


# Psychosomatic symptoms among Palestinian nurses exposed to workplace aggression

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**Background:** The study examined associations between workplace aggression (WPA) and psychosomatic symptoms in Palestinian nurses.

**Methods:** The 341 nurses, (62% females and 38% males), answered a WHO questionnaire and a psychosomatic symptoms checklist.

**Results:** A total of 27.3% of the nurses reported exposure to WPA of any kind within the last 12 months. After adjusting for covariates, female nurses exposed to WPA of any kind and those exposed to verbal aggression reported a higher symptom score: (1.5; 95% confidence interval [CI]: 0.3, 2.7), and (1.4; 95%CI 0.2, 2.6), respectively, than unexposed females. Male nurses exposed to bullying reported a higher symptom score: (3.2; 95%CI 1.0, 5.5) than unexposed males.

**Conclusions:** Exposure to WPA was associated with higher occurrences of psychosomatic symptoms for both sexes. The female nurses reacted most strongly to verbal aggression or to WPA of any type, while bullying was associated with the male nurses' symptoms.

## KEYWORDS

palestinian nurses, Psychosomatic symptoms, sex differences, workplace aggression

## 1 | INTRODUCTION

Workplace aggression (WPA) is not a singular, unitary phenomenon; rather, it represents an array of behaviors or strategies.<sup>1</sup> WPA can be defined as incidents in which workers are abused, threatened, or assaulted in circumstances related to their work, including while commuting to and from work, in ways that explicitly or implicitly impact their safety, well-being or health.<sup>2</sup> Nurses are especially at risk of experiencing different kinds of WPA, such as physical aggression, verbal aggression, and bullying.<sup>3</sup> Health care and social services occupations in general are among those at highest risk at workplace

violence, and in the United States these services account for a large amount of non-fatal assaults in workplaces.<sup>4</sup> WPA can also have adverse consequences for those exposed,<sup>1</sup> and for the organization and the victim's colleagues and family members.<sup>5</sup> While some previous research has shown that the victim may experience reduced job satisfaction, psychological, and somatic complaints, and post-traumatic stress,<sup>6</sup> there is a shortage of research on associations between WPA and psychosomatic outcomes, especially in non-Western countries. Few studies have addressed sex differences associated with WPA. The aim of the present study was to examine possible associations between WPA and psychosomatic symptoms among Palestinian nurses, an under-researched population. The large proportion of male nurses in Hebron (38%) also allowed the study of sex-related effects.

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## 2 | METHODS

Health care services in Palestine are provided by the Palestinian Ministry of Health (MOH), Non-Governmental Organizations, United Nations Relief and Works Agency (UNRWA) and private medical service. We included all the health care facilities for the Palestinian population in Hebron in the study. The population under study was Palestinian nurses employed in hospitals and primary health care clinics at the Hebron district. The study was part of a larger study of working conditions in Hebron District, Palestine.<sup>1,7,8</sup>

The nurses were invited to participate in the study between October and December 2012. WPA was recorded using a questionnaire developed by the International Labour Office (ILO), International Council of Nurses (ICN), World Health Organization (WHO), and Public Services International (PSI).<sup>2</sup> The questionnaire includes items with dichotomous responses (no/yes) regarding exposure to physical aggression, verbal aggression, and bullying in the workplace within the last 12 months. The availability of policies or procedures for reporting aggression events at workplace was also recorded. Psychosomatic symptoms were recorded with the Psychosomatic Symptoms Checklist.<sup>8,9</sup> Seven symptom items were queried: back pain, tension headache, sleeping problems, chronic fatigue, stomach acidity, tension diarrhea, and heart palpitation. Responses were coded as follows: never (0); seldom (1); occasionally (2); and often (3). A Likert-type scoring procedure of 0, 1, 2, and 3 was applied to investigate the association of psychosomatic symptoms with exposure to workplace aggression, where higher scores indicated higher psychosomatic symptom score. The scale ranged from 0 to 21 (Cronbach's  $\alpha = 0.76$ ). The demographic variables recorded were age, sex, work schedule and job title. Analyses were conducted using STATA v.10 (Stata Statistical Software, 2007). Univariate differences were analyzed using *t* tests. Linear regression with listwise deletion was used to assess associations between WPA and psychosomatic symptoms, adjusted for age, work schedule, job title, and the availability of a system for reporting WPA. Tests of independence, homoscedasticity, normality, outliers, and collinearity indicated that the data met the statistical assumptions for regression analyses. The results are expressed as mean difference with 95% confidence intervals. The mean difference represent the differences between groups. An interaction term (WPA by sex) was included to examine whether WPA had a differential impact for males and females. Statistical significance was set at  $P < 0.05$ . Means and SDs were used to calculate effect size  $d$  ( $d = x_1 - x_2 / SD$ ).<sup>10</sup>

The questionnaires were translated from English into Arabic by the research team. Linguistic equivalence was secured through the use of a professional translator. After piloting the study among 22 nurses (excluded from this study), some items were modified and rephrased to fit the objectives of the study and the Palestinian culture. Administrators and head nurses in workplaces were informed about the study. The questionnaire collection was conducted at the workplaces. Time to complete the overall survey questionnaire was about 2 h, and the nurses were offered one week to return the questionnaires. The questionnaires were identified with a code number to assure confidentiality and anonymity.

## 3 | RESULTS

Of the 372 nurses invited to participate, 16 declined, 10 were on leave, and five had incomplete data. Thus, 341 nurses (91.7% response rate) were included in the analyses. A total of 27.3% (male and female nurses together) reported exposure to WPA of any kind within the last 12 months. Table 1 shows the sex-specific associations between WPA and psychosomatic symptoms. We adjusted for age, work schedule, job title, and the availability of a system for reporting WPA. The female nurses exposed to WPA of any kind reported higher mean psychosomatic symptom score than unexposed females: unadjusted mean difference 1.5 (95%CI 0.3, 2.7), Cohen's  $d = 0.38$ ; adjusted mean difference 1.5 (95%CI 0.3, 2.7), Cohen's  $d = 0.38$ ;  $R^2 = 0.05$ . The female nurses exposed to verbal aggression also reported higher mean psychosomatic symptom score than unexposed females: unadjusted mean difference 1.3 (95%CI 0.1, 2.6), Cohen's  $d = 0.33$ ; adjusted mean difference 1.4 (95%CI 0.2, 2.6), Cohen's  $d = 0.36$ ;  $R^2 = 0.04$ . The male nurses exposed to bullying reported higher mean psychosomatic symptom score than unexposed males: unadjusted mean difference 3.1 (95%CI 0.84, 5.3), Cohen's  $d = 0.78$ ; adjusted mean difference 3.2 (95%CI 1.0, 5.5), Cohen's  $d = 0.80$ ;  $R^2 = 0.09$ . With explained variances in the range of 0.04 to 0.09 (Table 1), the predictor variables had limited contributions to the variance in psychosomatic symptoms.

There was no statistically significant interaction between sex and WPA of any kind and psychosomatic symptoms.

## 4 | DISCUSSION

A main finding of the study was that one-quarter of participants reported exposure to WPA of any kind in the last 12 months, thus indicating that WPA constitutes a highly prevalent exposure among Palestinian nurses. Verbal workplace aggression among female nurses and bullying among male nurses was associated with a small but significantly higher level of psychosomatic symptoms. Female nurses reported a higher psychosomatic symptom score than male nurses, but no sex difference in the association between psychosomatic symptoms and WPA was observed. The high percentage (38%) of male nurses should have revealed such a difference if it was present. These findings are in accordance with previous research that exposure to WPA has negative effects on health and well-being.<sup>1,3-6</sup> It is important to obtain further evidence on the relation between psychosocial exposures and workers health in the workplace.<sup>11</sup>

Strengths of this study include the high response rate and the large proportion of male nurses, which allowed us to study sex differences.

The effect size was varying from 0.38 to 0.80. A medium effect size,  $d = 0.5$  means that statistically, approximately 6% of the dependent variable is accounted for by group membership, while a large effect size  $d = 0.80$  indicates that 14% of the dependent

**TABLE 1** Crude and adjusted associations between exposure to workplace aggression incidents (no, yes), and the psychosomatic symptom score (Psychosomatic Symptoms Check list) by sex: mean difference with (95% CI)

Psychosomatic symptoms (0-21) Grand mean = 10.4	Females (N = 211)			Males (N = 130)		
	N	%	Mean	N	%	Mean
Exposed to workplace aggression of any kind						
No	155	73.5	10.3	93	71.5	9.5
Yes	56	26.5	11.8	37	28.5	11.1
Exposed to physical aggression						
No	201	95.3	10.6	123	94.6	9.8
Yes	10	4.7	12.9	7	5.4	12.7
Exposed to verbal aggression						
No	161	76.3	10.4	97	74.6	9.6
Yes	50	23.7	11.7	33	25.4	10.8
Exposed to bullying						
No	201	95.3	10.6	115	88.5	9.6
Yes	10	4.7	12.6	15	11.5	12.7
Age group (years)						
≤35	87	41.2	10.9	67	51.5	9.9
>35	124	58.8	10.6	63	48.5	10
Work schedule						
Day work	109	51.7	10.3	50	38.5	9.2
Shift work	102	48.3	11	80	61.5	10.4
Job title						
Administrative position	27	12.8	9.6	49	37.7	9.9
Non-administrative	184	87.2	10.8	81	62.3	10
Availability of system for reporting aggression incidents						
Not available	109	51.9	10.4	57	43.9	9.7
Available	101	48.1	11	73	56.1	10.1

Cohen's d is a standardized score (mean difference divided by an average within-population standard deviation).

Mean difference is the unstandardized regression coefficient (B).

R<sup>2</sup>, R-squared.

<sup>a</sup>Adjusted for age, work schedule, job title and the availability of a system for reporting workplace aggression.

variable is accounted for by group membership.<sup>10</sup> This may seem to be small effects, but they are of clinical relevance. The difference between WPA of any kind (no/yes) was larger than the overall difference between male and female nurses, which was 0.80. We had applied the same psychosomatic symptoms questionnaire in a previous study of psychosomatic symptoms and stressful working conditions among Palestinian nurses, where workplace aggression was not studied, and where the focus was to a large degree on work schedules and shift work.<sup>8</sup> In that study we found that to work overtime increased the median psychosomatic symptom score from 11 to 12 for female nurses (adjusted 1.35) and from 9.5 to 10 for male nurses (adjusted 1.20).<sup>8</sup> Our findings of an increase in adjusted symptom score varying from 1.5 to 3.2 indicates that the clinical significance of the findings, although larger than the effect of working overtime, may be limited.

## 5 | LIMITATIONS

The cross-sectional design of the study precludes inferences of causal explanations. All data were based on self-reports, which can make results susceptible to common method bias and inflated associations.<sup>12</sup> It was beyond the scope of the present study to include a measure of aggression or bullying outside the workplace. Therefore, it is unknown whether such non-work exposures could represent a confounding factor.

## 6 | CONCLUSIONS

Further research is needed on the factors that contribute to physical or verbal aggression or bullying in health care workplaces, and programs and policies are needed to address those factors.

### AUTHORS' CONTRIBUTIONS

YJ, MBN and RB-P designed the study. YJ collected and monitored the data. YJ, RB-P and MBN prepared the datasets, wrote the first draft of the report, and did the preliminary analysis. All authors participated in the conceptualization and writing of the report, and have seen, reviewed, and approved the final version.

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## ETHICS APPROVAL AND INFORMED CONSENT

The study was approved by the Regional Committee for Medical and Health Research Ethics, REC South East, Norway. Permission to conduct the study was obtained from the Palestinian Ministry of Health and other health care providers (non-governmental, UNRWA and private sectors). Informed written consent was obtained from each participant prior to beginning the study. The participants were informed that their participation was voluntary.

## DISCLOSURE (AUTHORS)

The authors declare no conflicts of interest.

## DISCLOSURE BY AJIM EDITOR OF RECORD

Paul Landsbergis declares that he has no conflict of interest in the review and publication decision regarding this article.

## DISCLAIMER

None.

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