

Original Article

The Effect of the Violence Types Encountered by Emergency Nurses on their Burnout Levels: A Systematic Review and Meta-Analysis

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Abstract

Background: Since patients brought to the emergency department usually require urgent medical intervention and uncertainties worry them and their relatives, emergency services are stressful environments for patients and their relatives. In this regard, emergency services are places with a high incidence of violence and cause burnout for employees.

Objective: This study aims to determine the effect of the types of violence emergency room nurses face on burnout using the meta-analysis method.

Methodology: The study was conducted with the meta-analysis method, one of the quantitative research methods. While scanning, Turkish and English equivalents of the words "emergency service," "nurse," "violence," and "burnout" were used.

Results: A total of 3823 articles were found, and ten articles were found to be suitable for inclusion criteria and were included in the study. CMA 3 statistical program was used in the analysis of the data. The Q test was used to test the heterogeneity of the studies included in the study, and the effect size model was determined as a random effect model. The funnel plot method was used to determine publication bias. The total sample number of the ten studies included was 4412. As a result of the heterogeneity test applied to the studies, it was determined that experiencing violence showed heterogeneous characteristics. As a result of the publication bias test, it was determined that there was no publication bias.

Conclusions: According to the random effect model, it was determined that the nurses who experienced violence at a severity level of 95% experienced 2.5 times more burnout than those who did not (Odds ratio= 2,590> +1).In addition, it was determined that nurses who experienced verbal violence experienced 4.3 times more burnout than nurses who experienced physical violence. It was determined that burnout increased in people exposed to violence compared to those who were not.

Keywords: Emergency service, nurse, violence types, burnout level, meta-analysis

Introduction

Healthcare institutions are one of the areas where workplace violence is most common (Camci and Kutlu, 2011). Workplace violence is also known as a global epidemic that negatively affects healthcare personnel and service provision. Workplace violence has become increasingly common in the health services sector in recent years, especially in emergency services (Aslan et al., 2005; Lee et al., 2020). Emergency services are stressful environments for patients, their relatives, and healthcare professionals. The stress created by the unknown also increases anxiety and

tendency towards violence in patients and their relatives. For these reasons, it is stated that emergency service staff are disproportionately at risk compared to other healthcare personnel in incidents of violence perpetrated by patients and their relatives and that there is an increase in violent incidents day by day (Aslan et al., 2005; Lee et al., 2020).

This study aims to determine the statistical dimensions of the effect of the violence encountered by emergency nurses on their burnout levels by meta-analysis.

Methodology

Scopus, ScienceDirect, PubMed, Medline, National Thesis Center, University Library catalog, and databases were used in the study. Within the scope of the research, master's and doctoral theses published in Turkish or English languages in the last twenty-one years (2000-2021), master's and doctoral theses, and scientific articles published in national or international refereed journals and national books were included. The words "emergency," "nurse," "types of violence," and "burnout level" and their Turkish equivalents were used in the search. This study is registered in the PROSPERO (The International Prospective Register of Systematic Reviews) database with protocol number (ID= CRD42021287661).

Inclusion Criteria for the Study: The inclusion criteria include having quantitative data on the burnout level of nurses, being published in Turkish and English, having a sample of nurses or the number of nurses working in the emergency service, having access to full texts, and having full statistical results to calculate the effect size.

Exclusion criteria: Congress presentations and papers, studies using qualitative research methods, studies conducted other than emergency nurses, studies that did not have the statistical data required for meta-analysis, and studies that did not measure burnout were not included in the study.

Data Collection Process: In the study, master's and doctoral theses published in Turkish or English, scientific articles published in national or international refereed journals, and national books were used. A total of 3823 studies were detected and analyzed. When these studies were examined, it was found that 1278 studies were articles that were not in English or Turkish not in their language, 101 studies were duplicate articles obtained from different databases, 720 articles did not contain quantitative data, 411 articles did not have a distinction as nursing profession, 372 of the studies did not distinguish emergency services, the full text of 152 articles could not be accessed, 351 articles did not distinguish the number of nurses, 428 articles were not related to burnout. This study was conducted with ten (10) articles that met the inclusion criteria (Figure 1).

Ethics Approval: Since the research was conducted as a meta-analysis study, the literature review model was used. Based on the literature review, Ethics Committee approval was not obtained for the research as it did not involve a direct intervention or effect on animals or humans.

Statistical Analysis: In the study, the licensed Comprehensive Meta-Analysis 3 (CMA 3) CMA3264 version program was used to apply the meta-analysis technique, and the Kappa statistic was used for inter-rater agreement. The data from 10 articles meeting the inclusion criteria and decided to be included in the study were processed in the CMA software, and the heterogeneity status of the articles was evaluated. Q Statistic was used to test the heterogeneity of effect sizes, FunnelPlot analysis, Classic Fail-Safe N, and Tau Coefficient calculations were performed to test publication bias. The significance level of the statistical analyses of this study was determined based on the significance level of the included studies ($p < 0.01$, $p < 0.05$).

Methodological Quality (Evidence Quality) Assessment of Studies: As a result of the review of the articles, for the ten publications included in the study, the "Joanna Briggs Institute MASTARI Critical Appraisal Tool for Descriptive/Case Series Studies" adapted into Turkish by Nahcivan and Seçginli was used (Nahcivan et al., 2015). The tool has a total of 9 items. For each study included in the scope of the review, the fulfillment of each feature included in the nine items in the form was examined, and an evaluation was made by giving 1 point if the relevant feature was met and 0 points if it was not met. In the study, the articles belonging to all subgroups were examined independently by two researchers, and the articles that scored six or more points in the quality assessment were evaluated as high quality. According to the quality evaluation score, the agreement between the coders was found to be 81%. In the reliability analysis, Cohen's kappa is 0.88 with a 95% confidence interval [Confidence Interval (CI) (CI: 0.767- 0.873)]. Kappa value < 0 is considered as worse agreement than chance agreement; 0.01- 0.20 is considered as insignificant agreement; 0.21-0.40 is considered as poor agreement; 0.41- 0.60 is considered as moderate agreement; 0.61- 0.80 is considered as good agreement; and 0.81- 1.00 is considered as very good agreement or

0.75 and above is considered as excellent agreement, 0.40-0.75 is considered as moderate-good agreement and below 0.40 is considered as poor agreement (Dincer, 2014). The kappa value in this study (0.81) showed a very good level of agreement between the coders.

Results

The sample size of the studies included in the analysis is 4,412, and the number of samples varies between 143 and 1897. The average sample size is 441. The publication year of the studies is between 2011 and 2021. There is 1 study from 2011, 3 from 2015, 1 from 2016, 1 from 2017, 3 from 2018, and 1 from 2021. Data from 10 studies were combined using CMA (Comprehensive Meta-Analysis) software to answer the research questions. A heterogeneity test was conducted to determine the model type to calculate the overall effect. The meta-analysis results of 10 studies that examined the effect of nurses' exposure to violence on their burnout and were included in the study were shown through a forest plot. The positive mean effect size value (Odds Ratio) (+2.590) indicates that the process effect is in favor of the experimental group (exposure to violence). This result determined that the effect size of nurses' experiencing violence on their burnout was statistically significant with a value of 2.590 (I.A; 1.831-3.665; $p=0.000$), which was above the Odds ratio of +1. According to this result, it was determined that nurses who experienced violence suffered from burnout 2.5 times more than nurses who did not (95% CI: Confidence Interval) (Table 1).

When the nurses' experience of violence according to their gender was evaluated, the average effect size value was found to be positive. This value indicates that the effect on the exhaustion levels of nurses is in favor of male nurses. According to this result, it was determined that the effect size of the nurses' experiencing violence according to their gender on their burnout was statistically significant with a value of 1.854 (G.A; 0.869-3.958; $p=0.011$), which was above the Odds ratio of +1. This result indicated that male nurses experienced burnout 1.8 times more (95% CI: Confidence Interval) than female nurses (Table 2). When the nurses' experience of violence according to their age was

evaluated, the average effect size value was found to be positive. This value shows that the effect on the exhaustion levels of nurses is in favor of nurses aged 30 years and younger. This result indicated that the effect size of the nurses' experiencing violence according to their age on their burnout was statistically significant with a value of 2.243 (G.A; 1.365-3.685; $p=0.001$), which was above the Odds ratio of +1. According to this result, it was determined that nurses aged 30 years and younger experienced burnout 2.2 times more (95% CI: Confidence Interval) than nurses aged 30 years and older (Table 3). The results of the meta-analysis of the studies included in the research to determine the effect of nurses' experiencing violence on burnout based on their professional experience were shown in the Table 4. When the nurses' experience of violence was evaluated according to their professional experience, the average effect size was found to be positive. This value shows that the effect on the exhaustion levels of nurses is in favor of nurses with ten years or less experience. This result indicated that the effect size of the nurses' experience of violence on their burnout by their professional experience was statistically significant with a value of 1.926 (95% CI; 1.145-3.240; $p=0.013$), which was above the Odds ratio of +1. According to this result, it was determined that nurses with ten years or less working experience experienced burnout 1.9 times more (95% CI: Confidence Interval) than nurses with ten years or more working experience (Table 4). The meta-analysis results of the studies included in the research to determine the effect of the violence type experienced by the nurses on their burnout were shown in Table 5. When the types of violence experienced by the nurses were evaluated, the average effect size was found to be positive. This value shows that the effect on the exhaustion levels of nurses is in favor of nurses who experienced verbal violence. This result indicated that the effect size of the type of violence experienced by the nurses on their burnout was statistically significant with a value of 4.335 (G.A; 1.749-10.742; $p=0.002$), which was above the Odds ratio of +1. According to this result, it was determined that nurses who experienced verbal violence experienced 4.3 times more burnout (95% CI: Confidence Interval) than nurses who experienced physical violence (Table 5).



Figure 1. Research data collection process

Table 1. Effect of Nurses' Experiences of Violence on Their Burnout

Name of the Study	Working Subgroup	Odds Ratio	Sub-limit	Top Limit	Z Value	p Value
Abdo et al. 2015	The Effect of Violence on Burnout	2.682	1.728	4.162	4.399	0.000
Alameddine et al.2011	The Effect of Violence on Burnout	4.318	2.667	6.993	5.949	0.000
Bernaldo et al. 2015	The Effect of Violence on Burnout	1.755	1.245	2.476	3.208	0.001
Copeland et al. 2018	The Effect of Violence on Burnout	2.381	1.284	4.417	2.752	0.006
	The Effect of Violence on Burnout	4.103	3.213	5.241	11.310	0.000

Fu et al. 2021						
Hamdan et al. 2017	The Effect of Violence on Burnout	2.017	1.121	3.630	2.340	0.019
Kim et al. 2018	The Effect of Violence on Burnout	2.846	1.787	4.531	4.406	0.000
Li et al. 2018	The Effect of Violence on Burnout	2.045	1.183	3.536	2.561	0.010
Yoon et al. 2016	The Effect of Violence on Burnout	1.085	0.782	1.505	0.486	0.627
Viotti et al. 2015	The Effect of Violence on Burnout	5.107	3.624	7.198	9.313	0.000
		<i>2.590</i>	<i>1.831</i>	<i>3.665</i>	<i>5.375</i>	<i>0.000</i>

Table 2. Effect of Gender Variable

Name of Study	Working Subgroup	Odds Ratio	Sub Limit	Top Limit	Z Value	p Value
Bernaldo et al. 2015	Gender	1.132	0.806	1.591	0.717	0.474
Copeland et al. 2018	Gender	1.943	0.646	5.841	1.183	0.237
Fu et al. 2021	Gender	1.004	0.714	1.412	0.023	0.981
Hamdan et al. 2018	Gender	1.690	0.767	3.726	1.301	0.193
Viotti et al. 2015	Gender	6.038	3.942	9.248	8.264	0.000
		<i>1.854</i>	<i>0.869</i>	<i>3.958</i>	<i>1.596</i>	<i>0.110</i>

Table 3. The Effect of Age on Burnout Levels of Emergency Nurses Faced with Violence

Name of Study	Working Subgroup	Odds Ratio	Sub Limit	Top Limit	Z Value	p Value
Bernaldo et al. 2015	Gender	1.132	0.806	1.591	0.717	0.474
Copeland et al. 2018	Gender	1.943	0.646	5.841	1.183	0.237
Fu et al. 2021	Gender	1.004	0.714	1.412	0.023	0.981
Hamdan et al. 2018	Gender	1.690	0.767	3.726	1.301	0.193
Viotti et al. 2015	Gender	6.038	3.942	9.248	8.264	0.000
		<i>1.854</i>	<i>0.869</i>	<i>3.958</i>	<i>1.596</i>	<i>0.110</i>

Table 4. Effect of Working Experience Variable

Name of Study	Working Subgroup	Odds Ratio	Sub Limit	Top Limit	Z Value	p Value
Abdo et al. 2015	Professional Experience	2.352	1.521	3.637	3.847	0.000
Bernaldo et al. 2015	Professional Experience	1.426	1.014	2.006	2.038	0.042

Copeland et al. 2018	Professional Experience	1.084	0.415	2.83	0.164	0.870
Hamdan et al. 2017	Professional Experience	8.274	3.597	19.030	4.972	0.000
Viotti et al. 2015	Professional Experience	1.158	0.847	1.584	0.818	0.358
		<i>1.926</i>	<i>1.145</i>	<i>3.240</i>	<i>2.471</i>	<i>0.013</i>

Table 5. Effect of Type of Violence

Name of Study	Working Subgroup	Odds Ratio	Sub Limit	Top Limit	Z Value	p Value
Abdo et al. 2015	Type of Violence	84.622	44.419	161.213	13.496	0.000
Alameddine et al. 2011	Type of Violence	3.645	2.531	5.249	6.949	0.000
Bernaldo et al. 2015	Type of Violence	1.782	0.933	3.401	1.751	0.080
Copeland et al. 2018	Type of Violence	1.111	0.732	1.687	0.496	0.620
Hamdan et al. 2017	Type of Violence	2.017	1.121	3.630	2.340	0.019
Li et al. 2018	Type of Violence	5.484	3.168	9.494	6.078	0.000
Yoon et al. 2016	Type of Violence	4.563	2.754	7.560	5.892	0.000
		<i>4.335</i>	<i>1.749</i>	<i>10.742</i>	<i>3.167</i>	<i>0.002</i>

Discussion

During the literature search, it was observed that there are very few meta-analysis studies conducted in the field of health. In particular, a meta-analysis study on the effect of the violence types encountered by emergency service nurses on burnout level was not found. In this regard, the study aimed to determine the effect of the violence types encountered by emergency service nurses on burnout by meta-analysis method, and the study was conducted with ten research articles.

The effect size obtained from the meta-analysis findings was positive (2.590), and it was found that the burnout of emergency nurses who encountered violence types was 2.5 times higher than emergency nurses who did not. Among the studies included in the meta-analysis, Abdo et al. (2015) 284, Alameddine et al. (2011) 106, Bernaldo et al. (2015) 127, Copeland and Henry (2018) 54, Fu et al. (2021) 1897, Hamdan and Hamra (2017) 161, Kim et al. (2018) 356, Li et al.

(2018) 123, Viotti et al. (2015) 220, Yoon et al. (2016) 236 nurses; found a significant difference between the violence types encountered by nurses working in the emergency service and burnout. Other studies have also found a positive and statistically significant relationship between exposure to violence and burnout. It is stated that nurses who encounter violence have higher burnout levels than those who do not (Dursun, 2012; Sexton, 2021; Kahya et al., 2016; Bahar, 2015; Liu et al., 2019). Our research findings support these studies. Emergency nurses are thought to be exposed to violence and traumatic events more than nurses working in other units, which causes an increase in their burnout levels.

Meta-analysis findings revealed that male nurses experienced burnout 1.8 times more than female nurses. In one study, although there was no significant gender difference in non-physical violence, male nurses were found to have a significantly higher risk

(26%) of being exposed to physical violence (Wei et al., 2016). ALBashtawy found that male nurses were exposed to violence more than female nurses (ALBashtawy, 2013). In the study conducted by Polat and Cırak, gender and violence types were compared, and it was found that most of the staff exposed to verbal and physical violence were male (Polat and Cırak, 2019). Only physical violence was seen twice, and it was determined that these incidents were experienced by male staff. On the other hand, in the studies of Taskin Egici and Ozturk (2018), Ozturk and Babacan (2014), Cerit et al. (2018), it was found that female nurses experienced more violence than male nurses. The reason for this is thought to be due to the fact that a large part of the nurse population in our country consists of female nurses.

According to the findings of the meta-analysis, it was found that nurses younger than 30 years of age experienced burnout 2.2 times more, and nurses with less than ten years of professional experience experienced burnout 1.9 times more. Among the studies included in the meta-analysis, found that burnout level decreased with increasing age and professional experience. (Abdo et al., 2015; Bernaldo-De-Quirós et al., 2015; Copeland and Henry, 2018; Fu et al., 2021; Hamdan and Hamra, 2017; Viotti, 2015). The studies conducted also support our research (Li et al., 2018; Wei et al., 2016; ALBashtawy, 2013; Adriaenssens et al., 2015; Rushton et al., 2015). As nurses' age and professional experience increase, it can be assumed that they gain competencies to cope with social events and emergencies, apply therapeutic communication, and achieve crisis management. Li et al. (2018) also found a significant difference between burnout and resignation intentions of young nurses and nurses with less professional experience. Unlike our study, Cerit et al. (2018) found that nurses over 30 with more professional experience were exposed to more violence. Bıçkıcı (2013), on the other hand, did not find a significant relationship between age and years of professional experience and exposure to violence among healthcare workers.

According to the meta-analysis findings, the positive effect size we obtained indicates that emergency nurses experiencing verbal violence suffer from burnout 4.3 times more

than emergency nurses experiencing other violence types. Among the studies included in the meta-analysis, found that the burnout levels of nurses encountering verbal violence were higher than those encountering other violence types (Abdo et al., 2015, Alameddine, 2011; Bernaldo-De-Quirós et al., 2015; Copeland and Henry, 2018; Hamdan and Hamra, 2017; Li et al., 2018; Yoon and Sok, 2016). Cerit et al. (2018) found that verbal violence is the most common type of nurse encounter throughout their professional life. Albashtawy (2013) and Al-Maskari et al. (2020) found that nurses were exposed to verbal violence five times more than physical violence. These results support our research findings. Verbal violence is more common than other types of violence. Since verbal violence is accepted as a part of the nursing profession, the frequency of its reporting by nurses is low, it usually results in ignoring and internalizing, and as a result, it leads to psychological problems and shows its effects both emotionally and physically. For this reason, verbal violence, which is more common than other types of violence, has a greater impact on burnout levels.

As a result of this study, it was found that severe burnout was higher in nurses who experienced violence in emergency services. Burnout not only causes physical and psychological disorders, but also reduces work motivation and productivity, lowers the quality of nursing services and increases the likelihood of nursing accidents. It can also cause frequent absences from work and high turnover. Individual burnout in nurses can spread to other nurses around them, triggering severe problems with nursing staff management and providing quality care. This study draws attention to the burnout of nurses who experience violence in emergency services. It is seen that there is a need for permanent and definite sanctions to prevent violence against all health professionals, especially nurses. It is thought that the burnout of health professionals protected by these sanctions will also decrease.

Contribution to Emergency Nursing Practice

Emergency services are a stressful and critical environment for patients and their relatives.

Health professionals in this area are at great risk for violence.

- This article examines the types of violence faced by nurses in emergency services and the level of burnout. In this study, it was determined that nurses who experienced violence in emergency services experienced burnout 2.5 times more than those who did not experience violence.
- As a result of this study, it is pointed out that new regulations should be made in order to protect nurses, who constitute the majority of health professionals, from violence. By making innovations in this regard, both nurses can be protected from violence and their burnout levels can be reduced.

Conclusion: Violence against nurses is an important problem in the health sector due to its negative consequences. Increasing violence in healthcare institutions increases burnout in healthcare workers, especially nurses, who have the highest contact with patients and their relatives. Since patients brought to the emergency department usually require urgent medical intervention and uncertainties worry them and their relatives, emergency services are stressful environments for patients and their relatives. In this regard, emergency services are places with a high incidence of violence and cause burnout for employees. In the study, it was found that burnout was higher in nurses exposed to violence.

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