

# Bullying at work and work-related stress in healthcare workers: a cross sectional study

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*Parole chiave: Rischi psicosociali, bullismo sul lavoro, operatori sanitari, stress da lavoro*

## Abstract

**Background.** Bullying is a serious and growing problem affecting a significant proportion of healthcare professionals, a professional category exposed to work-related stress. Workplace bullying has been defined as a set of negative behaviours consisting in harassment, offense or negative influence on work that are directed to the members of the organization and that occur regularly and repeatedly over a period, becoming part of the context of work

**Study design.** We performed a cross-sectional study using the HSE questionnaire and defining the sample size considering the number of healthcare workers of a big hospital and then calculating it with EpiInfo™ software. 191 people have been enrolled.

**Methods.** The study was divided into three steps. The first one to identify, among the workers, those who were exposed to bullying at work and those who were not. The second one has been aimed at assessing the presence of work-related stress through the administration of the HSE questionnaire. The third step has been aimed at performing the statistical analysis of the data. For each single domain explored by the questionnaire the score obtained was treated as a linear variable and the median and interquartile range (IQR) was calculated. After, a non-parametric analysis (Wilcoxon rank-sum test) was performed in order to define the statistical significance of the observed differences.

**Results.** All the 191 questionnaires were self-administered by the Health Care Workers under study and correctly filled in without any multiple or missing responses.

Considering the scores obtained to question n. 21, that investigates “bullying at work”, we obtained two groups: High-Exposure Group (total, males and females), and Low-Exposure Group (total, males and females).

In the High-Exposure Group, two critical domains were found: Demands and Control (total, male and female samples). The differences with the Low-Exposure Group were statistically significant. In the Low-Exposure Group the critical domain was Manager Support (total and female samples). The differences with the High Exposure Group were not statistically significant.

**Conclusions.** This study aimed to show how the exposure to bullying can influence the perception of psychosocial risks. It seems that the workers most exposed to bullying also have worse scores on the HSE questionnaire, particularly for two domains: Demands and Control. That is consistent with the most recent scientific literature.

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## Introduction

Work-related stress (WRS) is defined as the psychophysical reaction that occurs when job demands exceed the individual's ability or resources to cope or over-collide with their own needs (1, 2).

Scientific evidence suggests that WRS is closely correlated with worker exposure to psychosocial risks in the workplace (3, 4), which arise from the interaction between aspects of the content of work (the organization of work and its management and other environmental and organizational conditions) on the one hand, and the skills and needs of workers on the other (5).

Bullying at work represents a serious and growing problem affecting a significant proportion of healthcare professionals (HCWs) (6), a professional category often exposed to work-related stress risk (7-9). Workplace bullying has been defined as a set of negative behaviours consisting in harassment, offense or negative influence on work that are directed to the members of the organization and that occur regularly and repeatedly over a period, becoming part of the context of work (10). Exposure to workplace bullying can produce both physical and emotional effects (11). In fact, it can cause psychological symptoms, such as anxiety, sleep problems, depression, exhaustion or increased risk of substances' abuse (12, 13), deeply affecting the quality of life (14).

The negative effects of WRS (15, 16) are not limited to the individuals but they're also extended to the organization itself, involving organizational well-being (e.g. the decline in the morale of employees), a change in organizational culture (17) and additional costs (18) related, for example, to absences (19). The phenomenon has been studied in many different works' contexts, including the healthcare sector, where a prevalence of 44% of nursing staff, who claim to have been victim of bullying at some point in their working life, has been described (20, 21).

The 5th European Working Conditions Survey, produced in 2010 by the European Foundation for the Improvement of Living and Working Conditions, provided important informations in this regard, with data from the 27 EU Member States (plus Albania, Croatia, Kosovo, Macedonia, Montenegro, Norway and Turkey) and about 43,000 interviews collected. The study found that the prevalence rate of bullying at work was 11.3% among HCWs; nurses and obstetricians were the most exposed (21.5%) compared to other HCWs (11.6%).

In Italy, with the introduction of Legislative Decree 81/08, the assessment of work-related stress, defined as "the imbalance perceived by the worker when the demands of the working environment exceed the individual capacities to cope with such requests" (22), has become mandatory.

To comply with this obligation, guidelines have been proposed to perform a subjective evaluation of WRS and the Health Safety Executive Indicator Tool (HSE-IT) has been identified as the most suitable tool (23). This questionnaire is able to highlight the specific psychosocial risks to which the workers, anonymously, state that they are exposed; therefore, it allows to implement corrective measures aimed at managing and moderating these risks and ultimately avoiding their main outcome, the stress of workers (24). This questionnaire includes a specific item dedicated to the "bullying workplace" and the questionnaire analysis software allows to obtain the prevalence data of workers who declare to feel an excessive exposure to it. That is very useful, because the phenomenon of bullying at work can be fought by creating healthy workplaces through primary prevention interventions, such as the adoption of specific company policies.

The purpose of this cross-sectional study, which focuses on HCWs, is to evaluate how the presence of bullying at work can influence the perception of psychosocial risks and the onset of work-related stress.

## Methods

### *Study population*

During the health surveillance activities in 2017, the authors carried out this cross-sectional study, using the HSE questionnaire, recommended by the actual Italian guidelines to evaluate WRS.

The sample size has been defined considering the number of HCWs (nurses and physicians) of a great hospital of the city of Rome, staffed by about 350 doctors and 1000 nurses, with a total of 1350 units. Our sample size was calculated using EpiInfo™ software considering a 95% confidence level and 7% margin of error, to reach an adequate and achievable sample size. As a result, 191 HCWs have been enrolled.

The study was divided into three steps.

### *Step 1*

This step has been aimed at assessing those workers who were exposed to bullying at work and those who were not. All subjects completed the HSE questionnaire in the course of health surveillance activities, following the current Italian legal framework, in 2017. The HSE questionnaire (25, 26) is a useful method to investigate, through workers' experiences, some dimensions of work organization that represent potential sources of stress at the workplace. The questionnaire was developed by the Health and Safety Executive and consists of 35 items on a 5-point Likert scale ("Never", "Seldom", "Sometimes", "Often", "Always"), where higher scores indicate better working conditions and lower ones suggest stress risk; it concerns 7 different "domains":

1) Demands: regarding issues like workload, work environment characteristics;

2) Control: to what extent does a person do his/her job;

3-4) Support: analyzed in terms of "support by managers" and "support among colleagues" and including the encouragement,

sponsorship and resources provided by the organization, line management and colleagues;

5) Relationships: including promotion of positive working practices to avoid conflicts and deal with unacceptable behaviour;

6) Role: whether workers understand their role within the organization and whether the organization ensures that no conflicts occur;

7) Change: how organizational change (large or small) is managed and communicated in the organization.

The seven domains are processed through the Analysis Tool, which compares the performance level of the working population under study based on percentile scores observed in a reference sample (benchmark) collected from 136 British organizations (27). Four groups are then identified for each of the seven domains studied by the questionnaire and compared with the benchmark:

- Those below the 20th percentile (20% of the lowest reference values), for whom corrective action is urgently required;

- Those below average (<50%) but still above the 20th percentile rank, for whom corrective action is required;

- Those at or above average (=> 50th) but below the 80th percentile and not requiring action;

- Those at or above the 80th percentile, for whom no corrective action is required.

The comparison with the benchmark is used to establish priorities for action and to set short and long-term performance targets for each of the scales. This method is also compatible with the work-related stress assessment guidelines set out by EU regulations and contained in the Circular dated 11/18/2010 of the Italian Ministry of Labour and Social Policies (pursuant to Legislative Decree no. 81/2008 and subsequent modifications and supplements).

The recruitment was on voluntary basis. All subjects agreed with the processing of

their personal data, stating their awareness of the presence of sensitive data and they agreed to treat them in an anonymous and collective way, through scientific procedures, according to the principles of the Helsinki Declaration. All questionnaires were self-administered, collected and examined to make sure they had been properly and fully filled out.

HCWs were divided into two groups, based on the answers given to question n.21 that investigates bullying at work:

High-Exposure Group: those who got a score of 1 or 2 points out of 5;

Low-Exposure Group: those

who got a score of 4 or 5 out of 5.

HCWs who responded “sometimes”, obtaining a score of 3, were excluded because they were not definitely assignable to one of the two groups studied.

### Step 2

This step has been aimed at assessing the presence work-related stress in the population of HCWs studied. Survey responses were compiled into the HSE Analysis Tool software and three distinct sub-groups were obtained for each of the two groups: total, males and females.

### Step 3

This step has been aimed at performing the statistical analysis of the data. For each single domain explored by the questionnaire (job demands, control, support from managers, support from peers, role, change and

relationships) the score obtained was treated as a linear variable and the median and interquartile range (IQR) were calculated.

Subsequently, a non-parametric analysis (Wilcoxon rank-sum test) was performed in order to define the statistical significance of the observed differences. The data were analyzed using the statistical software STATA® version 14.

## Results

### Step 1

All the 191 questionnaires were self-administered to the HCWs under study and correctly filled in by them without any multiple or missing responses.

Considering the scores obtained to question n. 21 (that investigates “bullying at work”) we obtained two groups: High-Exposure Group (total, males and females), and Low-Exposure Group (total, males and females) (Table 1).

### Step 2 and Step 3

The risk profiles of the two groups are displayed in Table 2.

In the High-Exposure Group the critical domains, for which urgent corrective actions are required, were Demands and Control (total, male and female samples). The differences with the Low-Exposure Group were statistically significant. In the Low-Exposure Group the critical domain was

Table 1 - Summary of answers to question 21 (“I am subject to bullying at work”) given by male and female workers.

Answer	Low-Exposure Group			High-Exposure Group		Response Rate
	“Never”	“Seldom”	“Sometimes”	“Often”	“Always”	
Total (%)	41 (21.47)	8 (4.19)	12 (6.28)	17 (8.90)	113 (59.16)	191 (100)
Males Num (%)	19 (16.38)	3 (2.59)	4 (3.45)	7 (6.03)	83 (71.55)	116 (100)
Females Num (%)	22 (29.33)	5 (6.67)	8 (10.67)	10 (13.33)	30 (40.00)	75 (100)

Table 2 - HSE profile of Low-Exposure and High-Exposure groups, median and first (Q1) and third (Q3) quartiles of the scores obtained and non-parametric analysis (Wilcoxon rank-sum test).

	Low-Exposure N=49		High-Exposure N=130		P-value
	HSE score	Median value (IQR)	HSE score	Median value (IQR)	
Demands	3.76 <sup>a</sup>	3.87 (3.37-4.25)	2.31 <sup>d</sup>	2.25 (2.00-2.50)	0.0000
Control	3.83 <sup>a</sup>	3.83 (3.66-4.16)	3.35 <sup>c</sup>	3.5 (2.83-3.83)	0.0000
Managers' Support	3.42 <sup>c</sup>	3.6 (2.80-4.00)	3.69 <sup>b</sup>	3.8 (3.00-4.20)	0.0566
Peer Support	3.99 <sup>a</sup>	4 (3.50-4.25)	4.30 <sup>a</sup>	4.37 (4.00-4.75)	0.0011
Role	4.40 <sup>a</sup>	4.6 (4.20-4.80)	4.72 <sup>a</sup>	4.8 (4.60-5.00)	0.0001
Change	3.45 <sup>a</sup>	3.33 (3.00-4.00)	3.71 <sup>a</sup>	3.83 (3.00-4.33)	0.0464
	Low-Exposure N=22		High-Exposure N=90		P-value
	HSE score	Median value (IQR)	HSE score	Median value (IQR)	
Demands	3.63 <sup>a</sup>	3.62 (3.25-4.00)	2.31 <sup>d</sup>	2.25 (2.00-2.5)	0.0000
Control	3.74 <sup>a</sup>	3.83 (3.50-4.16)	3.36 <sup>c</sup>	3.5 (2.83-3.83)	0.0025
Managers' Support	3.49 <sup>b</sup>	3.60 (3.00-4.00)	3.67 <sup>a</sup>	3.80 (3.00-4.20)	0.3981
Peer Support	4.04 <sup>a</sup>	4.25 (3.50-4.50)	4.25 <sup>a</sup>	4.25 (4.00-4.75)	0.2251
Role	4.44 <sup>a</sup>	4.60 (4.20-5.00)	4.75 <sup>a</sup>	5.00 (4.80-5.00)	0.0044
Change	3.58 <sup>a</sup>	3.66 (3.00-4.00)	3.77 <sup>a</sup>	4.00 (3.00-4.33)	0.3604
	Low-Exposure N=27		High-Exposure N=40		P-value
	HSE score	Median value (IQR)	HSE score	Median value (IQR)	
Demands	3.84 <sup>a</sup>	4.00 (3.50-4.73)	2.32 <sup>d</sup>	2.25 (2.06-2.56)	0.0000
Control	3.86 <sup>a</sup>	4.00 (3.66-4.16)	3.33 <sup>c</sup>	3.41 (3.00-3.91)	0.0006
Managers' Support	3.36 <sup>c</sup>	3.40 (2.80-4.00)	3.74 <sup>a</sup>	3.80 (3.30-4.60)	0.3131
Peer Support	3.90 <sup>a</sup>	4.00 (3.50-4.00)	4.40 <sup>a</sup>	4.50 (4.12-5.00)	0.0004
Role	4.34 <sup>a</sup>	4.40 (4.00-4.80)	4.62 <sup>a</sup>	4.60 (4.40-5.00)	0.0878
Change	3.33 <sup>a</sup>	3.33 (3.00-4.00)	3.58 <sup>a</sup>	3.66 (3.33-4.33)	0.1065

<sup>a</sup>Performance classified as very good;

<sup>b</sup>Performance classified as good, with potential for improvement;

<sup>c</sup>Performance classified as requiring improvement measures;

<sup>d</sup>Performance classified as requiring urgent improvement measures.

Manager Support (total and female samples). The difference with the High-Exposure Group was not statistically significant.

## Discussion and Conclusions

This cross-sectional study aimed to evaluate how the exposure to bullying

at work can influence the perception of psychosocial risks.

Both in the total sample and in the male and female samples, HCWs belonging to the group with High-Exposure to bullying registered a critical perception of the "Demand" and "Control" domains, unlike workers belonging to the Low-Exposure Group; this difference is statistically significant.

The female sample of Low-Exposure Group records a critical perception regarding “Managers’ Support” domain, that is not recorded in the High-Exposure group, and this difference does not appear to be statistically significant.

Regarding the perception of “Demand” and “Control” over one’s work, the data that emerged are consistent with the existing scientific literature. In a report to the European Parliament (28) the author describes the results of the “*Swedish work environment survey of 1999*”, in which the highest percentage of people reporting bullying also reported a work environment characterized by high “Demand” and low “Control”.

Quine (29), in a study on nurses in the United Kingdom, pointed out that those who had reported one or more kinds of bullying were more likely than others to criticize aspects of the organizational climate, such as the greater workload, the greater ambiguity of role, the lower participation in decisions and the lower work control. This is consistent with the fact that perceptions of work environment can be mediated by various factors, including negative affectivity and other personal variables (30).

As far as the “Demand” and “Control” domains are concerned, it must be taken into consideration that these have also been studied as antecedents to bullying. About the “Demand”, for example, some authors (31) found that bullying was related to a high workload and unsatisfactory work relationships and that high levels of bullying by customers were evident in the service sectors. Others (32) found that aspects of the work environment, including difficult work tasks, were a significant explanatory factor for being a “target of bullying”.

Regarding “Control”, some authors (33) examined the relationship between “Control” and bullying and compared the perception of work control and the complexity of tasks between bullied and non-bullied workers,

highlighting how the “victims” had a higher degree of task complexity and less control over time than the “non-bullied” ones. These authors hypothesized that, in a situation where there is little control over time, there is less time for conflict management too and this can lead into a bullying relationship. This relationship between control over the timing of one’s work and bullying is also supported by Vartia (32), who showed how haste in work was associated with bullying.

The results of the present study should be considered in the light of some limitations, before generalizing the results. Firstly, the design of a cross-sectional study is limited in assessing temporal relationship between exposure and outcome and it cannot demonstrate the existence of a causal relationship between bullying and other psychosocial risks. It is evident how these psychosocial risks, belonging to the context and to the content of work, can influence each other. A unitary theoretical model capable of describing the interdependence between these risks and which of these are antecedent and which, however, successive is not yet known.

Secondly, we must consider the presence of some bias closely related to the nature of the data that we analyzed. Indeed, data were self-reported and there is the possibility of an information bias. Furthermore, we considered the possibility of social-desirability bias, given the quality of the information requested.

This study showed that workers most exposed to bullying also have worse scores on the HSE questionnaire. That could have important implications in the assessment of stress. In fact, bullying episodes could be reduced through specific organizational interventions, for example the promotion of awareness and recognition of bullying. The relative cost-effectiveness of these interventions, capable of modifying organization’s well-being in positive terms and, ultimately, the perception of

workers' well-being, should be considered. Furthermore, it seems useful to combine or expand the survey area of the questionnaires used to evaluate WRS, in order to highlight the amount and the source of bullying (if it comes from colleagues, superiors or users). Those data are important for the implementation of corporate policies addressed and aimed at contrasting the phenomenon.

#### Conflicts of interest

The authors declare no conflicts of interest.

#### Riassunto

##### *Bullismo al lavoro e stress lavoro correlato negli operatori sanitari*

**Premessa.** Il bullismo è un problema serio e crescente che colpisce una percentuale significativa di operatori sanitari, una categoria professionale spesso esposta al rischio da stress lavoro-correlato. Il bullismo sul posto di lavoro è stato definito come un insieme di comportamenti negativi consistenti in molestie, offese o influenza negativa sul lavoro che sono diretti ai membri dell'organizzazione e che si verificano regolarmente e ripetutamente per un periodo, diventando parte del contesto di lavoro

**Disegno dello studio.** Abbiamo condotto uno studio trasversale utilizzando il questionario HSE e definendo la dimensione del campione considerando il numero di operatori sanitari di un grande ospedale e quindi calcolandolo con il software EpiInfo™. 191 persone sono state arruolate.

**Metodi.** Lo studio è stato diviso in tre fasi. La prima fase per identificare quali lavoratori sono stati esposti al bullismo sul lavoro e quali no. La seconda è stata finalizzata a valutare la presenza di stress lavoro-correlato attraverso la somministrazione del questionario HSE. Il terzo passo è stato finalizzato all'analisi statistica dei dati. Per ogni singolo dominio esplorato dal questionario, il punteggio ottenuto è stato trattato come una variabile lineare ed è stato calcolato l'intervallo mediano e interquartile (IQR). Successivamente è stata eseguita un'analisi non parametrica (test Wilcoxon rank-sum) al fine di definire la significatività statistica delle differenze osservate.

**Risultati.** Tutti i 191 questionari sono stati auto-somministrati agli operatori sanitari e correttamente compilati. La popolazione studiata è stata divisa in due gruppi in relazione al punteggio ottenuto alla domanda

n. 21 del questionario HSE (che indaga sul bullismo sul lavoro). Nel gruppo dei più esposti sono stati trovati due domini critici: Demands and Control (campione totale, maschi e femmine). Le differenze con il gruppo a bassa esposizione sono state statisticamente significative. Nel gruppo a bassa esposizione il dominio critico era il Supporto da parte dei superiori (Manager's Support) sia sul campione totale che nel campione femminile). Le differenze tra i due gruppi non sono state statisticamente significative.

**Conclusioni.** Questo studio ha avuto lo scopo di mostrare come l'esposizione al bullismo possa influenzare la percezione dei rischi psicosociali. Sembra che i lavoratori più esposti al bullismo abbiano anche punteggi peggiori nel questionario HSE, in particolare per due domini: Demands e Control. Ciò è coerente con la letteratura scientifica attuale.

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