ABSTRACT

Aims and Objectives: To investigate whether internal and external violence are associated with turnover intentions among nurses during a period of extreme duress.

Background: Workplace violence can negatively impact upon mental and physical health, and turnover intentions. Research focusing on how dimensions of workplace violence, internal versus external, influence turnover intentions, and the factors that mitigate these effect is lacking.

Methods: An online cross-sectional survey of multi-item scales was used to collect data from 462 Iranian nurses. We employed path modelling and analyzed the data using SPSS and PROCESS macro. A STROBE checklist was used to report findings.

Results: Both dimensions, internal and external, of violence were positively associated with turnover intentions. Moreover, perceived invulnerability and organizational support moderates this association. When individuals perceive themselves as invulnerable and the organizational support as high internal violence is no longer indirectly related to turnover intentions via job satisfaction while external violence is indirectly and negatively related to intentions to quit.

Conclusions: Nurses who regard themselves as invulnerable might be motivated to quit when they experience workplace violence. However, they are motivated to stay on the job when they both perceive themselves as invulnerable and the organization as supporting.

Relevance to Clinical Practice: Organizations should re-consider their policies and approach towards workplace violence especially during extraordinary times of duress such as during pandemics.

Key words: Workplace violence, job satisfaction, turnover intentions, perceived invulnerability, organizational support, moderated meditation.

What does this paper contribute to the wider global clinical community?

- This study adds to the research on workplace violence and its relationship to turnover intentions.
- Internal and external workplace violence increases turnover intentions via decreased job satisfaction.
- Perceived organizational support and perceived invulnerability negate the direct and indirect effects of internal and external workplace violence on turnover intentions.

1. Introduction

Workplace violence (WPV) against healthcare workers is a major source of concern and a key occupational hazard for frontline healthcare workers (Liu et al., 2019). It includes intimidation, physical or verbal aggression, threats, and sexual harassment that targets healthcare workers in the workplace (Lanctôt & Guay, 2014; J. Liu et al., 2019). As frontline healthcare workers, nurses, in particular, are likely to experience violence (Heponiemi, Kouvonen, Virtanen, Vänskä, & Elovainio, 2014) four times more than other health staff (Chen, Hwu, Lin, & Guo, 2010). Exposure to WPV in turn can lead to an array of negative outcomes for healthcare workers which includes but not limited to poorer health (Kivimaki, 2003); reduced job performance (Zhao et al., 2018) and reduced job satisfaction (Lanctôt & Guay, 2014; Li, Zhang, Xiao, Chen, & Lu, 2020).

The World Health Organization estimates that by 2030 there will be a 50% (18 Million) shortage of healthcare workers globally and low- and lower-middle income countries will be most affected from this shortage (WHO, 2020). Thus, understanding how WPV contributes to this shortage is crucial. To date, most research has considered the direct consequences of WPV on various outcomes. However, research investigating how the impact of WPV on personal and work-related outcomes is influenced by individual and organizational processes is still scarce (but see Havaei, Astivia, & MacPhee, 2020; Zhao et al., 2018). Research on nurses' experiences and how these experiences relate to job turnover intentions during the Covid-19 Pandemic (Fernandez et al., 2020) is scarcer. Understanding the impact of WPV on job turnover intentions among nurses during difficult times such as a pandemic can help to develop effective organizational interventions to combat the WPV and thus to alleviate this paucity especially when nurses are most needed.

1.1 Workplace Violence

Most research to date investigates WPV as a single process. However, WPV can be external, exerted by patients and/or patient companions', or internal exerted by colleagues in the

workplace (Pien, Cheng, & Cheng, 2019). Recent research on WPV suggests that External WPV is mostly physical while internal violence is mostly psychological (Niu et al., 2019). While WPV can have detrimental effects on personal and job related outcomes which include physical, psychological, emotional, work functioning, relationship with patients/quality of care, social/general, and financial (Lanctôt & Guay, 2014). Actually, several lines of research found that WPV, both directly and indirectly (Zhao et al., 2018), and job satisfaction, predicts turnover intentions (Tsai & Wu, 2010). In addition, WPV can also dramatically reduce job satisfaction (Duan et al., 2019; Y. E. Liu et al., 2020); increase burn-out (W. Liu et al., 2018) reduce job performance (Zhao et al., 2018). Interestingly, research so far investigated the effects of general WPV on a number of health and performance outcomes and did not tear out the internal versus external WPV. Thus, not much is known whether these two different dimensions have differential effects on work environment-related outcomes. More importantly, much uncertainty still exists whether they are influenced by the same mitigating factors, i.e. workplace environment, in the same manner.

1.2 Individual and Organizational Processes Influencing Turnover Intentions

Preliminary research shows that several processes such as organizational climate, positive management style, and empowerment (L. J. Hayes et al., 2012) might alleviate the negative impacts of workplace violence on health and work-related outcomes (Duan et al., 2019; W. Liu et al., 2018)). Some of these processes, individual and organizational psychological, may also act as antecedents of turnover intentions. At the individual level, for instance, burn-out, low levels of resilience, lack of physical health (Guo et al., 2019), fatigue (Austin, Fernet, & Trépanier, 2020), deficiency in collegial support, and organizational stressors, e.g., lack of control, work-life imbalance (Hoeve, Brouwer, & Kunnen, 2020) predict increased turnover intentions.

Conversely, positive social relations with other colleagues (Pham et al., 2019), affective commitment (Perreira, Berta, & Herbert, 2018); intentions to improve professional capabilities (H. Y. Chang et al., 2019); decision authority, i.e., having the authority to engage in decision making (Mckenna & Jeske, 2021); job satisfaction (Al-Hamdan, Manojlovich, & Tanima, 2017; H.-Y. Chang et al., 2021); organisational justice (Perreira et al., 2018); practice environment (Cheng & Liou, 2011); organizational citizenship behaviour (Tsai & Wu, 2010); and robot induced professional task engagement predict reduced turnover intentions.

This research however suffers from a demarcation problem in the sense that individual, empowerment, individual disposition, or resilience (Guo et al., 2019), and organizational, work climate, positive management, organizational commitment, job satisfaction (Cheng & Liou, 2011) and organizational support, are lumped together as organizational or psychosocial environmental factors (Li et al., 2010; Hayes et al., 2012).

In reality, these processes are rooted in subjective experiences in relation to the individuals themselves, e.g., empowerment, commitment, resilience, or to the work environment, e.g., job satisfaction, perceptions of fair treatment (Perreira et al., 2018). Accordingly, these processes differ from objective organizational factors such as working hours, experience in years, career advancement, and benefits (Hayes et al., 2012). In the present research, we focus on the role of unpacking these processes and focus on subjective experiences of individuals, perceived invulnerability, environmental, organizational support, conditions to advance a more nuanced understanding of the factors that mitigate the impact of WPV on turnover intentions.

Perceived organizational support, i.e., beliefs about organisations' positive view of nurses' contributions and having measures to protect their interests (W. Liu et al., 2018) is positively associated with turnover intentions via affective commitment and job satisfaction. In a similar vein perceiving the organization as supportive was negatively and directly (Abou

Hashish, 2017) and indirectly via personal sacrifice and job fit (Dawley, Houghton, & Bucklew, 2010) among bank employees and manufacturing workers, respectively.

While most of the existing research conceptualizes perceived organizational support as a mediating process, most recent research suggests that, as a subjective experience of the workplace perceived organizational support can also moderate the impact of WPV on several outcomes. Havaei and her colleagues (2020) for instance found that when workplace conditions are perceived as more positive, the impact of WPV on emotional exhaustion increases. Relatedly, the indirect effects of WPV on musculoskeletal injuries, anxiety disorders, and sleep disturbances via emotional exhaustion increased.

Although counterintuitive and contradictory to findings from research which shows that a positive work environment is related to positive patient care (Stimpfel et al, 2016); improved physical and mental health among nurses (Pien et al., 2019; Zhang et al., 2019) these findings are noteworthy for demonstrating that work environment conditions can alleviate or reinforce the negative impact of WPV on how individual reactions among nurses (Havaei et al., 2020). We extend this line of work by differentiating between internal versus external violence and focusing specifically on perceived invulnerability and perceived organizational support. As Havaei and her colleagues (2020) discuss extensively, workplace conditions is a rather broad concept that might include but not limited to staffing and resource adequacy, nurse-physician relations, nursing leadership, participation in hospital affairs, and nursing foundation of care delivery (Havaei et al., 2020; Havaei, MacPhee, & Dahinten, 2019). Thus, it might be difficult to know which one of these dimensions is more relevant if they are collapsed and measured together. Building on this line of work which shows that workplace conditions, including organizational support, could be conceptualized as a moderator rather than a mediating process, we conceptualize organizational support as a moderating process.

Specialized models of occupational health also argue that both cognitive appraisal and individual characteristics such as hardiness, an aggregate of control, challenge, commitment (Kobasa, 1979), and individual perceptions of self-efficacy (Bandura, 1986) can influence how individuals respond to taxing conditions.

In this sense, perceptions of invulnerability, i.e., a personal fable of physical and psychological immunity to distress and harm, is a process par excellence that allows the individual to reappraise her individual capacity to endure the challenge positively (Lapsley, 2003; Lapsley & Hill, 2010). In fact, preliminary research shows that perceiving oneself as invulnerable can counter-indicate depression and improve self-esteem as well as adaptation (Hill, Duggan, & Lapsley, 2012); and might trigger a sense of safety and security.

Surprisingly, a review of the existing literature revealed only a few studies on the alleviating effects of invulnerability in the workplace. Dorn and Brown (2003) conducted a qualitative study to investigate how a carefully calculated awareness of hazards informs a sense of invulnerability and being a member of *special group* among members of the UK police force. Another study investigated the role of "personal fables", a pervasive unrealistic belief of one's uniqueness, omnipotence, and being invulnerable to harm (Bright, McKillop, & Ryder, 2008). Taken together, these scarce results imply that perceived invulnerability is a relevant and under-researched process that might be an important protective factor against the negative effects of WPV.

In the present research, therefore, we take a further step towards understanding the role of perceived invulnerability in nurses' responses to WPV during the Covid-19 pandemic. We hypothesize that perceived invulnerability should moderate both the association between dimensions of violence and job satisfaction as well as the association between dimensions of violence and job satisfaction and turnover intentions.

1.3 Aims of the study

Based on the review of the research we presented above, we derive 6 hypotheses. First, we hypothesized that both external and internal violence would directly and positively predict turnover intentions (Hypothesis 1, H1; Chang, Lee, Chang, Lee, & Wang, 2019; W. Liu et al., 2018; Yeh, Chang, Feng, Sclerosis, & Yang, 2020; Zhao et al., 2018). We also hypothesized that both types of violence would negatively predict job satisfaction (Hypothesis 2, H2; Li, Zhang, Xiao, Chen, & Lu, 2019; Li et al., 2020; W. Liu et al., 2018)). We further hypothesize that job satisfaction will negatively predict turnover intentions to quit (Hypothesis 3, H3). Since both types of violence would negatively predict job satisfaction, which in turn, would negatively predict intentions to leave, we also conclude that both external and internal violence would indirectly and positively predict turnover intentions via reduced job satisfaction (Hypothesis 4, H4). Previous research has shown that perceiving the organisation as having a positive view of nurses' contributions and existence of mechanisms to protect nurses, i.e., perceived organizational support, could positively predict job satisfaction, affective commitment and intentions to stay on the job (Abou Hashish, 2017; Dawley et al., 2010; W. Liu et al., 2018). Therefore, we further hypothesize that when nurses perceive the organizational support as high, neither internal nor external violence of WPV would influence their intentions to quit. More specifically, higher perceived organizational support will annul the positive effects of WPV on intentions to quit (Hypothesis 5, H5; Djurkovic, McCormack, & Casimir, 2008)). Last but not least, we also expected perceived invulnerability to have a similar moderating effect on the WPV-job satisfaction-turnover intentions path. When nurses nourish a positive personal fable of invulnerability, i.e., perceived invulnerability both types of WPV would not predict turnover intentions (Hypothesis 6, H6; Bright et al., 2008; Dorn & Brown, 2003; Lapsley & Hill, 2010).

In doing so, we provide a more detailed account of WPV and its negative impact on turnover intentions among key frontline healthcare workers, i.e., nurses in an under-researched context, Iran, during a period of considerable pressure and risk.

[Figure 1 about here]

2. Methods

2.1 Study Design and Participants

Data for the current study were collected through an online cross-sectional study conducted from 12 June to 16 August of 2020. The designed questionnaire was posted on the online social networks distributed among those addressing the nurse issues. Besides, we asked those who took part in the study to share the survey with their colleagues and acquaintances who are active in the profession. Altogether 462 nurses participated across the country (313 $M_{Age} = 31.6$ SD = 8.78). Most of the approached nurses held a BA (85%), while others reported Masters and Ph.D. degree. Four participants did not report their level of education. We report the demographics in Table 1.

2.2 Survey

We used multi-item measures tested and validated by previous research to assess our variables of interest. All items were measured on a 7-point Likert-type scale anchored 1 (strongly disagree) to 7 (strongly agree). Thus, higher scores indicated higher perceived internal and external violence, higher perceived invulnerability, organizational support, job satisfaction, and turnover intentions (See Appendix for a full list of the items).

Internal violence was measured by four items adapted from the Korean workplace violence scale (Kim et al., 2018). We asked the respondents to report that how often they have experience violent episodes by their colleagues or bosses. A sample item reads, 'I have heard bad things at the workplace such as insults, accusations, shouting from my boss and/or my colleagues' ($\alpha = .82$).

External violence was measured by four items adapted from the Korean workplace violence scale (Kim et al., 2018). The respondents reported the frequency at which they experienced violent episodes by patients and/or their companions, e.g., I have heard bad things such as unpleasant accusations or have been shouted at by patients and/or their companions during my work' (α = .81).

Job Satisfaction was measured by 19 items adapted from the Minnesota job satisfaction questionnaire (Weiss et al., 1967). Thus a sample item reads as 'in this hospital, welfare facilities are distributed fairly among the staff' (α = .91).

We measured *perceptions of invulnerability* by three items adapted from Lapsley (2003). The participants were asked to report that how much they agree with the following items: 'there are times when I think we are indestructible'; 'special problems, like getting an illness or disease, are not likely to happen to us'; and 'nothing can harm us'. The reliability value of initial three-item scale was not satisfying (α = .61), therefore, we decided to drop the first item and proceed with two remained items (α = .75).

We used 12 items adapted from Kim et al. (2018) to measure *organizational support.* The respondents were asked to mention that to what extent they agree with statements on organisational support. Thus, a sample item read as 'in the event of violence from colleagues or bosses in the workplace, there are internal established regulations' (α = .94).

After reviewing the existing research on turnover intentions (Austin et al., 2020; Y. P. Chang et al., 2019; Kirschenbaum & Weisberg, 2002), we decided to design our own turnover intentions to best reflect the cultural and situational context. Thus, we created four questions to measure turnover intentions. A sample item reads, 'If an opportunity come up, I am ready to leave my job'. Cronbach's alpha test result showed that the scale has high reliability (α = .91).

2.3 Data Analysis

All statistical analyses were performed using the SPSS version 24.0 and PROCESS macro version 3.4.1 (Hayes, 2018). We created composite continuous variables from multi-item scales. We then checked for outliers, collinearity of data, independent errors, random normal distribution of errors, homoscedasticity & linearity of data, and non-zero variances. Results revealed that there are no outliers (Standard Residual Min = -2.64, Std. Residual Max = 2.47) and the data did not have multicollinearity as none of the composite variables had tolerance smaller than .497 and VIF value higher than 2.163. Next, we tested for independent errors (Durbin-Watson value = *1.97),* random normal distribution of errors, homoscedasticity & linearity of data, and non-zero variances (Lowest variance .976 highest variance 3.58). Having assured that our data met the assumptions for analysis, we then used it to test our proposed theoretical model.

2.4 Ethical Considerations

(BLINDED) Central Research Ethics Committee approved this study (BLINDED) and all research conducted in compliance with the 1964 Helsinki Human Rights Declaration and its later amendments.

3. Results

3.1. Demographics

Altogether, 462 nurses participated in the current study. An a priori power analysis using G-Power (Faul et al., 2009) revealed that to detect a small effect size (F=.05), with alpha at .05, revealed that we need at least 402 participants to test our current model with 5 predictors. As shown in Table 1, most of the approached sample were female, accounting for 67.7 of all (while 3.4 % of respondents chose not to express their gender). The high proportion of females in our sample does not seem problematic since, according to recent statistics, 78% of the net population of Iranian nurses has been female (Fardanews, 2021). Furthermore, the study

population was fully educated (all hold Bachelor or above), while they reported their work experience ranged from under 1 year to 29 years (M = 5.49 SD = 5.80).

Additionally, more than half of respondents put their social status under the middle-class category (53.7 %). Most respondents worked at state-based hospitals (81.2 %), while 39 of nurses worked at both state-based and private hospitals (8.4%). Moreover, our results depict that near 40% of our participants were expected to contact frequently with the Covid-19 positive cases due to their working sections, e.g., emergency, infection control, or newly established sections exclusively for Covid-19 patients. Other approached respondents belonged to units, e.g., neonatal and oncology, at risk of Covid infection, possibly in lower levels than the former group. We did not have any missing data.

[Table 1 about here]

3.2. Descriptive Statistics and Model Testing

We report the descriptive statistics and the correlations between our variables in Table 2. Unless otherwise stated, all values are reported as unstandardized. As can be seen, the mean score for external violence was higher than internal violence from colleagues (M = 4.50 vs. 3.74; SD = 1.54 and 1.48, respectively).

We hypothesized that both dimensions of WPV, external versus internal, would directly and positively predict turnover intentions (H1) and job satisfaction (H2); job satisfaction in turn would negatively predict turnover intentions (H3); both external and internal WPV would indirectly and positively predict turnover intentions via reduced job satisfaction (H4). Last but not least, both perceived organizational support (H5) and perceived invulnerability (H6) will moderate WPV-job satisfaction-turnover intentions paths.

Accordingly, we first tested a simple mediation model in which we entered internal and external violence as independent variables, job satisfaction as mediating variable, and

turnover intentions as criterion variable. Results showed that neither internal violence (B = -0.11, p = 0.158, CI 95% [-0.043 to 0.262]) nor external violence (B = 0.08, p = 0.390, CI 95% [-0.07 - 0.39]) directly predicted turnover intentions Thus, we rejected H1. Next, internal violence (B = -0.07, p = 0.0251, CI 95% [-0.13 to -0.09]) but not external violence (B = 0.01, p = 0.701, CI 95% [-0.04 to 0.06]) predicted job satisfaction. These results only partially confirmed H2. Job satisfaction, on the other hand, negatively predicted (B = -0.69, p < 0.001, CI 95% [-0.919 to -0.463]) turnover intentions and confirmed H3. Tests of indirect effects revealed that neither internal nor external WPV has any indirect effects on turnover intentions via job satisfaction. We rejected H4.

3.3 Moderated Direct Effects and Moderated Mediation Tests

We hypothesized that any possible direct and indirect effects of external and internal violence on turnover intentions via job satisfaction would be moderated by perceived organizational support (H5) and perceived invulnerability (H6). Therefore, we followed Hayes's procedure (2018) to test the moderating effect of perceived invulnerability and organizational support on both direct and indirect, via job satisfaction, effects of internal and external violence on turnover intentions. We used PROCESS to test our moderated mediation hypotheses. PROCESS (A. F. Hayes, 2012) is an add-on macro to SPSS. It allows testing a range of complex mediation and moderation tests via click and run approach without manually creating interaction variables and provides confidence intervals to assess the effects of the automatically created variables. Thus we first tested whether the direct and indirect, via job satisfaction, effects of internal and external WPV on turnover intentions differ at different levels of each of our moderating variables, perceived organisational support and perceived invulnerability. The effects are significant when the calculated confidence interval does not include zero (A. F. Hayes, 2018). Results showed that organisational support positively moderated the external WPV –job satisfaction (B = 0.047, CI 95% [0.014, 0.081]). External WPV and internal WPV

–job satisfaction (B = 0.044, CI 95% [0.009, 0.078]) whereas perceived invulnerability positively moderated the external WPV-job satisfaction (B = 0.042, CI 95% [0.011, 0.073]); the internal violence- leave intentions (B = 0.106, CI 95% [0.033, 0.179]); and the job satisfaction-leave intentions (B = 0.120, CI 95% [0.020, 0.226]) paths. These results revealed that the effect sizes of internal and external WPV on job satisfaction paths change at different values of both moderators, organizational support and perceived invulnerability, and the effect size of internal violence on turnover intentions, and effect size of job satisfaction on turnover intentions change at different values of perceived invulnerability.

Having observed that perceived organizational support and perceived invulnerability moderated two paths, external violence – job satisfaction and internal violence-job satisfaction simultaneously, we wanted to test the full conceptual model presented in Figure 1. Again we used PROCESS to test the effects of moderator 1, perceived organizational support on external and internal WPV–job satisfaction, paths and effect of Moderator 2, perceived invulnerability, on external and internal WPV- job satisfaction, job satisfaction –turnover intentions, and external and internal WPV – turnover intentions paths. Thus, we tested the combined moderating effects of perceived organizational support and perceived invulnerability in the same model. We report the full results of moderated mediation and the levels of moderated associations between variables at different levels of our moderators in Table 3. We report the exact p values and the CI for direct effects. When an indirect effect is moderated by more than one moderator PROCESS does not provide an index of moderated mediation (Hayes, 2018). So, for our moderated mediation effects, we provide the CIs only.

[Table 3 about here]

The direct effect of internal WPV on turnover intentions is non-significant (B = -03, p = .680) when perceived invulnerability is 1 standard deviation (SD) below the mean. This effect increases and changes direction (B = 0.12, p = .112) but it is still non-significant when

perceived invulnerability is at mean (1.51) and becomes positive and significant (B = .27) when perceived invulnerability is at 1 SD above the mean (3.93). More specifically, internal WPV positively predicts turnover intentions when nurses perceive themselves as more invulnerable. In a similar vein, the direct effect of external violence on turnover intentions is non-significant (B = -02, p = .740) when perceived invulnerability is 1 standard deviation (SD) below the mean. This effect increases and changes direction (B = 0.06, p = .410), but it is still non-significant when perceived invulnerability is at mean (1.51). It shows the same trend as the effect of internal violence when perceived invulnerability is at 1 SD above the mean (3.93) but falls short of the significance level.

As for the mediation effects, results showed that indirect effects of internal and external WPV are annulled for the former and reversed and strengthened for the latter when both moderators are at 1 SD above the mean. More specifically, the indirect effect of internal WPV is positive and significant (B = 0.14) when perceived organizational support and perceived invulnerability are 1 SD below the mean (2.13 and 1.08, respectively). It then decreases (B = 0.06), but it is still significant when both moderators are at mean (3.36 and 1.15, respectively) and disappears (B = 0.01) when both moderators, perceived organizational support, and perceived invulnerability are at 1 SD above the mean (4.60 and 3.93, respectively).

The same trend is observed for the indirect effect of external WPV on turnover intentions. The indirect effect is positive, but unlike the effect of internal WPV, it is non-significant (B = 0.04) when perceived organizational support and perceived invulnerability are 1 SD below the mean (2.13 and 1.08, respectively). It then decreases and changes direction (B = -0.02), but it is still non-significant when both moderators are at mean (3.36 and 1.15, respectively). Unlike the indirect effect of internal WPV, however, the indirect effect of external WPV becomes negative and significant (B = -0.06) when both moderators are at 1 SD above the mean (4.60 and 3.93, respectively). More specifically, nurses' turnover intentions

resulting from external violence via job satisfaction decrease when they perceive higher levels of organizational support and invulnerability.

4. Discussion

The present study was designed to determine the effect of workplace violence on the turnover intentions among Iranian nurses during the Covid-19 outbreak. We aimed to investigate whether external versus internal violence has differential effects on turnover intentions and whether these effects are mitigated by the same factors. As expected, we found important differences. Our initial findings revealed that only internal violence was associated with turnover intentions. Participants who reported experiencing external violence were more likely to leave their jobs via decreased job satisfaction. This also accords with previous research which shows that job satisfaction mediates the effect of WPV (Applebaum, Fowler, Fiedler, Osinubi, & Robson, 2010; Gebregziabher, Berhanie, Berihu, Belstie, & Teklay, 2020) on health and workplace outcomes.

Unpacking these finding, results revealed perceived invulnerability moderated the direct effect of internal violence on turnover intentions. That is, nurses were more motivated to leave their jobs when they experience internal violence only when they perceive themselves as more invulnerable. We detected a similar trend for external violence, but this did not reach level of significance. Taken together these results are in line with research by Havaei and her colleagues (2020), which shows that a healthier workplace environment might further deteriorate the negative effects of WPV on job related outcomes; more communication satisfaction and decreased turnover intentions (Özer, Şantaş, Şantaş, & Şahin, 2017); and intentions to stay committed (Purdy et al., 2010). Previous research also shows that psychological empowerment is associated with improved patient care, job satisfaction, and care quality (Purdy et al., 2010). Our results show that perceived invulnerability, as a proxy of

empowerment, might have converse effects. When nurses perceive themselves invulnerable and the conditions as unlikely to change they might consider quitting as an exit strategy.

Next, we considered whether both organizational support and perceived invulnerability moderated the indirect effects of both types of WPV on turnover intentions. The results revealed that positive indirect association between internal violence and turnover intentions becomes non-significant when nurses perceived stronger organizational support and perceived themselves as invulnerable. A similar effect was also present on the indirect association between external violence and turnover intentions. Taken together, the findings imply that the relationship between both types of WPV and turnover intentions are influenced by both individual, i.e., perceived invulnerability, environmental, i.e., organizational support, experiences (L. J. Hayes et al., 2012). Previous research shows that positive mood and positive disposition (Judge, 1993) as individual level processes moderate the job satisfaction and turnover intentions. Our results show that perceive invulnerability can also moderate the (indirect) association of both types of WPV with turnover intentions. More importantly, we show that individual experiences, i.e., perceived invulnerability, exert this influence in interaction with the experiences of environmental factors, perceived organizational support. Future research should strive to consider a variety of individual versus environmental factors simultaneously to provide a more comprehensive account of how WPV influences turnover intentions.

Consistent with our expectations, the findings indicated both types of workplace violence are associated with turnover intentions. However, these associations are mediated by job satisfaction. Importantly, our findings confirm the moderating role of perceived invulnerability and organizational support in the relationship between dimensions of WPV and turnover intentions. One of the most important relevant findings was that at the specific values of moderators, that is, high levels of organizational support and group-based invulnerability,

experiencing external violence had a positive impact on job satisfaction and then negative on the turnover intention. Another important finding was that violence imposed by colleagues move people to leave their job mostly at the low and mean levels of organizational support.

Our findings, contrary to the previous studies which show a consistently negative impact of workplace violence on job satisfaction (Duan et al., 2019; J. Liu et al., 2019), imply that when individuals perceive themselves as invulnerable and perceived the organization as supporting experiencing violence leads to positive outcomes for the job satisfaction. A possible explanation for this might be that time of occurrence of violent behavior is the time of proving actual supportiveness. Consequently, when the organization demonstrates its supportiveness in practice, the nurses feel more committed to the organization. On the other hand, it is likely that a sense of invulnerability fuels the resistance of nurses against workplace difficulties. The consistently negative effects of internal violence on job satisfaction and turnover intentions may lie in the fact that violence imposed by colleagues, as shown, exerted stronger effects, and consequently the organizational support is not powerful enough to alleviate the impacts of such violence. The stronger effects of violence imposed by colleagues may also be explained by referring to the long periods that nurses are supposed to pass with their colleagues at the workplace. Hence, the probable violent behavior by colleagues, as the permanent residents of the workplace, potentially mitigate the quality of work-life as well as job satisfaction.

5. Limitations

Novelty of our findings notwithstanding, they should be interpreted with caution for several reasons. First, our data were collected during the outbreak when nurses were under duress. This might have delineated the associations between our variables of interest. Future research could investigate this by incorporating measures of pandemic related perceived risk, anxiety, and stress. Alternatively, research can also investigate whether these conditions are less likely to occur in other conditions. Therefore, further research in less stressful contexts can

provide grounds for comparative works leading to more generalizable theories. Second, we used cross-sectional data and recruited Iranian nurses only. Thus our results represent a snapshot of the processes we measured at a point in time and in Iran. As many countries are experiencing a second or a third wave of Covid-19, future research could employ longitudinal designs in several contexts for a more comprehensive and causal understanding of the processes we document here. Qualitative research on the moderating effects of invulnerability would also be very informative. Last but not least, we used snowball technique and collected data online. Thus we cannot conclude whether these results can be generalized to those outside the social network of our participants or those who have restricted access to the internet in remote parts of the country. However, despite these limitations, we believe we bring both fresh and good news on how WPV influences turnover intentions and how its negative effect can be mitigated.

6. Conclusion

The present research shows that dimensions of workplace violence have differential negative outcomes for turnover intentions, especially during periods of extreme duress. More specifically, internal violence from colleagues can trigger a desire to leave the job and therefore can have dramatic effects on healthcare support, especially during a pandemic. The findings also reveal that individual subjective experiences of personal capacities and the work environment can overturn these negative effects. Organizations should therefore adapt a dual-pathway approach to mitigate the effects of WPV on turnover intentions. These might include implementing preventive policies to reduce both dimensions of WPV such as regular risk and threat assessment, increasing safety measures, clear and easy to follow procedures to report WPV as well as institutional support policies, e.g. supervisor support, easy-to-implement complain mechanisms, counselling and treatment programs, in the aftermath of WPV.Moreover, due to the stronger effects of internal WPV, organisations need to take

supportive policies into practice with a specific focus on those situations that violence is imposed by colleagues, possibly harder to report, less possible to prove.

7. Relevance to Clinical Practice

Our findings show that different dimensions of workplace violence are important factors in retaining frontline nurses during a much needed time. Although exposure to workplace violence can have dramatically negative effects on public health by reducing the frontline workforce our findings are encouraging in that we show how perceptions of organizational support and invulnerability negate these effects. We urge the governments and institutions to take the impact of workplace violence on the retention of frontline workforce seriously and put more emphasis on protective factors at the institutional level. We also emphasize the importance of individual subjective experiences in alleviating the negative impact of workplace violence. Thus, we encourage nurses to actively consider their skills and contributions to public health. Last but not least, our findings encourage more research on the positive impact of subjective experiences of invulnerability.

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Table 1. Demographic characteristics of the participants (n = 462).

Characteristic		n	%
	Male	132	28.6
	Female	313	67.7
	Not To Express	17	3.7
Education Level	Bachelor	394	85.3
	Master	61	13.2
	PhD	7	1.5
Type of Hospital	State-based	375	81.2
	Private	48	10.4
	Both	39	8.4
Marriage Status	Single	189	40.9
	Married	248	53.7
	Divorced	13	2.8
	Others	12	2.6
Social Status	High	7	1.5
	Above Middle	80	17.3
	Middle	248	53.7
	Below Middle	104	22.5
	Low	23	5.0

Table 2 Descriptive Statistics (Means and Standard Deviations) and Bivariate Correlations of the Variables in the Model.

Measure	1	2	3	4	5	6
1. E. Violence						
2. I. Violence	.691[.635,.737]					
3. P. Invulnerability	-.195[-.278,-.109]	-.148[-.234,-.052]				
4. O. Support	-.218 [-.302,-.129]	-.291[-.393,-.188]	.272[.182,.355]			
5. J. Satisfaction	-.218[-.314,-.124]	-.296[-.389,-.202]	.308[.215,.397]	.702[.635,.760]		
6. I. to Quit	.200 [.106,.290]	.229[.126,.324]	-.241[-.326,-.149]	-.271[-.356,-.179]	-.398[-.476,-.314]	
Mean	4.50	3.74	2.51	3.36	3.68	4.12
Standard Deviation	1.54	1.48	1.42	1.23	.98	1.89

Valid *N* (listwise) 462. All variables on a scale ranging from 1– 7.

* $p < .01$, ** $p < .001$, one-tailed

Table 3. Conditional direct and indirect effects of internal and external violence on turnover intentions at different levels of organizational support and perceived invulnerability.

Predictor		Levels of O Support	Levels of P Invulnerability	95% CI
	Direct Effect B (SE)			
I Violence	-0.16 (0.11), p = 0.178			-0.38 to 0.07
P Invulnerability	-0.99 (0.26), p = 0.002			-1.50 to -0.47
I Violence x P Invulnerability	0.11 (0.04), p = 0.03			0.04 -0.18
	R^2 = 45.6 F(6,455) =19.96, p =0.00			
	-0.03 (0.09), p = .680		(−1SD) 1.08	-0.21 -0.13
	0.12 (0.07), p = .119		(Mean) 1.51	-0.03 -0.27
	0.27 (0.10), p = .005		(+1SD) 3.93	0.08 -0.46
	Indirect Effect via Job Satisfaction			
	0.14	(−1SD) 2.13	(−1SD) 1.08	0.06 – 0.23
	0.06	(Mean) 3.36	(Mean) 1.51	0.01 – 0.12
	0.01	(+1SD) 4.60	(+1SD) 3.93	-0.03 -0.07
E Violence	Direct Effect			
	-0.02 (0.08), p = .740		(−1SD) 1.08	-0.19 -0.14
	0.06 (0.07), p = .410		(Mean) 1.51	-0.08 -0.20
	0.14 (0.09), p = .111		(+1SD) 3.93	-0.03 -0.33
	Indirect Effect via Job Satisfaction			
	0.04	(−1SD) 2.13	(−1SD) 1.08	-0.023 – 0.13
	-0.02	(Mean) 3.36	(Mean) 1.51	-0.04 – 0.06
	-0.06	(+1SD) 4.60	(+1SD) 3.93	-0.12 to -0.01

Note: All coefficient values reported as unstandardized; SE, Standard error; CI, Confidence intervals.

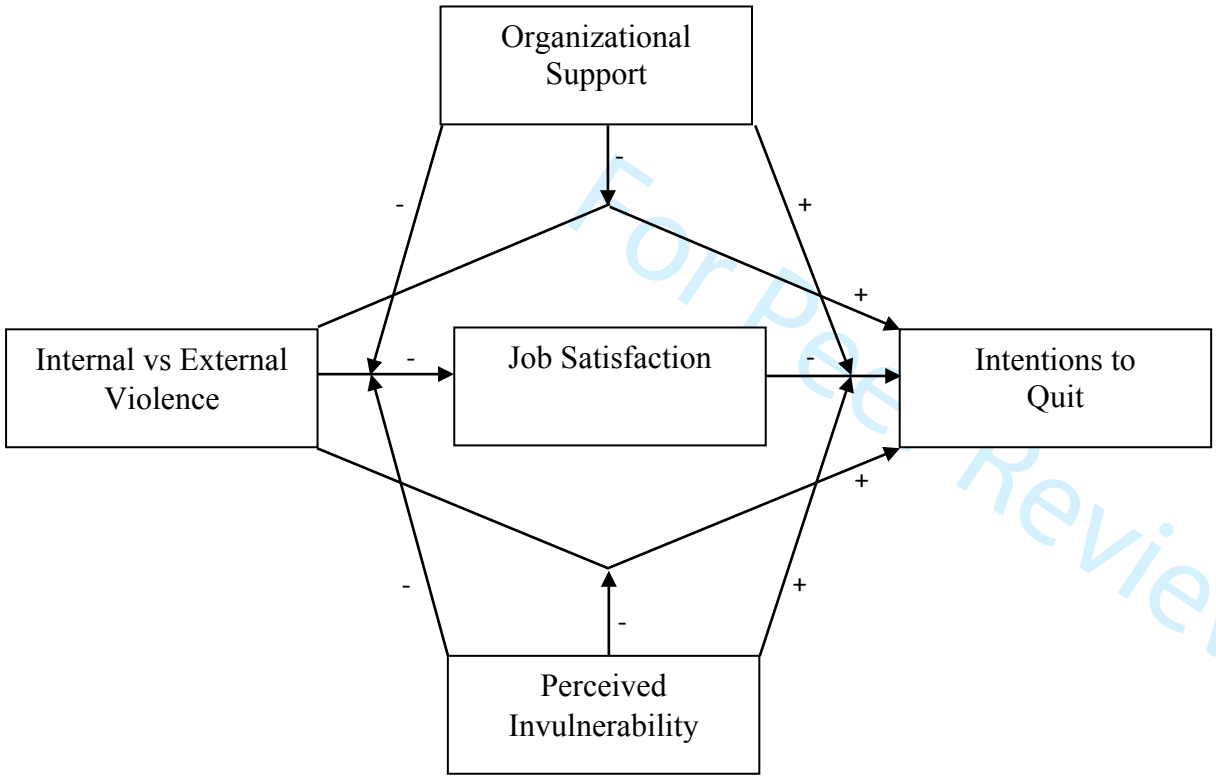

Figure 1. Conceptual Model of Study

STROBE Statement—Checklist of items that should be included in reports of ***cross-sectional studies***

	Item No	Recommendation	Page No
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	Title page
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	1
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	1
Objectives	3	State specific objectives, including any prespecified hypotheses	1
Methods			
Study design	4	Present key elements of study design early in the paper	8
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	8
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	8
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	9
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	9
Bias	9	Describe any efforts to address potential sources of bias	NA
Study size	10	Explain how the study size was arrived at	10
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	9
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	10
		(*b*) Describe any methods used to examine subgroups and interactions	10
		(*c*) Explain how missing data were addressed	10
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	8
		(*e*) Describe any sensitivity analyses	NA
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	8
		(b) Give reasons for non-participation at each stage	NA
		(c) Consider use of a flow diagram	8
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	8-11
		(b) Indicate number of participants with missing data for each variable of interest	NA
Outcome data	15*	Report numbers of outcome events or summary measures	1
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	16

		(*b*) Report category boundaries when continuous variables were categorized	NA
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	NA
Discussion			
Key results	18	Summarise key results with reference to study objectives	17
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	19
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	17-19
Generalisability	21	Discuss the generalisability (external validity) of the study results	19
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	21

*Give information separately for exposed and unexposed groups.

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