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# The effect of workplace bullying on fatigue in school teachers: the moderating roles of gender and spirituality

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## ABSTRACT

Workplace bullying is quite prevalent and has been linked to many health complaints. The relationship between workplace bullying and fatigue was documented in previous studies. However, knowledge on how this relationship develops with the interplaying factors of spirituality and gender was not investigated before especially among schoolteachers. The aim of this study is to explore the relationship between workplace bullying and fatigue as moderated by spirituality and gender among schoolteachers in Lebanon. This is a cross-sectional study, where 215 schoolteachers aged 18 till 64 and employed for a minimum of 6 months were recruited through systematic sampling. Six private and six public schools in Beirut participated in the study. Online questionnaires using validated scales were used. Both simple and multiple ordinal logistic regression were performed for the statistical analysis. Results showed that workplace bullying is a predictor of fatigue with an odds ratio of 2.74 and p-value 0.008. Gender was found to be an effect modifier for this relationship, mainly among females (OR 2.66, p-value 0.047) but not among males. Anxiety and depression also predicted higher levels of fatigue (OR 5.75, p-value 0.017). Spirituality did not moderate this relationship.

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Workplace bullying; spirituality; gender; fatigue; moderating effect; schoolteachers; mental health

## 1. Introduction



Workplace bullying is defined as a situation in which an employee repeatedly and over a prolonged period of time is exposed to systematic and unwanted social behaviors from superiors, subordinates or coworkers with the intention to harm, intimidate, degrade, or humiliate [1]. The exposure to bullying occurs at least once weekly for at least 6 months [1]. Several studies have demonstrated an association between workplace bullying and subsequent mental and physical health problems [2,3] such as anxiety and depression [1], post-traumatic stress disorder [4], musculoskeletal complaints and fibromyalgia [5], as well as a higher risk of developing type 2 diabetes [6].

With a reported global prevalence fluctuating between 11% and 18% [7], workplace bullying has become a considerable problem in contemporary working life as well as a prominent issue in occupational health [8]. More specifically, previous research has shown that workplace bullying is wide-spread particularly in the academic context [9,10]. Teachers are at increased risk of being exposed to bullying by colleagues in comparison to other type of employees [9,11].

In a study aiming to investigate the effects of workplace bullying on a sample of 999 school-level educators of different post levels, the results demonstrated

that fatigue is one of the most frequently reported effects of workplace bullying [12]. In a similar academic context, in a study examining the correlation between exposure to harassment and burnout among a sample of 303 academic faculty members at a private university, the results yielded a positive correlation between harassment and burnout among male and female members [13].

The relationship between workplace bullying and fatigue can be explained based on the Job demands-resources theory (JD-R) [14] and through the adaptation of Lazarus's [15] stressor-strain framework. Drawing on the Job demands-resources (JD-R) theory [14] employees who are subjected to ongoing job demands like emotional stress or work overload will experience a depletion of their physical and mental resources that help them deal with the demands and lessen their impact; thus, leading to a state of exhaustion [14]. As a result, dealing with and responding to the ongoing and interpersonal pressures of workplace bullying at work becomes an emotional demand accompanied by insufficient resources. Subsequently, it follows that fatigue compromises feelings of being drained by one's exposure to workplace especially when, in accordance with the stressor-strain framework [15], one appraises his/her situation as unable to

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cope with the workplace bullying threat. For instance, teachers face interpersonal demands as they try to deal with the mistreatment and avoid it, leading them to experience loss in the power to deal with their emotional and physical resources, hence, leading to burnout [16].

Theoretically, not everyone who is exposed to workplace bullying will necessarily develop fatigue. According to transactional stress models[], reactions to stressors differ in type and severity due to the dynamic interplay that occurs between event attributes, personal evaluations and coping procedures. Among the large number of possible resources, spirituality, which is defined as a sense of meaning, fulfillment and a feeling of connectedness with others [17], can be considered as a potentially influential factor in dictating the consequences of workplace bullying such as fatigue. Spirituality is likely to influence the primary appraisal stage of the stressor-strain framework [15], allowing those who are exposed to bullying to perceive it as less of a threat. Hence, at the secondary appraisal stage of the stressor-strain framework [15], spiritual individuals will be less likely to worry about the negative events that will follow their exposure to bullying and they will more likely to believe that they can conquer bullying and that this stressing situation will be resolved [18]. As such, it is expected that spirituality will buffer the effects of workplace bullying on fatigue among teachers. As a consequence, it is proposed that spirituality moderates the relationship between workplace bullying and fatigue among school teachers with those with a high level of spirituality experiencing less fatigue under workplace bullying.

The moderating role of spirituality has been documented in several studies. Findings from various studies demonstrated that spirituality alleviates fatigue and psychological distress related to it [19]. Among schoolteachers, personal spirituality was found to provide teachers with coping strategies in managing challenges [20]. Similarly, the impact of prayer as well as meditation and spiritual techniques were found to largely diminish the symptoms of burnout among a sample of teachers in a Catholic school [21]. Such findings support the probable influential effect of spirituality on the relationship between workplace bullying and fatigue; thus, allowing investigating it as a moderating factor.

Studies have demonstrated that workplace bullying was reported to differ across gender [22–24]. More specifically, it was documented that females are more likely to become victims of workplace bullying compared to males. In a study among secondary school teachers, results showed that women teachers reported more exposure to workplace bullying from all staff sources compared to men, with an average of

94 incidents for the sample of women teachers within a year as compared with 81 incidents for men teachers [25]. The existence of this gender difference can be attributed to the social dominance theory which states that in a society where power hierarchies exist, social groups will dominate other groups i.e some groups based on specified expectations and social norms will be more advantageous, have access to resources and possess an increased social standing in the society [26]. More specifically, the dominant group or groups preserve their power by enforcing diverse forms of oppression on the less fortunate groups [26]. As such, the differential exposure to workplace bullying by men and women can be attributed to cultural disposition and the social construction of gender [27,28]. In fact, such cultural milieu was also reported to exist in schools at the organizational level [9].

The literature also documented that fatigue differs across gender as well [29], with chronic fatigue being much less common among males compared to females [30]. This difference was also documented among school-level teachers, whereby school-level female teachers reported higher levels of burnout compared to male teachers [31,32]. Consequently, given that gender was documented to be associated with each of workplace bullying and fatigue, it can be investigated as a moderating variable for the relationship between workplace bullying and fatigue.

It is worth stating that the topic of bullying is poorly studied in developing countries and in the Middle East, making our study a challenge [33,34]. Moreover, Lebanon is a unique, multi-cultural and multi-sectarian country.

This study fills in a research need that was called upon, namely to study the interaction of individual and work environment factors with focus on moderators and mediators in an attempt to further understand the phenomenon of workplace bullying [35].

The purpose of the study is to investigate the relationship between workplace bullying and fatigue as moderated by spirituality and gender among schoolteachers in Beirut area.

### **1.1. Aims and objectives**

The study aims to show that workplace bullying will positively predict higher levels of fatigue among schoolteachers. We hypothesize that gender will moderate the relationship between workplace bullying and fatigue such that the relationship between increased exposure to workplace bullying and increased levels of fatigue will be stronger for female teachers compared to male teachers. Spirituality will moderate the relationship between workplace bullying and fatigue such that teachers who report

exposure to workplace bullying and are high on spirituality will have lower levels of fatigue compared to teachers who are low on spirituality.

## 2. Materials and methods

### 2.1. Research design

The study is a cross-sectional survey. It is based on an online questionnaire sent first to the schools' administrations, and then in case of approval, emails were sent out to the teachers. The emails were sent out by a school employee who does not unduly influence the teachers like an administrator or a secretary. This was done to decrease the risk of coercion that might be exerted by the school administration on the participants. This method of recruitment was used due to the COVID-19 pandemic and the restrictions on face-to-face meetings.

### 2.2. Participants

The study subjects are schoolteachers in Beirut area. Six private and six public schools participated. The schools were from diverse cultural backgrounds (Christian, Muslim, and secular institutions). Teachers included those aged 18–64 years and who have been employed for a minimum of 6 months. Those who were employed for less than 6 months were excluded from the study. The exclusion of those employed for less than 6 months is attributed to the definition of workplace bullying which points to one's exposure to hostile or unethical communication that occurs at least once weekly over a period of at least 6 months.

### 2.3. Sample size

A total of 215 participants completed the survey between February 2022 and January 2023. According to a criterion that applies to structural equation modeling, the sample size for this study was determined by defining a specific number of observations per the estimated number of parameters [36]. Using this approach, two parameters can be estimated per variable namely a factor loading and an error variance. The suggested ratio of observations to estimated parameters is 20:1 [36]. If 20 participants (observations) are estimated per parameter, and 5-factor loadings and 4 error variances are obtained for the four observed variables, this brings the total number of participants to 200, accounting for nonresponse rate.

### 2.4. Recruitment

Based on systematic sampling, a list of the all primary and secondary schools (private and public) present in

the Central Area of Beirut was taken from the Ministry of Education and every 4th school was chosen from the list until 10 schools were chosen. After that, each school administration was contacted by email or phone for approval; in case of disapproval of any of the schools, the sampling from the school list was repeated. Before being granted the approval to commence with data collection at a specified school, the school principals were contacted by email/phone. An Arabic invitation script was sent to the schools invited to participate.

Anonymity was reassured to all participating schools. The administration was asked to inform the teachers about the study and that they might receive emails with the online surveys. An invitation to complete an anonymous, web-based survey was emailed to all teachers within each participating school.

The survey included a consent form briefing the participants about the aim of the study and assuring the participants that their participation is voluntary, and all information obtained will remain private, confidential and anonymous. The participants were also informed that those suffering from psychological consequences of workplace bullying will be asked to contact EMBRACE, a non-profit NGO which works on raising awareness around mental health in Lebanon.

To control for confounding variables especially for the impact of bullying on fatigue, females aged 50 and above were grouped separately to be able to control for the impact of menopause on the experience of fatigue in those women.

### 2.5. Analysis

Stata 16.0 software package was used for all analysis conducted in this study. A univariate analysis was performed to present the frequency and percentage of each variable. To investigate the relationship between fatigue and various factors in the study population, first fatigue was categorized into three ordinal outcomes: no fatigue, fatigue, and extreme fatigue. Then, a simple ordinal logistic regression was conducted between fatigue as an ordinal outcome and covariates, including bullying, age, gender, spirituality, and all comorbidities. In addition, the relationship between bullying and fatigue was examined, and stratified by gender, to determine if gender had a confounding or moderation effect on this relationship. Variables with a p-value of less than 0.2 in the unadjusted regression were then included in the final multiple ordinal logistic regression model, along with age, gender, bullying, and spirituality. Results were presented as Odds Ratio (OR) with 95% confidence interval (CI). A p-value less than 0.05 was considered statistically significant.

## 2.6. Instruments

The materials used include a survey consisting of three scales, demographic information, and a consent form. All the instruments except the S-NAQ used were translated and adapted in Arabic: a combined forward translation procedure and a committee approach was adopted [37,38]. Two bilingual forward translators (Masters level psychology research assistant and family medicine resident) have independently translated each scale to Arabic. Then the two translators as well as two faculty at the Family Medicine department, met and reviewed the two documents to generate one document that includes items that convey the same meaning as in the English version in a grammatically correct format. Next, the same committee reviewed the scales and provided feedback on the cultural relevance and appropriateness of the items.

### 2.6.1 Short – Negative Acts Questionnaire (S-NAQ) –

The S-NAQ is a 9-item questionnaire that measures workplace bullying within the last 6 months. It is a new abbreviated version of the NAQ-R developed by Einarsen, Hoel and Notelaers [39]. It is a 5-point Likert scale. NAQ-R has been shown to be reliable and valid [39]. The Arabic version of the NAQ-R has been shown to have good internal consistency of 0.90 [34]. Also, the Short NAQ has similar validity and reliability as the full version of the NAQ and it was disseminated and used among scholars of different countries, among which are Arab [40].

### 2.6.2 Fatigue Assessment Scale (FAS) –

The FAS aims to evaluate the symptoms of chronic fatigue [41]. FAS consists of ten items on a 5-point Likert scale. The Factor analysis indicated that the ten items measured one factor; indicating the unidimensionality of the scale [41]. The FAS was reported to

possess sound psychometric properties [42] with Cronbach's  $\alpha = .87$  and good content validity [41]. The rationale behind using the FAS is that it is a widely used scale in assessing fatigue, it is available in 20 languages and consistently used cross-culturally across diverse occupations such as clinical practice, management, and follow-up directory [42]. Also, previous research investigating the psychomotor properties of the FAS demonstrated that it measures one construct, namely fatigue; hence, ensuring the unidimensionality of FAS [41,43]. It has also been reported that clear one-factor solutions of FAS were established in a healthy population as well as in a group of chronic patients [41,44].

### 2.6.3 Intrinsic Spirituality Scale (ISS) –

The ISS was first developed by Hodge in 2003 to measure spirituality. It consists of six items. The ISS applies to both theistic and atheistic populations, and both within and outside of religious frameworks [45]. The phrase completion method was employed instead of the Likert format. The scale ranges from zero at one end of the response key, where spirituality answers no questions about life, to ten at the other end of the response key, where spirituality answers all questions about life. This method ensures the theoretical continuum of the construct in question, so that both reliability and validity are enhanced relative to Likert scale. Hodge's original ISS study showed that all six items loaded on a unidimensional construct of spirituality [45]. Reliability coefficients for each item in Hodge's study ranged from .73 to .84, with strong internal consistency for the overall ISS (Cronbach's  $\alpha = .96$ ) [45]. Validity of the ISS in the original study was suggested via its directional correlations with several theoretically related constructs, notably intrinsic religion ( $r = .91$ ) and frequency of binge drinking ( $r = -.49$ ) [45].

**Table 1.** Characteristics of participants ( $N = 215$ ): frequency and percentage distribution.

Covariate	N (%)	Covariate	N (%)
<i>Being Bullied</i>		<i>Underactive Thyroid (Yes)</i>	7 (3)
No (Ref)	155 (72)		
Yes	60 (28)	<i>Heart Failure (Yes)</i>	2 (1)
<i>Gender</i>			
Male (Ref)	22 (10)	<i>Sleep Apnea (Yes)</i>	3 (1)
Female	193 (90)		
<i>Age</i>		<i>Cancer (Yes)</i>	1 (1)
18–49 (Ref)	184 (86)		
50 or above	31 (14)	<i>Depression/Anxiety (Yes)</i>	17 (8)
<i>Spirituality</i>		<i>Other Diseases (Yes)</i>	12 (6)
$\leq 20$ (Ref)	57 (27)		
21–36	59 (27)		
37–46	48 (22)		
$> 46$	51 (24)		
<i>Potential Medical Conditions (Yes)</i>	153 (71)		
<i>Anemia (Yes)</i>	23 (11)		
<i>Disc Disease (Yes)</i>	13 (6)		
<i>Joint Disease (Yes)</i>	11 (5)		

### 3. Results

Two hundred and fifteen teachers completed the survey. Descriptive data on participants characteristics is shown in Table 1. One hundred and fifty-five (72%) participants reported no bullying and 60 (28%) reported being bullied at the workplace. The majority of the participants were females (193, 90%) and in the age group of 18–49 years (184, 86%). In terms of spirituality, 57 (27%) participants had a score of  $\leq 20$ , 59 (27%) had a score between 21 and 36, 48 (22%) had a score between 37 and 46, and 51 (24%) had a score of  $>46$ . The majority of participants had potential medical conditions (153, 71%), with anemia (23, 11%) being the most common condition. The percentages of underactive thyroid, heart failure, sleep apnea, and cancer among the participants were relatively low, ranging from 1% to 3%, while other diseases like disc and joint disease had percentages ranging from 5% to 6%. Eight percent of the participants experienced depression/anxiety and 6% experienced other diseases.

Table 2 presents the results of the simple ordinal logistic regression analysis of the outcome (No Fatigue, Fatigue, and Extreme Fatigue) and other covariates. The results suggested that being bullied at work was associated with an increased risk of experiencing fatigue, with an unadjusted odds ratio of 2.21 (95% CI: 1.12–4.37) and a significant p-value of 0.023. Age, gender, and spirituality are included in the multivariable model regardless of their significance in the unadjusted analysis, as they were considered important covariates in our study. Potential medical conditions, disc disease, joint disease, underactive thyroid, depression/anxiety, and other diseases showed significant correlation with fatigue. Moreover, comorbidities with p-values less than 0.2 will also be considered for inclusion in the multivariable model.

According to Table 3, males that have been bullied were more likely to experience fatigue or extreme fatigue by 1.67 times (95% CI: 0.24–11.58) compared to non-bullied males. However, this finding was not statistically significant (P-value = 0.605). In contrast,

**Table 2.** Simple ordinal logistic regression analysis of the outcome (no fatigue, fatigue, and extreme fatigue) and other covariates.

Covariate	Unadjusted Odds Ratio (OR)	95% CI for unadjusted OR	P-value
<i>Being Bullied</i>			
No (Ref)	—	—	—
Yes	2.21	[1.12; 4.37]	0.023*
<i>Gender</i>			
Male (Ref)	—	—	—
Female	1.83	[0.75; 4.46]	0.181
<i>Age</i>			
18–49 (Ref)	—	—	—
50 or above	1.61	[0.67; 3.85]	0.285
<i>Spirituality</i>			
$\leq 20$ (Ref)	—	—	0.416
21–36	1.33	[0.61; 2.93]	—
37–46	0.67	[0.3; 1.5]	0.476
$>46$	1.11	[0.49; 2.53]	0.331
<i>Potential Medical Conditions</i>			
(Yes)	0.29	[0.14; 0.59]	0.001***
<i>Anemia</i>			
(Yes)	1.43	[0.54; 3.77]	0.473
<i>Disc Disease</i>			
(Yes)	4.51	[1.26; 16.1]	0.02*
<i>Joint Disease</i>			
(Yes)	11.17	[3.03; 41.16]	0.001***
<i>Underactive Thyroid</i>			
(Yes)	0.21	[0.05; 0.96]	0.045*
<i>Heart Failure</i>			
(Yes)	2.05	[0.11; 37.75]	0.628
<i>Sleep Apnea</i>			
(Yes)	7.98	[0.8; 79.37]	0.076
<i>Cancer</i>			
(Yes)	2.04	[0.03; 123.7]	0.733
<i>Depression/Anxiety</i>			
(Yes)	9.39	[3.04; 29.03]	0.001***
<i>Other Diseases</i>			
(Yes)	4.78	[1.28; 17.86]	0.02*

\*for  $p < .05$ ; \*\*for  $p < .01$ ; \*\*\*for  $p < .001$ .

**Table 3.** Simple ordinal logistic regression analysis of the outcome (no fatigue, fatigue, and extreme fatigue) and being bullied (yes/no) stratified by gender.

Gender	Males			Females		
Being Bullied (Yes)	Unadjusted OR	95% CI for Unadjusted OR	P-value	Unadjusted OR	95% CI for Unadjusted OR	P-value
	1.67	[0.24; 11.58]	0.605	2.4	[1.15; 4.99]	0.019*

\*Significant predictor with P-value  $\leq 0.05$ .

**Table 4.** Multiple ordinal logistic regression analysis of the outcome (no fatigue, fatigue, and extreme fatigue) with other covariates.

Covariate	Adjusted Odds Ratio (OR)	95% CI for Adjusted OR	P-value
<i>Being Bullied</i>			
Yes	2.74	[1.3; 5.81]	0.008**
<i>Spirituality</i>			
≤20 (Ref)	---	---	---
21–36	1.29	[0.55; 3.02]	0.558
37–46	0.54	[0.23; 1.27]	0.159
>46	0.92	[0.39; 2.19]	0.858
<i>Age</i>			
18–49 (Ref)	---	---	---
50 or above	1.46	[0.55; 3.85]	0.449
<i>Gender</i>			
Male (Ref)	---	---	---
Female	2.66	[1.01; 7.02]	0.047*
<i>Potential Medical Conditions (Yes)</i>	0.53	[0.18; 1.53]	0.235
<i>Disc Disease (Yes)</i>	1.41	[0.31; 6.36]	0.657
<i>Joint Disease (Yes)</i>	3.62	[0.63; 20.83]	0.149
<i>Underactive Thyroid (Yes)</i>	0.09	[0.01; 0.56]	0.01**
<i>Sleep Apnea (Yes)</i>	4.36	[0.28; 66.82]	0.290
<i>Depression/Anxiety (Yes)</i>	5.75	[1.38; 24.07]	0.017*
<i>Other Diseases (Yes)</i>	2.17	[0.45; 10.41]	0.331

\*for  $p < .05$ ; \*\*for  $p < .01$ ; \*\*\*for  $p < .001$ .

females that have been bullied were more likely to experience fatigue or extreme fatigue by 2.4 times (95% CI: 1.15–4.99) compared to non-bullied females. This finding was statistically significant at the 0.05 level (P-value = 0.019). These results suggested that among females only, being bullied at work was associated with an increased risk of experiencing fatigue, compared to those who did not report being bullied.

The results of the multiple ordinal logistic regression analysis in Table 4 show that being bullied at the workplace was significantly associated with fatigue, controlling for other covariates in the model. Workers who had been bullied had an increased risk of experiencing fatigue or extreme fatigue, with 2.74 times (95% CI: 1.3–5.81; P-value = 0.008) higher odds than workers who had not been bullied. Gender was also found to be significantly related to fatigue, with females having a higher risk than males, with an adjusted odds ratio of 2.66 (95% CI: 1.01–7.02; P-value = 0.047). Depression/anxiety was a significant predictor of fatigue, with an adjusted odds ratio of 5.75 (95% CI: 1.38–24.07; P-value = 0.017). Other covariates, such as age, spirituality, potential medical conditions, disc disease, joint disease, sleep apnea, and other diseases, did not show any significant association with the outcome. Overall, our findings suggest that being bullied at the workplace, being female, and having depression and/or anxiety are risk factors for experiencing fatigue or extreme fatigue.

## 4. Discussion

### 4.1. Workplace bullying and fatigue

The results of the study indicated that schoolteachers who experience higher level of workplace bullying showed higher level of fatigue (OR = 2.74, 95% CI

1.3–5.8). This finding is in line with other research where victims of workplace bullying were found to develop more mental and somatic complaints [46]. In addition, among the potential medical conditions, depression and/or anxiety were found to be confounding variables with fatigue, while other comorbidities were not.

Our study results are concordant with other research that has found fatigue to be one of the outcomes of workplace bullying [3]. Literature has shown that workplace bullying predicted increased symptoms of fatigue across diverse occupational groups and organizations [3,47]. More specifically, fatigue was one of the most frequently reported effects of workplace bullying among school-level educators [12]. Given that fatigue was reported to decline motivation, prolong reaction time, decrease alertness, undermine concentration and information processing [48], it was well reported that fatigue among school teachers has the ability to negatively impact the quality of education [31,49]. For instance, it has been demonstrated that teachers' burnout experience, which is defined as a state of psychological and physical fatigue [50], allows them to exhibit less favorable social behaviors towards students and to be less involved in the lesson planning [31]. Also, when teachers report high levels of exhaustion, they are expected to become more critical and more discouraging of their students who might feel less competent and more demotivated impacting their learning experience [51]. As such, it is concluded that a teacher's experience of exhaustion is a contributing factor to students' underachievement [51]. Additionally, it was reported that teachers suffering from high levels of burnout are more likely to experience drop out of their jobs [52].

#### 4.2. Workplace bullying and gender

After stratifying by gender, our results showed that the relation between workplace bullying and fatigue is significant among female teachers (OR = 2.4, 95% CI 1.15–4.99). This association was not statistically significant among male teachers, indicating that gender plays a role of an effect modifier on the relationship between workplace bullying and fatigue. This confirms our second hypothesis that females, when bullied, report higher levels of fatigue than males. Our results are also in line with the literature.

Previous studies reported that workplace bullying differs across gender [23,24]. The literature has illustrated that females are more likely to become victims of workplace bullying compared to males [23]. This was also documented among schoolteachers [25]. The existence of this gender difference can be attributed to the social dominance theory which states that in a society where power hierarchies exist, social groups will dominate other groups: the dominant groups preserve their power by enforcing diverse forms of oppression on the less fortunate groups [26]. As such, the differential exposure to workplace bullying by men and women can be attributed to cultural disposition and the social construction of gender [27]. In an academic institution, there is an emphasis on a deep network of social relations that are characterized by ideological confrontation, professional rivalry, personal animosity, power struggles, and antipathies among colleagues. Lebanon, being a country high on masculinity and patriarchy, power is mainly granted to men who are expected in such a patriarchal system to be controlling, dominant, decision-makers and authority figures [53]. This renders women subjugated and disadvantaged and expected to be obedient and devoted [53]. Hence, it would be expected that the hierarchy and bureaucracy in the academic context will be accentuated in Lebanon and female schoolteachers will experience more workplace bullying compared to male teachers.

#### 4.3. Workplace bullying and spirituality

Spirituality was not found to act as a protective factor for fatigue when bullying occurs, although the OR changed from 1.29 to 0.54 and 0.92 (protective) when going up on the spirituality scale, but the p-value was not statistically significant. This may be explained by the fact that our participants scored overall high on the ISS in a similar fashion. In fact, this reflects the reality of our Lebanese and oriental societies where most people tend to be more religious and spiritual. So, we were confronted with a rather homogeneously spiritual population, and the results would have been more meaningful if the targeted population were more spiritually diverse.

Studies showed that spirituality is associated with an improved psychological well-being in chronic fatigue and better capabilities in managing symptoms of fatigue [19,21]. Spiritual individuals perceive events as more positive and are disposed to anticipate positive outcomes. For instance, spirituality was found to be associated with the use of attitudinal and active positive coping mechanisms such as looking at the bright productive side, engaging in an enjoyable activity or conversing with others [54]. Also, individuals with increased spirituality report increased feelings of control and self-efficacy [54]. Hence, spiritual individuals are less likely to worry about the negative events that will follow their exposure to bullying and they are more likely to believe that they can conquer bullying and that this stressing situation will be resolved.

#### 4.4. Strengths of the study

To our knowledge, this is the first study targeting workplace bullying in schoolteachers in Lebanon. A limited number of previous studies exist and target mainly hospital nurses. Our study introduces a theoretical model on outcomes of bullying i.e. fatigue and provides an understanding of the role of workplace bullying on fatigue by evaluating the role of other possible interplaying factors such as spirituality and gender; this will assist in expanding the body of knowledge related to workplace bullying and its outcomes. By illuminating the consequences of workplace bullying and interplay of factors, the results of this study stimulate additional research to further understand and prevent workplace bullying in schools. The results obtained also provide significant guidelines for future research direction.

Another strength of the study relies on the instruments used. Despite the fact that all three instruments (FAS, ISS, and S-NAQ) were developed in a Western context, they were also previously validated in a non-western context. It is worth mentioning that our participants are from diverse cultural background, reflecting the diversity of the Lebanese society. They belong to Christian, Muslim, and secular institutions.

In practical terms, the study sheds light on the detrimental consequences of bullying in schools. This can affect the teacher's health and productivity. This will lead to both medical and financial burdens. Therefore, the findings can help school administrations to gain better understanding of the situation and to execute positive changes and strategies to curb workplace bullying. Zero tolerance policies to bullying should be introduced to schools and other workplaces.



#### 4.5. Limitations of the study

Our study has several imitations. The results show an association rather than a causation between workplace bullying and fatigue, due to the cross-sectional design of the study. Moreover, the generalizability of the study may be affected by the fact that data was collected only from Beirut.

Collecting data based on online questionnaires can bias the results as the participants might not answer the questions truthfully or with seriousness (risk of recall bias). It is also imperative to take into consideration that response bias might have taken place as those possessing strong feelings toward the topic were more likely to respond to the survey. Similarly, fear of disclosure of workplace bullying is a major issue in Lebanon. An important number of schools refused to participate due to the sensitivity of the topic, and many participants did not fill the survey because it is still considered a taboo topic. This raises the issue of potential non-response bias. Hence, our number may be an underreporting of the reality thus the need of more extensive research to be conducted in the future.

Finally, the COVID-19 pandemic had a significant social and educational impact and changed the school learning systems worldwide. Due to the closure of schools and the online learning, we do not know yet how bullying and fatigue affected teachers, and if it constituted an exacerbating or relieving factor for variables and outcome of this study. What adds to the complexity of the situation is that this study was conducted at a time when Lebanon was hit by one of the most severe financial and economic crisis episodes globally since the mid-nineteenth century further affecting our study outcomes and variables.

#### 5. Conclusion

Workplace bullying is a serious occupational hazard. Nowadays, it is becoming omnipresent. In our study, a similar prevalence of workplace bullying was found among schoolteachers in Beirut to that in other studies conducted worldwide. It was confirmed from this study that workplace bullying predicts higher levels of fatigue. Also, being a female and having anxiety and/or depression predicts higher fatigue. Hence, gender was found to be an effect modifier. Our study provides important guidelines for further research and identifies priority population for public health interventions. Understanding the gender bias in a country of high patriarchy and masculinity like Lebanon is important and more studies are needed. Also, spirituality among other personal characteristics needs to be under more extensive investigation.

Furthermore, concluding that being bullied at the workplace, being female, and having depression and/or anxiety are risk factors for experiencing fatigue shed light on the importance of mental health at the workplace. Therefore, our results help in identifying 'priority' populations to be target of public health interventions.

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#### Data availability statement

The data is available upon reasonable request.

#### Authors statement

GH contributed to data collection, data analysis and writing of the manuscript. NM contributed to study design, overseeing the study, and writing of the manuscript. MEJ did the data analysis and contributed to writing the results section. DR reviewed the final manuscript and gave her input.

#### Ethics approval

Institutional Review Board (IRB) at the American University of Beirut Medical Center (AUBMC).

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