings of the present study may also be relevant to the job selection process, though replication of the current findings is warranted before drawing any firm conclusions about the link between PTSD symptoms, personality, and WV.

In conclusion, the current findings illustrate the importance of considering personality traits and PTSD symptoms when identifying and supporting workers who are at risk of victimization by patients.

Appendix A

Table A.1
Description of data.

Variable	<i>n</i>	Median	Trimmed	Mad	Skew	Kurtosis	SE
1. Years in organization	344	6.00	7.32	6.67	1.33	1.59	0.42
2. Verbal victimization	351	3.00	3.06	1.48	-0.08	-1.21	0.08
3. Physical victimization	351	1.00	1.45	0.00	1.34	0.65	0.05
4. PTSD symptoms	353	27.00	27.16	4.45	1.94	5.73	0.31
5. Age	339	42.00	42.29	16.31	0.10	-1.23	0.66
6. Neuroticism	344	31.00	31.47	2.97	0.21	-0.35	0.18
7. Extraversion	337	41.00	40.54	4.45	-0.19	-0.31	0.27
8. Openness	334	39.00	39.44	4.45	0.14	0.14	0.26
9. Agreeableness	340	46.00	46.32	4.45	-0.19	-0.16	0.27
10. Conscientiousness	338	46.00	45.79	4.45	-0.14	0.20	0.25

Note. *n* = number of valid cases; Trimmed = trimmed mean (with trim defaulting to 0.1); Mad = median absolute deviation (from the median); SE = standard error; PTSD = post-traumatic stress disorder.

Table A.2
Testing for multicollinearity: verbal workplace violence as dependent variable.

Predictor	Collinearity tolerance	Statistics VIF
1. Years in organization	0.580	1.724
2. Age	0.549	1.821
3. PTSD symptoms	0.877	1.140
4. Neuroticism	0.871	1.149
5. Extraversion	0.771	1.297
6. Openness	0.849	1.178
7. Agreeableness	0.876	1.142
8. Conscientiousness	0.768	1.302

Note. PTSD = post-traumatic stress disorder.

Table A.3
Testing for multicollinearity: physical workplace violence as dependent variable.

Predictor	Collinearity tolerance	Statistics VIF
1. Years in organization	0.581	1.721
2. Age	0.550	1.817
3. PTSD symptoms	0.883	1.132
4. Neuroticism	0.866	1.155
5. Extraversion	0.768	1.303
6. Openness	0.856	1.168
7. Agreeableness	0.872	1.147
8. Conscientiousness	0.762	1.313

Note. PTSD = post-traumatic stress disorder.

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M. Jankovic: Writing - original draft, Writing - review & editing, Formal analysis. **J.J. Sijtsema:** Writing - review & editing, Formal analysis, Visualization. **A.K. Reitz:** Writing - review & editing. **E.D. Masthoff:** Writing - review & editing. **S. Bogaerts:** Writing - review & editing, Supervision.

Declaration of competing interest

None.

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