Workplace Bullying and Musculoskeletal Disorders: The Mediating Role of Job-Related Psychological Strain

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Abstract

According to the European Agency for Safety and Health at Work, workplace bullying is one of the emerging psychosocial risk factors that could negatively affect a worker’s health. Studies have explored the impact of bullying on psychological health, but not many have investigated its impact on other health aspects. This study analyzes how bullying leads to physical health disorders, such as musculoskeletal disorders (MSDs), by testing the mediating role of job-related strain. Data were collected from 512 employees (62.9% female; mean age: 43.6 years) of a retail chain who completed a self-report questionnaire after a one-hour training session on work-related stress. Data analyses were performed adjusting for potentially confounding variables (i.e., gender, age, organizational role, type of contract, and perceived physical job demands). The analytical approach of Preacher and Hayes was used to test the indirect relationship between bullying and MSDs. Results showed that work-related strain mediated the relationship between bullying and the MSDs considered (low back, upper back, and neck) except for MSDs of the shoulders. Our study confirms the role of bullying and job-related strain in determining workers’ MSDs.

*Keywords*:

Workplace Bullying as a Risk Factor for Musculoskeletal Disorders: The Mediating Role of Job-Related Psychological Strain

Increasing attention has been paid in the past 15 to 20 years to the phenomenon of workplace bullying; in some countries, it is also called “mobbing” [[1](https://www.hindawi.com/journals/bmri/2015/712642/" \l "B1)]. Workplace bullying refers to a series of negative behaviors carried out frequently and over a prolonged period of time, usually against an individual employee by his or her colleagues or superior [[2](https://www.hindawi.com/journals/bmri/2015/712642/#B2)]. Examples of these negative behaviors are as follows: excessive criticism of one’s work; withholding of information, which affects performance; being assigned an unmanageable workload; spreading rumors; and social isolation.

Bullying is an escalating process in the course of which the person confronted adopts an inferior position and becomes the target of systematic negative social acts. Therefore, a conflict cannot be called bullying if the incident is an isolated event or if it involves two parties of approximately equal power [[2](https://www.hindawi.com/journals/bmri/2015/712642/#B2)]. The consequences of exposure to bullying may be traumatic for the affected individual [[3](https://www.hindawi.com/journals/bmri/2015/712642/#B3), [4](https://www.hindawi.com/journals/bmri/2015/712642/#B4)]. Determining the prevalence of bullying is difficult due to the lack of a consensus definition of the phenomenon. A recent European survey [[5](https://www.hindawi.com/journals/bmri/2015/712642/#B5)] estimated a prevalence of 4% among European workers. However, in the same survey, 11% of workers reported they were the subject of verbal abuse at work, which may also be considered a form of bullying. According to others, the prevalence of bulling may be even higher: 15% of workers may be affected at any point in time [[6](https://www.hindawi.com/journals/bmri/2015/712642/#B6)]. Despite this lack of convergence of prevalence estimates, there is substantial agreement that workplace bullying is an emerging psychosocial risk with the potential to adversely affect the safety and health of working people [[7](https://www.hindawi.com/journals/bmri/2015/712642/#B7)].

Most studies in this area have investigated the psychological health outcomes of exposure to bullying and have documented a significant relationship between bullying and psychosocial stress, which leads to anxiety and depression, including the onset of major depressive episodes [[8](https://www.hindawi.com/journals/bmri/2015/712642/#B8)–[12](https://www.hindawi.com/journals/bmri/2015/712642/#B12)]. It is now evident that exposure to bullying can lead to a profound deterioration of the victim’s psychological health, primarily via experiences of stress [[13](https://www.hindawi.com/journals/bmri/2015/712642/#B13)]. However, few studies have investigated the potential impact of bullying on outcomes other than psychological aspects. Thus, it remains unknown whether bullying has the same profound effects on health as well-established psychosocial factors, such as job strain or effort-reward imbalance, which have been found to damage not only to psychological but also physical health [[14](https://www.hindawi.com/journals/bmri/2015/712642/#B14)]. Furthermore, researchers have noted that studying the relationships among psychosocial factors such as bullying, which are usually assessed through self-report, and psychological outcomes, may be particularly subject to common-method bias due to personal factors such as negative affectivity, which may act as a critical confounding variable [[15](https://www.hindawi.com/journals/bmri/2015/712642/#B15)]. This further strengthens the relevance of assessing the potential effect of bullying on different kinds of health-related outcomes.

To address the gap in the literature presented above, in the present study we investigated the relationship between exposure to bullying and very common work-related physical health problems, namely, musculoskeletal disorders (MSDs). MSDs are dysfunctions affecting muscles, bones, nerves, tendons, ligaments, joints, cartilages, and spinal discs; they are defined by sprains, strains, tears, soreness, pain, peripheral nerve disorders, and connective tissue injuries of the structures previously mentioned [[16](https://www.hindawi.com/journals/bmri/2015/712642/#B16)]. MSDs are the most frequently reported health problem by workers in the European Union: 24.7% of such individuals report back pain and 22.8% report muscular pain in shoulders, neck, upper or lower limbs, or combinations of any or all of these. In the United States, MSDs are one of the main reasons for short- and long-term disability and early retirement [[17](https://www.hindawi.com/journals/bmri/2015/712642/#B17), [18](https://www.hindawi.com/journals/bmri/2015/712642/#B18)].

The most common antecedents to MSDs are biomechanical factors, such as repetitive motion, excessive force, awkward postures, and prolonged sitting and standing [[16](https://www.hindawi.com/journals/bmri/2015/712642/#B16)]. However, psychosocial factors are also believed to be important for both the initial development of MSDs and the long-term disability that may follow [[18](https://www.hindawi.com/journals/bmri/2015/712642/#B18)–[22](https://www.hindawi.com/journals/bmri/2015/712642/#B22)]. While the precise mechanisms (e.g., cognitive, neuroendocrine, and musculoskeletal) through which psychosocial factors may affect MSDs have not been fully elucidated, an accepted hypothesis [[23](https://www.hindawi.com/journals/bmri/2015/712642/" \l "B23)] is that psychosocial factors may operate indirectly. They may, for example, influence muscle tension or other physiological processes, decrease micropauses in muscle activity, and consequently affect the perception of pain. Plausibly, such indirect effects are exerted through the experience of work-related stress.

Most research on the impact of psychosocial factors on MSDs has focused on factors such as psychological job demands and job control [[24](https://www.hindawi.com/journals/bmri/2015/712642/#B24)]. A review of the available evidence suggests that such factors (i.e., high demands and low control) are indeed related to MSDs, specifically of the neck, shoulder, and back [[25](https://www.hindawi.com/journals/bmri/2015/712642/#B25)]. Regarding exposure to bullying, we found two studies that explored its relationship to MSDs. A study of 370 Lithuanian seafarers revealed that exposure to bullying was significantly associated with an overall measure of upper limb MSDs [[26](https://www.hindawi.com/journals/bmri/2015/712642/#B26)]. Another study of 1024 employees of a Norwegian bus company revealed an association between exposure to bullying and musculoskeletal complaints, including headache, backache, neck ache, and hand and foot pain [[27](https://www.hindawi.com/journals/bmri/2015/712642/#B27)]. However, the latter study did not control for potentially confounding factors, such as physical load factors. Furthermore, neither study followed recent recommendations that emphasize the importance of investigating specific forms of MSDs [[25](https://www.hindawi.com/journals/bmri/2015/712642/#B25)].

Thus, in the present study, we investigated the relationship between exposure to bullying and MSDs while controlling for potentially confounding factors and focusing on specific musculoskeletal problems. Furthermore, we explored whether job-related strain may act as a mediator in the relationship between exposure to bullying and MSDs, as Silverstein and Evanoff [[23](https://www.hindawi.com/journals/bmri/2015/712642/#B23)] hypothesized and as Sprigg et al. [[24](https://www.hindawi.com/journals/bmri/2015/712642/#B24)] found for other psychosocial risk factors.

# Method

## Study Design and Sample

A cross-sectional survey was conducted in a large retail company in Italy. A total of 553 of the organization’s 812 employees voluntarily participated in the study (response rate: 68.1%). All participants worked in grocery stores belonging to the organization; therefore all individuals were exposed to the same procedures and company regulations. The sample was composed of both supervisors and employees. Participants worked in different departments of the supermarkets (e.g., gastronomy, fruit and vegetables, butchery, fish, bakery, cashiers, and nonfood); thus, they all performed job activities with high physical demands.

Workers were assembled in different groups and, after one hour of training on work-related stress, they completed an anonymous, self-administered questionnaire. The content of this brief training session addressed the main European and national regulations regarding work-related stress and the main definitions of work-related stress used in the literature. This training hour occurred before the participants completed the questionnaire, in order to explain to the workers that the aim of the study was not to define the extent to which they were stressed, but only to understand which psychosocial risk factors could contribute to enhancing strain and decreasing workers’ health.

## Measures

Workplace bullying is normally assessed either by using the respondents’ feelings of being victimized by bullying (e.g., [[9](https://www.hindawi.com/journals/bmri/2015/712642/#B9)]), usually according to a given specific definition of the phenomenon, or according to the respondents’ perception of being exposed to a range of specific bullying behaviors described without explicit reference to the term “bullying” (e.g., [[28](https://www.hindawi.com/journals/bmri/2015/712642/#B28)]). The first method is the so-called self-labeling approach; however, this approach is very subjective and strongly influenced by personality, emotional, and cognitive factors, including possible misperceptions. The second method is the behavioral experience method, which is generally believed to be more objective because it is relatively less exposed to the effect of personal factors. Thus, in the present study, we used the latter approach and assessed bullying using the Italian version of the Short Negative Acts Questionnaire (S-NAQ) [[29](https://www.hindawi.com/journals/bmri/2015/712642/#B29)], which has been validated in Italy with an ad hoc study [[30](https://www.hindawi.com/journals/bmri/2015/712642/#B30)]. The scale consists of 9 items that investigate how often the respondent has experienced a variety of negative behaviors at work during the previous six months. One example item is “Someone withholding information, which affects your performance.” Respondents answer using a 5-point Likert (1 = *never* to 5 = *daily*). Item scores are averaged to provide an overall score. Using Italian data, the S-NAQ has exhibited psychometric properties entirely comparable to those of the original, longer (i.e., 22-item) version of the scale, for example, in terms of associations with mental health variables and well-being [[30](https://www.hindawi.com/journals/bmri/2015/712642/#B30)].

Job-related strain was measured through the dimension of emotional exhaustion of the Maslach Burnout Inventory General Survey (MBI-GS: [[31](https://www.hindawi.com/journals/bmri/2015/712642/#B31)]; Italian version [[32](https://www.hindawi.com/journals/bmri/2015/712642/#B32)]). The five items of the scale are each scored in terms of frequency using a 7-point Likert scale (0 = *never* to 6 = *every day*). One example item is “I feel emotionally drained from my work.” Items are averaged to produce an overall score.

Musculoskeletal disorders were assessed through four items related to four different parts of the body: low back, upper back, neck, and shoulders. The question was, “During the past 12 months have you had pain, aching, stiffness, burning, numbness, or tingling (‘pins and needles’) in any areas of the following that occurred more than three times or at least more than a week?” The possible answers were either “yes” or “no.”

In addition, possible confounding variables were included: gender, age, organizational role, and type of contract. Furthermore, as participants were working in a large retail company, we introduced physical job demands, as measured using the Italian version [[33](https://www.hindawi.com/journals/bmri/2015/712642/#B33)] of Karasek’s [[34](https://www.hindawi.com/journals/bmri/2015/712642/#B34)] Job Content Questionnaire, as a control variable. The scale consists of five items with response options ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). One example item is “I am often required to move or lift very heavy loads on my job.” Items are averaged to produce an overall score.

## Statistical Analysis

Logistic regression models were fitted to the data using SPSS version 20.0 software. The risk factor was bullying, while the outcome variables were four specific MSDs of the low back, upper back, neck, and shoulders. To test the possible mediating role played by job-related strain (i.e., emotional exhaustion) in the relationship between exposure to bullying and MSDs, we adopted the analytical approach of Preacher and Hayes [[35](https://www.hindawi.com/journals/bmri/2015/712642/#B35)]. This approach tests the indirect relationship between an exposure factor and an outcome through a mediator using a bootstrap (i.e., resampling) procedure that addresses some weaknesses associated with the Sobel test [[35](https://www.hindawi.com/journals/bmri/2015/712642/#B35)]. To compute the direct and indirect effects, all path coefficients in the model were estimated concurrently. Furthermore, the bootstrapping procedure was used to compute formal statistical tests of the specific indirect effects. This method can produce an estimate of the indirect effect, including a 95% confidence interval. When the 95% confidence interval does not include zero, the indirect effect is significant at *p* < 0.05. Four different mediation analyses were performed, one for each specific MSD, that is, for the low back, upper back, neck, and shoulders.

# Results

## Demographic and Working Characteristics of Subjects

Due to missing data, 41 cases were deleted; thus, the final sample consisted of 512 Italian workers, whose mean age was 43.64 years (*SD* = 7.8), most of whom were female (322 workers, 62.9%). The mean occupational tenure was 16.15 years (*SD* = 8.46). Concerning the type of contract, 52.3% had a part-time contract, while all other workers had a full-time contract. Concerning the organizational role, 94 workers (18.4%) were supervisors, while 418 were employees (81.6%).

## Descriptive Statistics, Correlations, and Mediation Effect of Job-Related Strain between Bullying and MSDs

Means, standard deviations, percentages, internal consistencies, and correlations were computed for all the study variables (Table [1](https://www.hindawi.com/journals/bmri/2015/712642/tab1/)). Internal consistencies (Cronbach’s α) of the scales were good, as all values exceeded the threshold of 0.70 [[36](https://www.hindawi.com/journals/bmri/2015/712642/#B36)]. Exposure to bullying behaviors was relatively low; that is, on average, employees only occasionally experienced the negative acts that are the essence of bullying (Table [1](https://www.hindawi.com/journals/bmri/2015/712642/tab1/)). The mean value of 1.67 of the bullying measure is similar to that commonly found in organizational research in this area in which the same operationalization of bullying was used [[37](https://www.hindawi.com/journals/bmri/2015/712642/#B37), [38](https://www.hindawi.com/journals/bmri/2015/712642/#B38)]. Closer inspection of the distribution of the bullying scores revealed that 3.51% of employees (not reported in Table [1](https://www.hindawi.com/journals/bmri/2015/712642/tab1/)) reported a score indicating exposure on a weekly or daily basis to the bullying behaviors investigated.

In contrast, job-related strain and physical demands were relatively more prevalent than bullying, with their means (i.e., 17.30 and 2.71, respectively) being above the central point of each response scale. For example, the mean score of 2.71 on the physical demand scale indicated that all five investigated aspects of high physical demands tended to be reported by most participants. Regarding musculoskeletal problems, in general they were highly prevalent among participants, with the highest prevalence being for the low back problems.

Furthermore, the results presented in Table [1](https://www.hindawi.com/journals/bmri/2015/712642/tab1/) show that, all confounding variables (i.e., age, gender, organizational role, type of contract, and physical demands) were related to at least one of the outcome variables (i.e., MSDs of low back, upper back, neck, and shoulders). Thus, these confounding variables were included in the mediation analysis.

To test our hypothesis, which postulated that strain mediates the relationship between bullying and MSDs, four mediation analyses were performed. As mentioned earlier, the analytical approach of Preacher and Hayes [[35](https://www.hindawi.com/journals/bmri/2015/712642/#B35)] allowed us to test the direct and indirect effects of the variables considered. Thus, we provide estimates of all path coefficients (Table [2](https://www.hindawi.com/journals/bmri/2015/712642/tab2/)), as well as indirect effects (Table [3](https://www.hindawi.com/journals/bmri/2015/712642/tab3/)), along with bias-corrected, bootstrapped 95% confidence intervals for the four different musculoskeletal disorders (i.e., low back, upper back, neck, and shoulders). Specifically, Table [2](https://www.hindawi.com/journals/bmri/2015/712642/tab2/) presents both results concerning the direct effects of the antecedent and confounding variables on the mediator (job-related strain) and results concerning the direct effects of the antecedents, confounding variables, and the mediator on the outcomes (MSDs of low back, upper back, neck, and shoulders).

Concerning the direct effects, bullying had a positive effect on strain and on all MSDs, except for MSD of the shoulders. That is, the greater the workers’ exposure to bullying, the more they reported MSDs of the low back, upper back, and neck. Additionally, work-related strain was directly related to all MSDs, except for the shoulders. Of the possible confounding variables, perceived physical demands affected both strain and all MSDs, while age affected strain and only MSD of the shoulders. Females reported more MSDs than males, but not higher strain. Organizational role and type of contract did not have an effect on either strain or MSDs.

Results concerning the indirect effects between the independent variable (bullying) and the outcome variables (MSDs of low back, upper back, neck, and shoulders) are presented in Table [3](https://www.hindawi.com/journals/bmri/2015/712642/tab3/). Job-related strain mediated the relationship between bullying and all MSDs, except for MSDs of the shoulders. That is, except for the MSDs of shoulders, strain helped in understanding the process between bullying and musculoskeletal disorders. The results presented in Table [3](https://www.hindawi.com/journals/bmri/2015/712642/tab3/) show that bullying affects strain, which in turn affects MSDs of the low back, upper back, and neck.

# Discussion

Even though psychosocial risk factors have been implicated in the development of MSDs (see [[20](https://www.hindawi.com/journals/bmri/2015/712642/#B20)] for a review), most studies in this area have been inspired by Karasek et al.’s [[39](https://www.hindawi.com/journals/bmri/2015/712642/#B39)] psychosocial model and investigated the role of psychological job demands (i.e., workload) and decision latitude (i.e., job control) on MSDs [[24](https://www.hindawi.com/journals/bmri/2015/712642/#B24)]. With respect to tasks performed by employees, job demands and decision latitude are typical job content factors (see European Agency for Safety and Health at Work [[40](https://www.hindawi.com/journals/bmri/2015/712642/#B40)]). Psychosocial contextual factors, such as those describing the quality of relationships at work, have rarely been examined in detail. Regarding workplace bullying, few studies have explored the relationship between exposure to such contextual factors and MSDs [[26](https://www.hindawi.com/journals/bmri/2015/712642/#B26), [27](https://www.hindawi.com/journals/bmri/2015/712642/#B27)]. However, such studies did not adopt a fine-grained approach toward MSDs or include an overall index of MSDs; these facts render prior studies less informative than ideal and generally of limited utility [[25](https://www.hindawi.com/journals/bmri/2015/712642/#B25)]. Furthermore, there is a substantial lack of knowledge regarding the possible mechanisms underlying the link between psychosocial factors and MSDs. The experience of psychological strain has been hypothesized as one such mechanism [[23](https://www.hindawi.com/journals/bmri/2015/712642/#B23)], but its involvement has rarely been directly explored.

Our results confirm that exposure to bullying behavior is linked to MSDs in the low back, upper back, and neck regions. Of the body regions considered, only the shoulders seemed unaffected by this mediation. The results suggest that, along with the direct effect between bullying and MSDs of the low back, upper back, and neck, there is a process that includes job-related strain between workplace bullying and MSDs. Therefore this relationship should be explicable by both the direct effect of bullying as a psychosocial factor and the indirect effect of psychological strain manifesting as MSDs. Furthermore, despite physical demands remaining the main predictor of MSDs, when strain is considered, the effect of bullying on MSDs is quite similar, especially with respect to the upper back and neck.

As exposure to bullying can lead to profound deterioration of the victim’s psychological health, mainly via the experience of stress [[13](https://www.hindawi.com/journals/bmri/2015/712642/#B13)], the same mechanism seems to also influence physical health, specifically MSDs. Previously, Vie et al. [[27](https://www.hindawi.com/journals/bmri/2015/712642/#B27)] found both positive and negative emotions mediate the relationship between exposure to bullying and musculoskeletal complaints, although negative emotion, namely stress, is the main mediator. Consistent with this prior study, to our knowledge, the current study provides the first direct evidence of job-related strain as a mediator between bullying and MSDs. Therefore, the strain process, which is well known to affect the body, such as by producing tension in the musculature, is an element to consider in the detrimental effects of bullying on the victims’ health. Note that we only found evidence for partial mediation by psychological strain, since for three of the MSDs psychological strain acted as a mediator, and bullying would have remained a significant risk factor for the investigated MSD in the final model.

One explanation for the direct effect between bullying and MSDs could be that we operationalized psychological strain in terms of emotional exhaustion, which mainly taps low-arousal symptoms, such as feelings of fatigue and depression, and thus we captured only certain manifestations of psychological strain. High-arousal symptoms such as anxiety and irritability, which are not well represented in the emotional exhaustion construct, may be even more critical in mediating the effect of bullying on MSDs. This is because bullying has been shown to generate strong feelings of anxiety and, eventually disorders in those who are exposed [[3](https://www.hindawi.com/journals/bmri/2015/712642/#B3)]; at the same time, anxiety has been found to be one of the stronger affective mediators of the relationship between psychosocial aspects of work and MSDs [[41](https://www.hindawi.com/journals/bmri/2015/712642/#B41)]. In brief, it is plausible that the psychological strain generated by exposure to bullying may have an even more important role in the occurrence of MSDs than that found in the present study. This suggests the need for more research in this area.

One of the main strengths of this study is the focus on workplace bullying as a psychosocial risk factor for MSDs. Even though NIOSH [[16](https://www.hindawi.com/journals/bmri/2015/712642/#B16)] considers these health complaints an important occupational disease, relative to other psychosocial risk factors they remain understudied. Another strong point is that work characteristics, workplace bullying, stress, and MSDs were studied concurrently. Usually, the relationships between work characteristics, bullying, and stress are reported in the psychological literature, whereas the relationships between work characteristics and MSDs are predominantly found within the medical, ergonomic, and epidemiological fields [[24](https://www.hindawi.com/journals/bmri/2015/712642/#B24)].

The current study has some limitations that should be recognized. First, the sample was not representative of a working population or of workers in the retail sector, which might decrease the generality of the results. Second, the study was cross-sectional; as such, we could not make causal inferences regarding MSDs. Therefore, adopting a rigorous longitudinal research design would allow the current findings to be verified and would facilitate investigation of the impact that bullying has on workers who develop MSDs. Moreover, paper-and-pencil reports were used in the study, which can lead to biased responses from the subjects. Although assessing MSDs via self-report represents a limitation, evidence suggests that questionnaires are more sensitive indicators of MSD problems than preexisting data sources [[42](https://www.hindawi.com/journals/bmri/2015/712642/#B42)]. In this study, objective measures of MSDs could have been obtained via examinations such as medical evaluations. In contrast, collecting objective measures of bullying in the workplace would not be feasible, due to problems associated with measures of negative activities, such as bullying, which are subjective and difficult to identify [[43](https://www.hindawi.com/journals/bmri/2015/712642/#B43)]. Furthermore, it is impossible to know whether the training session partly impacted the workers’ response rate. However, the session was considered necessary, including by the company management, as employees needed to answer questions concerning their health and potential issues concerning bullying at work. A final limitation is that the measure of workplace bullying considered exclusively repetitive and prolonged exposure to negative workplace behaviors, and thus ignored other important defining elements of the bullying definition, such as the perceived imbalance of power between target and perpetrator(s). Measures of exposure to negative acts are often used in the literature and are recommended when the aim of the study is to assess the relationship between bullying and other variables [[44](https://www.hindawi.com/journals/bmri/2015/712642/#B44)]. However, such measures represent an imperfect operationalization of bullying.

Despite these limitations, the current findings have practical implications and implications for future research. For future studies on psychosocial risk factors and MSDs, it may be interesting to investigate not only job demands (e.g., workload and lack of autonomy, which are often studied as psychosocial risk factors associated with MSDs [[45](https://www.hindawi.com/journals/bmri/2015/712642/#B45), [46](https://www.hindawi.com/journals/bmri/2015/712642/#B46)]) but also perceptions of work life quality and relationships within the workplace. In this study, initial outcomes of such relationships were reported, although further study is needed pertaining to workplace bullying as well as the wider category of psychosocial contextual factors (i.e., role clarity, work-family conflict). To date, these have not been studied in relation to MSDs, yet they are known affect health. Moreover, future research should also investigate the reciprocal relationship between bullying, job-related strain, and MSDs.

Regarding practical implications, our results underline that, in addition to more traditional prevention strategies used to diminish biomechanical risk factors, establishing prevention strategies to reduce the presence of psychosocial risk factors (e.g.,, workplace bullying) in the workplace should be considered. Additionally, the mediating role of job-related strain suggests that the good practices mentioned above regarding ergonomic characteristics of the workplace cannot solve the issue. When addressing MSDs, both biomechanical and psychological sources should be included. Therefore, our results show that bullying can initiate a process that engenders an increase in MSDs. This indicates the need to promote primary prevention intervention in the workplace to reduce bullying and, consequently, decrease perceived job-related strain and MSDs. Numerous studies have confirmed the role of organizational factors in bullying, such as perceived cognitive, emotional, and behavioral social support from colleagues [[47](https://www.hindawi.com/journals/bmri/2015/712642/#B47)]; perceived organizational support [[48](https://www.hindawi.com/journals/bmri/2015/712642/#B48)]; and psychological safety climate [[49](https://www.hindawi.com/journals/bmri/2015/712642/#B49)]. Therefore our findings are consistent with a prevention perspective, in which contextual factors have the most potential for broad impact in reducing bullying and its effects, as prevention can be implemented in the workplace [[50](https://www.hindawi.com/journals/bmri/2015/712642/#B50), [51](https://www.hindawi.com/journals/bmri/2015/712642/#B51)]. Directly preventing bullying can help reduce negative health outcomes, such as the MSDs considered here.

Source: [*Workplace Bullying as a Risk Factor for Musculoskeletal Disorders: The Mediating Role of Job-Related Psychological Strain*](https://www.hindawi.com/journals/bmri/2015/712642/) by Michela Vignoli, Dina Guglielmi, Cristian Balducci, dnd Roberta Bonfiglioli, used under [CC-BY](https://creativecommons.org/licenses/by/2.0/)