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Bullying and Work-Related Stress in the Irish Workplace

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Abstract: Work-related stress is increasing in prevalence, with important consequences for employees, employers, the economy, and wider society. While previous research has identified a link between work-related stress and bullying, gaps remain in our understanding of the nature of the relationship. This article uses ordered logistic regression and nationally representative data on 5110 employees from Ireland to empirically analyse the distribution of subjective work-related stress and its relationship with bullying (self-reported). We also consider the role and importance of gender and the presence of a formal policy on respect and dignity at work, as well as the degree to which relationships between management and staff and between staff themselves are related to work-related stress. Amongst the main findings are that employees who reported that they were bullied were considerably more likely to report that they were often or always stressed, while bad and very bad relationships between management and staff were also significantly associated with greater stress, particularly for female employees. Overall, our findings have a range of implications for employees, employers, and policymakers.

Keywords: work-related stress; bullying; staff relationships; gender; ordered logit model; policy; Ireland

1. Introduction

1.1. Work-Related Stress

Work-related stress is increasing in prevalence, with important consequences for employees, employers, the economy, and society as a whole [1,2]. At a European level, the European Agency for Safety and Health at Work [3] estimates that approximately 55.6 million European workers suffered work-related stress in 2009. In Ireland, the context for our study, a recent report by Russell, Fahy, Maître, and Watson [2] showed that the proportion of employees experiencing job stress more than doubled from 8% in 2010 to 17% in 2015, with stress found to be related to: High levels of emotional demands; time pressure; bullying, harassment, violence, and discrimination; as well as long working hours. This is important because Russell et al. [4] have shown that stress, anxiety, and depression account for 13% of all work-related illnesses in Ireland. In addition, there is strong evidence that employees who self-report long periods of work-related stress within their roles also exhibit higher rates of health-impairing behaviours [5]. For instance, Kouvonen et al. [6] found that a high rate of job strain is associated with a higher intensity of smoking, while Hassard et al. [7] found that higher rates of alcohol

consumption are linked to more stress-intensive roles. Studies have also shown that public health sector employees, such as nurses, experience higher than average rates of work-related stress, which subsequently impacts on their physical health [2,8–10]. Physical-health ailments which emerge through prolonged periods of exposure to work-related stress include chronic and non-communicable diseases, such as infection, hypertension, diabetes, and cancer [11]. Furthermore, psychological disorders such as depression and burnout have also been linked to work-related stress [4], although the moderating effects of individual factors, such as self-efficacy [12] and social support [13], and organisational factors, such as perceived organisational support in respect of the exhaustion and cynicism components of burnout [14], have been noted.

High levels of work-related stress among employees impact on employers through increased absenteeism, presenteeism, and labour turnover [5]. For example, Russell, Maître, and Watson [4] showed that those who suffered from work-related stress, anxiety, and depression were significantly more likely to record an absence of four days or more relative to employees with a musculoskeletal disorder. Stress in the workplace can also affect employees' focus and ability to perform in their role [15]. As a result, work-related stress can have a direct impact on a firm's productivity, as well as injuries at work, which represent potential liability for the firm and the wider public. Thus, overall, the financial burden of work-related stress on the economy is substantial. In a review of the literature, the European Agency for Safety and Health at Work [3] found that the cost of work-related stress is approximately €20 billion a year in the EU-15. Similar estimates for Canada showed the financial cost to be in excess of €9 billion per year, while in the UK, these costs were estimated to be over €5.2 billion in 2014 [16,17].

Given the numerous potential negative impacts of work-related stress, policies aimed at tackling the issue have been developed at European, national, sectoral, and organisational levels. For example, in Ireland, the 2005 Safety, Health and Welfare at Work Act provides a comprehensive legislative framework applicable to all potential hazards across all workplaces. This act stipulated that the health of the employee is the responsibility of the employer, which includes protecting the employee from mental health injury arising from factors such as job stress [18]. Also relevant is the Organisation of Working Time Act 1997, which sets out statutory rights for employees with respect to rest, maximum working time, and holidays, in order to ensure that workers are not subjected to excessive work demands and that they have adequate rest periods [19]. In addition to national legislation, the European Framework Agreement on Work-Related Stress provides employers and workers with a framework to identify and prevent problems of work-related stress [20], and this framework has led to a series of national policies and legislation aimed at protecting employees [1]. Policies aimed at preventing and reducing job stress also occur at the organisational level and range from preventing stressors to reducing the impact of stress on the employee [2].

1.2. Determinants of Work-Related Stress

As a result of the strong public policy importance and focus, a number of studies have sought to explore the drivers of work-related stress. While a range of work-related stress definitions have been espoused [21–24], Cox et al. [25] outlines ten different categories of job characteristics, work environments, and organisations which may be hazardous (see Appendix A). These characteristics relate to the 'content' and 'context' of work. Content of work describes working conditions such as workload, task design, and working conditions. Factors such as a poor working environment negatively affects both workers' experience of stress and their psychological and physical health [15]. On the other hand, context of work concerns the organisation of work and labour relations, such as career development, decision latitude, and interpersonal relationships [25]. Thus, research on the drivers of work-related stress has considered both content- and context-related factors. For instance, Russell, Maître, and Watson [4] showed that working hours, shift work, and work pace are associated with work-related stress. Indeed, numerous studies have found a higher prevalence of work-related stress in occupations such as nursing and social services work [8,22,23]. Studies examining

contextual work factors have found that poor decision latitude is associated with higher levels of work-related stress [26], while Brown et al. [27] found that organisational change was associated with increased levels of work-related stress among British teachers. Further examination of context of work drivers such as job security, tenure, and contract types have also been shown to be linked to work-related stress [4,8,15,24,28,29]. Overall, this extensive literature informs our empirical approach and model specification.

Of particular relevance to this article is the role of interpersonal relationships, and bullying in the workplace in particular, as a determinant of work-related stress. Bullying in the workplace has been labelled as a severe stressor [30] that is more detrimental to workers than all other sources of stress combined [31,32]. In Ireland, there is currently no dedicated legislation addressing the issue of workplace bullying and, as a result, reliance is generally placed on 'Codes of Practice'. However, these have been described as legally ineffective in protecting people from bullying at work [33]. Given the lack of formal legislation, the generally accepted definition of workplace bullying is "repeated inappropriate behaviour, direct or indirect, whether verbal, physical or otherwise, conducted by one or more persons against another or others, at the place of work and/or in the course of employment, which could reasonably be regarded as undermining the individual's right to dignity at work" [34]. Thus, bullying can encompass a wide range of differing terms, such as mobbing, harassment, aggression, and aversive behaviours [28].

A number of studies have examined the issue of bullying in the Irish workforce, both in terms of its prevalence and determinants. For example, O'Connell and Williams [35] found that over 7% of respondents to a national survey experienced bullying, with females and those aged between 26 and 45 years having a higher probability of experiencing bullying. In addition, they found that workplace characteristics were more influential than personal attributes in determining bullying victimisation, while the quality of relationships between superiors and co-workers was a significant driver of workplace bullying. In a follow-up study, O'Connell et al. [36] showed that over 18% of public sector and over 10% of private sector respondents reported exposure to bullying, with the highest rate of bullying found in the health and education sectors. In a more recent study, Hodgins et al. [37] explored the prevalence of ill-treatment in the Irish workplace. They found that 9% of individuals had experienced bullying in the workplace, while employees aged between 35 and 44 years were at the greatest risk of bullying. This research also showed that violent acts and unreasonable management were more likely in the public sector, and their findings are broadly consistent with previous research that signals a recent increase in the rate of bullying. This increase is of interest but likely to be a function of different measurement techniques which account for some of the variation in measuring bullying prevalence internationally [37,38].

While a growing body of research has established a relationship between bullying and work-related stress internationally [9,28,39], research on the topic in Ireland is less developed. A number of studies have considered the correlates of work-related stress but have not focussed specifically on the importance of bullying. Antecedents of work-related stress have been examined at the national level in order to inform the national regulatory body for health and safety in Ireland [2,4]. For example, Russell, Maître, and Watson [4] used binary logistic regression to examine the drivers of work-related stress. They found that women report higher levels of stress than men, while stress was found to be strongly associated with age, peaking between the age of 35 and 54. This study also found evidence that new recruits and those with long working hours were at a higher risk of stress. Furthermore, Russell, Fahy, Maître, and Watson [2] recently examined job stress and working conditions in Ireland. As well as reporting increasing rates of job-related stress, they also examined the potential impact of several factors on work-related stress. Of particular interest here is their finding that those with the highest exposure to bullying, harassment, and violence were much more likely to experience job stress than those with no exposure.

1.3. Article Aims

Within this broad context, this article builds on previous research by presenting a more detailed and focussed empirical analysis of the relationship between bullying (self-reported) and subjective work-related stress. To do so, we estimated, for the first time, ordered logistic regression models to consider the importance of a range of potential determinants on the distribution of self-reported work-related stress. Previous research in Ireland that has considered the relationship between bullying and work-related stress has tended to consider simple binary measures of self-reported work-related stress [4], likely concealing important insights on the nature of the relationship. Furthermore, the large dataset available to us, which contains a wide range of potentially important covariates, allowed us to answer questions not previously considered. For example, our sample of over 5000 employees from across the Irish labour market, which includes public, private, and commercial semi-state sector workers, facilitates a nationally representative examination of the relationship between bullying and work-related stress. The large sample size also allowed us to estimate separate models for females and males, in order to examine if differences exist in the nature of the relationship between bullying and work-related stress by gender. Moreover, our data also contain information on the presence (or not) of a formal policy on respect and dignity at work, allowing us to examine the potential role and importance of such policies. Finally, we also considered the degree to which relationships between management and staff, and between staff themselves, impact on work-related stress, as well as how these relationships might have differential effects on work-related stress by gender. Thus, overall, our research adds new insights to the existing literature, while our findings have a number of implications for employees, employers, and policymakers.

2. Materials and Methods

2.1. Materials

The data used are from the National Workplace Surveys (NWS) 2009, a major national survey of employees and employers undertaken in Ireland. The survey of employees focussed on the perspectives and experiences of employees in their workplaces and provided the data that are analysed here. The National Centre for Partnership and Performance (NCCP) commissioned the Economic and Social Research Institute (ESRI) to undertake the employee survey, which was at the time the first large, nationally representative study of Irish employees specifically devoted to exploring worker experiences and attitudes. Full details of the employee survey can be found in O'Connell et al. [40]. A second complementary survey and report captured the views and experiences of employers [41].

The NWS employee survey targeted employees in both the public and private sectors who were aged fifteen years or over. Following a pilot in February 2009, the survey was fielded by telephone from March to June 2009 by Amárach Research. The sample for the telephone survey was generated on a stratified random basis from the survey company's database of telephone numbers (listed and unlisted numbers). To ensure all regions of the country were represented, the database was sorted by area code. Quota control was implemented on those taking part, at the stage of selection of individuals for interview within households, to ensure the sample was representative of the target population. All interviews were completed with a questionnaire-scripted software [40].

Overall, there were 5110 completed and usable interviews from a total of over 65,000 numbers called. The majority of these numbers contacted (45,880) were not eligible for the survey for reasons such as number not in service, nobody in the household was an employee, etc. A further 10,832 numbers were of unknown eligibility because the interviewer was unable to determine whether anyone in the household was in employment. The overall response rate was therefore based on those who were initially contacted and were eligible for the survey (16 per cent or 10,186) and estimated at 50.2 per cent. For more details on these survey related issues, see O'Connell, Russell, Watson, and Byrne [40].

The NWS employee survey was specifically designed to capture a comprehensive range of information on the nature of the job and the organisation of work. It therefore includes a number of variables of relevance for the analysis in this article. First, survey respondents were asked the following question:

How often do you find your work stressful?

to which they could answer never, hardly ever, sometimes, often or always. Responses to this question formed the basis for the dependent variable in our model and Table 1 presents a breakdown of responses to this question. Respondents were also asked:

In the past six months, have you personally been subjected to bullying or harassment at work? By this I mean repeated and persistent inappropriate behaviour whether verbal, physical or otherwise, conducted by one or more individuals at the place of work?

to which they could respond yes or no. Answers to this question were used to derive the key independent variable in our model.

Table 1. Variable definitions and sample descriptive statistics.

Variable	Definition	% or Mean (SD)
Dependent Variable		
Stress	How often do you find your work stressful?	
	= 1 if never	13.44
	= 2 if hardly ever	11.60
	= 3 if sometimes	48.47
	= 4 if often	15.87
	= 5 if always	10.61
Independent Variables – Bullying and Relationships		
Bully	= 1 if self-reports being bullied; 0 else	7.38
Management Relationship	Relationship between staff and management?	
	= 1 if very good	31.80
	= 2 if good	43.37
	= 3 if neither good nor bad	15.69
	= 4 if bad	5.68
	= 5 if very bad	3.19
	= . if N/A	0.27
Staff Relationship	Relationship between staff members?	
	= 1 if very good	38.88
	= 2 if good	50.76
	= 3 if neither good nor bad	7.40
	= 4 if bad	1.86
	= 5 if very bad	0.47
	= . if N/A	0.63
Independent Variables – Personal		
Female	= 1 if female; 0 else	52.43
Age	= age in years	40.62 (11.83)
Age Squared	= age squared in years	1,790.16 (971.86)
Marital Status	= 0 if married	67.22
	= 1 if lives with partner	5.89
	= 2 if separated/divorced	3.33
	= 3 if widowed	1.41
	= 4 if single	22.15
Children	= 1 if has children; 0 else	61.35
Education	= 0 if lower secondary	15.09
	= 1 if upper secondary	25.21
	= 2 if certificate/diploma	22.00
	= 3 if degree	23.52
	= 4 if postgraduate	14.09
	= . if missing	0.10
Region	= 0 if Dublin	30.33
	= 1 if Leinster (ex. Dublin)	24.50
	= 2 if Munster	27.57
	= 3 if Connacht/Ulster	17.53
	= . if missing	0.06

Table 1. *Cont.*

Variable	Definition	% or Mean (SD)
Independent Variables – Work/Job		
Job Level	= 0 if senior management	8.59
	= 1 if middle management	15.97
	= 2 if supervisor	11.39
	= 3 if employee	64.05
Job Status	= 0 if permanent	84.34
	= 1 if temporary/contract	11.76
	= 2 if casual	3.89
Supervise	= 1 if supervise/manage any personnel; 0 else	35.69
Skills Match	= 0 if skills much higher than needed	20.31
	= 1 if skills a bit higher than needed	35.91
	= 2 if skills the same as needed	42.09
	= 3 if skills lower than needed	1.68
Union	= 1 if union member; 0 else	43.78
Independent Variables – Employer		
Size	= 0 if 1-4 people	9.10
	= 1 if 5-19 people	23.37
	= 2 if 20-25 people	8.71
	= 3 if 26-49 people	12.07
	= 4 if 50-99 people	11.12
	= 5 if 100-499 people	19.26
	= 6 if 500+ people	14.50
	= . if missing	1.88
Industry	= 0 if construction or production	18.55
	= 1 if wholesale or retail	12.35
	= 2 if hotels, restaurants, other services	7.61
	= 3 if transport, storage and communication	6.52
	= 4 if financial and other business	16.20
	= 5 if public admin and defence	8.45
	= 6 if education	12.27
	= 7 if health	18.04
Sector	= 0 if public sector	32.56
	= 1 if private sector	62.25
	= 2 if commercial semi-state	5.19
Policy	= 1 if formal policy on respect and dignity at work (e.g., an anti-bullying policy); 0 else	82.35
Independent Variables – Health and Disability		
Health	= 0 if excellent	36.40
	= 1 if very good	34.99
	= 2 if good	23.95
	= 3 if fair	3.89
	= 4 if poor	0.76
Disability	= 0 if no disability	94.58
	= 1 if daily activity limited to some extent	4.87
	= 2 if daily activity limited severely	0.55

Source: Analysis of NWS 2009 data. Notes: SD denotes standard deviation.

In addition, a range of other relevant variables are available in the NWS dataset and these are also defined in Table 1, which also presents sample descriptive statistics for all variables used in our analysis. The independent variables are grouped into variables relating to 'bullying and relationships', 'personal', 'wok/job', 'employer' and 'health and disability', though variables in the latter group may be more likely to be consequences than antecedents of bullying at workplace and are excluded from our final preferred models. The large sample size available in the NWS employee survey also facilitates an analysis of the relationship between work-related stress and bullying across a number of dimensions and, as an example, Table 2 presents cross-tabulations of these variables by gender. Since our subsequent econometric analysis considers the importance of gender specifically, further

cross-tabulations by gender are presented for *Stress* and the variables *Management Relationship* and *Staff Relationship* in Tables A2 and A3, respectively, in Appendix B for information.

2.2. Methods

The dependent variable in our analysis, *Stress*, is an ordered categorical variable representing how often an individual finds their work stressful and, as a result, an ordereda response model is required. We Öherefore Ömployed Ön Ördered Öogit Öodel Öo Össess Öhe Öelationship Öetween Öork-related Ötress, Öullying, Önd Öhe Öther Öndependent Öariables. Ön Öuch Öodels, Öhe Öependent variable Öy) Öakes Öne Öf Ördered Öutcomes Öi.e., ∈{1,2, . . . Öj}), Öhere Öenotes Öhe number Öf Öistinct Öategories. Ön Öur Öase, Ös Öqual Öo Öive, Öith Ö Öndicating Öever finding Öork Ötressful Önd Ö Öndicating Ölways Öinding Öork Ötressful.

More formally, our initial model for estimation is:

$$Stress_i = f\left(Bully_i, \mathbf{X}_i^P, \mathbf{X}^W, \mathbf{X}_i^E, \varepsilon_i\right)' \tag{1}$$

where *Bully*, the main independent variable of interest, denotes if the individual self-reported being bullied in the past 6 months. We also included a vector of personal characteristics $\mathbf{X}_i^P$, a vector of work-related characteristics $\mathbf{X}_i^W$, and a vector of employer-related characteristics $\mathbf{X}_i^E$ to act as controls, as Öer Table Ö. The Örror Öerm Ös Öepresented Öy ε Önd Öhe Öodel Ös Östimated Öt Öhe individual Ömployee Öevel.

The ordered logit model implies an underlying latent variable *Stress**, such that:

$$Stress_i^* = \alpha + \beta Bully_i + \gamma_1 \mathbf{X}_i^P + \gamma_2 \mathbf{X}^W{}_i + \gamma_3 \mathbf{X}_i^E + \varepsilon_i, \tag{2}$$

with:

$$Stress_i = 1 \text{ if } Stress_i^* < \tau_1$$

$$Stress_i = 2 \text{ if } \tau_1 \leq Stress_i^* < \tau_2$$

$$\cdots$$

$$Stress_i = 5 \text{ if } Stress_i^* \geq \tau_4$$

where τ_j are the cut-points or thresholds in the distribution of *Stress**. The model was estimated using the method of maximum likelihood via the Newton–Raphson algorithm [42], and the coefficients β and γ are estimated together with the cut-points. For further details of the ordered logit model, including detailed technical treatments, please see Greene (2018) or Cameron and Trivedi (2005) [43,44]. For examples of previous applications of ordered models, please see Cullinan et al. (2013) or Cullinan and Gillespie (2016) [45,46].

In addition to estimating the model above, we also considered a number of extensions to this analysis. First, we estimated models containing different subsets of independent variables to ascertain the robustness of our estimate of the relationship between work-related stress and bullying. For example, we estimated models where we included variables relating to relationships between staff and management and relationships between staff members, as well as models including variables relating to the health and disability status of the employee. Second, we also estimated additional models that included interactions between the bullying and relationship variables and a number of the other independent/control variables, in order to investigate if there are differences in the relationship between work-related stress and the bullying and relationship variables across groups. In particular, we tested for differences in effects by gender, as well as whether there is a formal policy on respect and dignity at work. Third, we used the results from these models with interactions to inform the estimation of separate models by gender and the existence of a formal workplace policy. Fourth and finally, we also estimated and present a range of predicted probabilities and marginal effects for all of our main models to illustrate the magnitudes and importance of our results and findings.

Table 2. Cross tabulations of stress and bullying by gender and overall (%).

| | Females | | | Males | | | All | | |
| | Bully | | | Bully | | | Bully | | |
	Yes	No	All	Yes	No	All	Yes	No	All
Stress									
Never	2.34	13.47	12.58	6.75	14.95	14.40	4.24	14.18	13.44
Hardly ever	6.07	12.21	11.72	3.68	12.04	11.48	5.04	12.13	11.60
Sometimes	39.72	49.01	48.26	34.97	49.69	48.70	37.67	49.33	48.47
Often	22.43	15.38	15.94	26.99	14.99	15.80	24.40	15.19	15.87
Always	29.44	9.94	11.50	27.61	8.33	9.63	28.65	9.17	10.61
p-value	0.000			0.000			0.000		
Observations	214	2465	2679	163	2268	2431	377	4733	5110

Source: Analysis of NWS 2009 data. Notes: *p*-values are from Pearson chi-squared tests for differences in *Stress* across groups.

3. Results

To begin, Table 3 presents the results from a number of ordered logit models of *Stress* in the form of estimated odds ratios (ORs). Model (1) includes only the key independent variable *Bully* and shows that the odds of greater work-related stress are higher for those who reported that they had been bullied. This finding holds as a range of personal, work/job, and employer-related variables are added in Models (2), (3) and (4) respectively, although the estimated OR decreases slightly in magnitude. When variables relating to the relationship between staff and management and the relationship between staff members are added in Model (5), and when variables relating to the health and disability status of the employee are added in Model (6), the estimated OR falls further but is still practically and statistically significant. Thus, overall, these models confirm a strong relationship between subjective work-related stress and the experience of being bullied (self-reported).

Table 3. Ordered logit model estimates (odds ratios).

	\(1\)	\(2\)	\(3\)	\(4\)	\(5\)	\(6\)
			Dependent Variable: *Stress*			
Bully	3.651***	3.487***	3.357***	3.282***	2.468***	2.375***
	(12.99)	(12.39)	(11.91)	(11.23)	(8.07)	(7.71)
Management: Good					1.418***	1.405***
					(4.57)	(4.45)
Management: Neither					1.938***	1.886***
					(6.48)	(6.19)
Management: Bad					2.400***	2.342***
					(6.32)	(6.12)
Management: Very bad					2.610***	2.541***
					(5.19)	(5.03)
Staff: Good					0.949	0.933
					(−0.75)	(−0.98)
Staff: Neither					1.190	1.129
					(1.41)	(0.98)
Staff: Bad					1.435*	1.341
					(1.67)	(1.35)
Staff: Very bad					1.365	1.336
					(0.68)	(0.64)
Female		1.071	1.135**	1.025	1.072	1.090
		(1.30)	(2.36)	(0.40)	(1.14)	(1.42)
Age		1.139***	1.106***	1.108***	1.097***	1.096***
		(7.68)	(5.75)	(5.56)	(4.99)	(4.90)
Age Squared		0.998***	0.999***	0.999***	0.999***	0.999***
		(−8.10)	(−6.49)	(−6.26)	(−5.68)	(−5.68)
Marital Status: Partner		1.087	1.108	1.143	1.077	1.068
		(0.70)	(0.85)	(1.07)	(0.59)	(0.53)
Marital Status: Separated		1.035	1.075	1.150	1.120	1.108
		(0.23)	(0.48)	(0.89)	(0.72)	(0.65)
Marital Status: Widowed		0.853	0.882	0.852	0.877	0.855
		(−0.72)	(−0.57)	(−0.68)	(−0.55)	(−0.66)
Marital Status: Single		1.133	1.195*	1.232**	1.212*	1.198*
		(1.28)	(1.82)	(2.07)	(1.90)	(1.78)
Children		1.030	1.032	1.031	1.029	1.041
		(0.44)	(0.47)	(0.44)	(0.40)	(0.57)
Education: Upper secondary		1.061	1.012	0.907	0.890	0.914
		(0.67)	(0.14)	(−1.06)	(−1.26)	(−0.97)
Education: Cert./diploma		1.482***	1.341***	1.220**	1.184*	1.222**
		(4.34)	(3.19)	(2.07)	(1.76)	(2.08)
Education: Degree		1.620***	1.399***	1.236**	1.196*	1.236**
		(5.39)	(3.65)	(2.15)	(1.80)	(2.13)
Education: Postgraduate		1.897***	1.588***	1.397***	1.317**	1.382***
		(6.50)	(4.54)	(3.00)	(2.45)	(2.86)
Region: Leinster (ex. Dublin)		0.986	1.018	1.036	1.040	1.048
		(−0.20)	(0.25)	(0.48)	(0.53)	(0.63)
Region: Munster		0.958	0.996	1.038	1.032	1.034
		(−0.62)	(-0.05)	(0.52)	(0.44)	(0.47)
Region: Connacht/Ulster		1.023	1.071	1.088	1.094	1.086
		(0.29)	(0.87)	(1.02)	(1.08)	(1.00)
Level: Middle management			0.891	0.883	0.802*	0.793**
			(−1.05)	(−1.11)	(−1.94)	(−2.04)
Level: Supervisor			0.764**	0.757**	0.695***	0.687***
			(−2.23)	(−2.26)	(−2.93)	(−3.02)
Level: Employee			0.718***	0.689***	0.628***	0.618***
			(−2.66)	(−2.92)	(−3.62)	(−3.75)
Status: Temporary/contract			0.833**	0.835**	0.888	0.884
			(−2.14)	(−1.97)	(−1.30)	(−1.33)

Table 3. *Cont.*

	(1)	(2)	Dependent Variable: *Stress* (3)	(4)	(5)	(6)
Status: Casual			0.734**	0.760*	0.777	0.770*
			(−2.14)	(−1.74)	(−1.60)	(−1.66)
Supervise			1.378***	1.309***	1.333***	1.334***
			(3.60)	(2.93)	(3.12)	(3.12)
Skills Match: Higher Skills			1.004	1.018	1.015	1.010
			(0.05)	(0.23)	(0.19)	(0.14)
Match: Same			1.019	1.032	1.050	1.038
			(0.26)	(0.42)	(0.64)	(0.49)
Skills Match: Lower Union			1.621**	1.581**	1.496*	1.498*
			(2.31)	(2.17)	(1.88)	(1.89)
Size: 5-19			1.260***	1.192***	1.096	1.093
			(4.17)	(2.66)	(1.38)	(1.34)
Size: 20-25				1.229*	1.164	1.172
				(1.94)	(1.40)	(1.47)
Size: 26-49				1.466***	1.313**	1.334**
				(2.95)	(2.07)	(2.19)
Size: 50-99				1.518***	1.380***	1.380***
				(3.41)	(2.58)	(2.59)
Size: 100-499				1.537***	1.363**	1.376**
				(3.45)	(2.44)	(2.51)
Size: 500+				1.356***	1.164	1.165
				(2.67)	(1.30)	(1.31)
Industry: Wholesale etc.				1.466***	1.236*	1.255*
				(3.18)	(1.72)	(1.85)
Industry: Hotels etc.				0.971	0.971	0.953
				(−0.28)	(−0.28)	(−0.45)
Industry: Transport etc.				1.294**	1.330**	1.316**
				(2.06)	(2.28)	(2.19)
Industry: Financial etc.				0.986	0.983	0.963
				(−0.10)	(−0.13)	(−0.29)
Industry: Public admin etc.				1.457***	1.493***	1.487***
				(3.98)	(4.21)	(4.16)
Industry: Education				1.047	1.067	1.038
				(0.28)	(0.39)	(0.23)
Industry: Health				0.933	1.000	1.007
				(−0.45)	(−0.00)	(0.04)
Sector: Private				1.616***	1.598***	1.593***
				(3.72)	(3.62)	(3.59)
Sector: Semi-state				0.892	0.906	0.897
				(−0.92)	(−0.80)	(−0.87)
Policy				0.866	0.900	0.911
				(−0.80)	(−0.59)	(−0.52)
Health: Very good Health:				0.799***	0.883	0.874
				(−2.65)	(−1.45)	(−1.56)
Good						1.032
						(0.48)
Health: Fair						1.238***
						(2.89)
Health: Poor						1.884***
						(4.06)
Disability: Some extent						1.208
						(0.49)
Disability: Severely						1.010
						(0.07)
$\hat{\tau}_1$						2.558**
						(2.30)
$\hat{\tau}_2$	0.165***	2.555***	1.148	1.162	1.130	1.140
	(−43.61)	(2.61)	(0.35)	(0.33)	(0.27)	(0.29)
$\hat{\tau}_3$	0.357***	5.651***	2.566**	2.634**	2.593**	2.621**
	(−31.42)	(4.82)	(2.37)	(2.12)	(2.07)	(2.09)
$\hat{\tau}_4$	3.110***	52.771***	24.876***	26.084***	26.575***	27.142***
	(33.82)	(10.91)	(8.04)	(7.10)	(7.10)	(7.12)
AIC	9.744***	167.88***	79.965***	84.867***	88.488***	90.939***
Observations	(47.63)	(14.01)	(10.91)	(9.63)	(9.66)	(9.70)
	14,159.83	13,961.92	13,871.81	13,069.89	12,903.48	12,883.03
	5110	5102	5102	4816	4789	4789

Source: Analysis of NWS 2009 data. Notes: z-statistics in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

While the estimated ORs presented in Table 3 are useful for illustrating the general relationship between work-related stress and bullying, greater insight can be obtained by considering the estimated marginal effects of bullying at different levels of work-related stress from the ordered logit model. These marginal effects show the estimated percentage point (ppt) change in the probability of reporting a given level of work-related stress (e.g., often stressed) for a one unit change in an independent variable

(e.g., bullied versus not bullied), holding all other variables in the model constant. Our estimated marginal effects are presented in Table 4 and are based on Model (4) from Table 3, since it is possible, and indeed likely, that the variables added in Models (5) and (6) will capture some of the effects of being bullied, i.e., we may underestimate the relationship between work-related stress and bullying with their inclusion. The predicted probabilities and resulting marginal effects in Table 4 show, for example, that an individual who reported being bullied is 9.0 ppts less likely to report never finding their work stressful, 6.9 ppts less likely to report hardly ever, 9.5 ppts less likely to report sometimes, 10.2 ppts more likely to report often, and 15.3 ppts more likely to report always finding their work stressful, relative to someone who reported they were not bullied, on average. Thus, these marginal effects clearly illustrate the relationship between having been bullied (self-reported) and different levels of subjective work-related stress, highlighting the need to move beyond analyses that use simple binary measures of work-related stress (i.e., stressed versus not stressed). In particular, they illustrate the potentially large effects of bullying at the ends of the stress distribution, with considerable differences in the estimated probability of always or often being stressed for those who reported being bullied, when compared to those who did not.

Table 4. Estimated marginal effect of bullying on work-related stress.

Stress	Predicted Probabilities		ME of Bullying
	Not Bullied	Bullied	
Never	0.138	0.048	−0.090***
Hardly ever	0.122	0.053	−0.069***
Sometimes	0.494	0.398	−0.095***
Often	0.152	0.253	0.102***
Always	0.095	0.248	0.153***

Source: Analysis of NWS 2009 data (n = 4816). Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

While a range of other variables in our preferred Model (4) in Table 3 were found to be related to work-related stress, a number warrant attention. First, it does not appear that there is a significant difference in *Stress* between men and women when other factors are accounted for, while having a formal, explicit policy on respect and dignity at work (e.g., an anti-bullying policy) in the workplace is associated with lower levels of work-related stress. Differences are also found by age, marital status, level of education, job level, job status, being a supervisor, skills mismatch, union membership, employer size, and industry. Moreover, the variable relating to the relationship between staff and management seems to have a particularly strong effect in Models (5) and (6), while the variable relating to the relationship between staff members is also important, though less so than for the management relationship measure. Finally, the health and disability status variables are found to be strong predictors of stress in Model (6), as would be expected.

Building on these findings, selected marginal effects for management relationship, staff relationship, and respect and dignity policies are presented in Tables 5–7, respectively. First, Table 5 shows that there are strong associations between management relationship and work-related stress. For example, relative to a very good management relationship at work, a bad or very bad management relationship at work is independently associated with higher probabilities of being always stressed of 8.4 ppts and 9.5 ppts, respectively. The corresponding estimated effects for being often stressed are 8.0 ppts and 8.8 ppts. Similar effects are not found for staff relationships, where estimated marginal effects are much lower and generally not statistically significant—see Table 6. Thus, these results suggest that when it comes to interpersonal relationships at work, being bullied and bad staff management relationships have strong negative independent associations with work-related stress, while bad interstaff relationships would appear much less problematic on average.

Table 5. Estimated marginal effect of relationship between management/staff on work-related stress.

	Marginal Effects Relative to Very Good Management Relationship Management Relationship				
Stress	**Very Good**	**Good**	**Neither**	**Bad**	**Very Bad**
Never	-	−0.042***	−0.071***	−0.088***	−0.094***
Hardly ever	-	−0.024***	−0.044***	−0.057***	−0.062***
Sometimes	-	0.007**	−0.003	−0.019*	−0.027
Often	-	0.031***	0.061***	0.080***	0.088***
Always	-	0.027***	0.058***	0.084***	0.095***

Source: Analysis of NWS 2009 data (n = 4816). Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6. Estimated marginal effect of relationship between staff on work-related stress.

	Marginal Effects Relative to Very Good Staff Relationship Staff Relationship				
Stress	**Very Good**	**Good**	**Neither**	**Bad**	**Very Bad**
Never	-	0.006	−0.018	−0.035*	−0.030
Hardly ever	-	0.003	−0.011	−0.023*	−0.020
Sometimes	-	0.000	−0.003	−0.011	−0.009
Often	-	−0.005	0.016	0.032*	0.028
Always	-	−0.005	0.017	0.037	0.031

Source: Analysis of NWS 2009 data (n = 4816). Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7 presents a similar analysis for the presence (or not) of a formal, explicit policy on respect and dignity at work (e.g., an anti-bullying policy). Overall, while the estimated marginal effects are statistically significant, the magnitudes of effects are less than for those reported in Tables 4 and 5. In other words, the existence of a policy does not seem to have a large independent effect on the work-related stress distribution. However, this estimate is conditional on self-reported experience of having been bullied and is therefore likely an underestimate of the effectiveness of such policies, if such policies lead to reductions in the prevalence of bullying.

Table 7. Estimated marginal effect of formal policy on respect and dignity at work on work-related stress.

	Predicted Probabilities		
Stress	**No Policy**	**Policy**	**ME of Policy**
Never	0.113	0.136	0.024***
Hardly ever	0.105	0.119	0.015***
Sometimes	0.480	0.484	0.004
Often	0.176	0.156	−0.020***
Always	0.126	0.105	−0.022**

Source: Analysis of NWS 2009 data (n = 4816). Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Although Table 3 suggests little or no difference in work-related stress by gender once other variables are controlled for, an interesting question arises as to whether the effects on work-related stress of bullying, or indeed management and staff relationships, differ by gender. This question can be assessed empirically in a number of ways. One approach involves the inclusion of interaction terms between gender and one or more of the bullying and relationship variables, while a second approach involves the estimation of separate models for males and females and an examination of differences in ORs and marginal effects across models. In our analysis, we adopted both approaches and found the general pattern of results and main conclusions to be similar. For reasons of space, we do not include all results (which are available on request from the authors) but summarise the main findings here and include a range of illustrative marginal effects by gender in Appendix B.

For example, Table A4 presents estimated marginal effects of being bullied on work-related stress separately for females and males. These effects are derived from separate models estimated by gender and are consistent with marginal effects estimated from models that include interaction terms between gender and bullying. They show that there is little difference in the effect of being bullied (self-reported) on work-related stress by gender. While the marginal effects are larger in magnitude for males than for females, differences are not statistically significant (results not presented).

A very different story is evident when considering differences in the effects of the relationship between management and staff by gender. Overall, the results in Tables A5 and A6 suggest that relative to a very good management relationship, a bad or very bad management relationship has a much stronger association with greater levels of work-related stress for females than for males. These differences are statistically significant and suggest that this form of interpersonal relationship may be much more detrimental for women than for men. There is some evidence of differences between women and men in the effects of bad and very bad staff relationships on work-related stress, though the magnitudes of effects and differences are not as large as for management relationships, and effects and differences tend not to be statistically significant—see Tables A7 and A8. Thus, while there is some limited evidence that a generally bad relationship between staff may have worse implications for women than for men, the evidence for this is not as strong as for management and staff relationships.

4. Discussion

4.1. Main Findings

This article considers the relationship between subjective work-related stress and self-reported experience of being bullied in the Irish workplace. Amongst the main findings are that employees who reported that they were bullied were considerably more likely to report that they were often or always stressed, while bad and very bad relationships between management and staff were also associated with greater stress. These findings support the argument that positive relationships between group members are essential for individual and organisational health [47] and that a lack of social support and/or negative work relationships are significant stressors in the workplace [48]. Considerable empirical evidence supports the link between leadership style and employee affective well-being and stress [49,50], with negative leader behaviours such as low support, abuse, and control linked with stress and negative outcomes for employees [49]. Notably, co-worker support had little independent effect on stress in our study, though the extant literature in this area has been inconsistent [51]. Therefore, more research may be required on this issue, including an examination of any differences across sectors.

While many studies have examined gender differences in stress, with inconsistent results, Russell, Fahy, Maître, and Watson [2] have noted that few studies have examined whether gender differences are evident in how individual stressors affect men and women. Therefore, our examination of gender differences in stress reactions to bullying and poor interpersonal relationships in the workplace adds to the knowledge base. Although the findings revealed no significant independent gender differences in stress and stress due to bullying, significant gender differences were found in response to bad management relationships, with the effects of bad management relationships much more pronounced for women than they are for men. This finding may be explained with reference to known gender differences in the use of social support. Evidence suggests that women are more likely to seek out social support [52,53] and rate social support as more important than men [54]. Therefore, this could imply that in a situation where social support is lacking or interpersonal relationships are poor, there is greater potential for negative effects, such as increased stress [51].

We also found that the presence (or not) of a formal, explicit policy on respect and dignity at work (e.g., an anti-bullying policy) was independently associated with lower levels of work-related stress, though the estimated marginal effects (direct effects) were relatively small. However, it should be

borne in mind that this finding is in addition to any reductions in work-related stress that are brought about by reduced rates of bullying from such policies (indirect effects).

4.2. Policy Implications

Overall, given the high and increasing rates of workplace bullying in Ireland, our findings further highlight the need for a greater public policy response in the area. The uncontrollable nature of the process of bullying, and the personal directedness of it, make it a particularly problematic workplace stressor. Policy developments in Ireland in this area began with the establishment of the 1999 Taskforce on the Prevention of Workplace Bullying and the 2004 Expert Advisory Group on Workplace Bullying. Both the Taskforce and the Expert Advisory Group highlighted the inadequacies in the current Irish framework and recommended the consolidation of legislative powers to agencies charged with enforcing health and safety policies [55]. However, they did not recommend the introduction of legislation at the time, instead concentrating more on the provision of guidance for employers, given the lack of evidence on the impact of specific anti-bullying legislation on bullying rates [56].

Further policy efforts aimed at stemming discrimination and harassment within the Irish workplace include the Employment Equality Acts 1998–2015, the 2007 Code of Practice for Employers and Employees on the Prevention and Resolution of Bullying at Work, as well as the 2009 Codes of Practice on Sexual Harassment and Harassment at Work [57]. The development of Codes of Practice to address bullying and harassment in the workplace are welcome and necessary, providing a standard for employers to comply with. Codes of Practice set out the responsibilities of employers and employees, in the context of national legislation, in preventing and resolving bullying or harassment [58]. Codes are not legally binding, though failure to create and review policies and procedures as recommended would leave an organisation very exposed should a case be taken against them. Codes of Practice have been commended as a good example of cooperation with government and social partners [59]. However, in practice, Irish employers are currently in a situation where they have to decide which of two bullying Codes of Practice to apply, as well as the implementation of the Code of Practice on Sexual Harassment and Harassment at Work. Furthermore, adherence to the Codes of Practice is voluntary, and breaches of them are difficult to address in the legal system, thus acting as a barrier for individuals seeking redress [33].

The use of Dignity at Work Charters and/or anti-bullying policies as outlined in the Codes of Practice are important visible standards for interpersonal behaviour. These typically communicate a no-tolerance approach to bullying, provide specific guidelines for the prevention of bullying, and outline procedures for handling complaints. However, evidence of their effectiveness is mixed. O'Connell, Calvert, and Watson [36] found that the presence of a policy was associated with lower levels of bullying, while others have questioned their effectiveness [60,61]. The weak relationship between bullying policy and bullying levels is likely to be due to the fact that anti-bullying or Dignity at Work policies constitute a 'complex intervention' [62], and there are many contextual factors at play. Awareness of policy is a prerequisite for use, as are supportive actions, such as behavioural modelling, acting on complaints, and the provision of suitable training [59,63]. Indeed, where implementation gaps exist between the written policy and what occurs in practice, then the policies may be perceived as meaningless, potentially reducing employee trust in management and increasing frustration [37].

On one hand, it could be argued that the Irish regulatory body should concentrate efforts on increasing employer awareness on the benefits of adhering to guidance on preventing bullying and stress in workplaces. Specifically, the Work Positive tool designed by the Health and Safety Authority (HAS) provides a means for organisations to identify and measure stressors, including bullying and psychological strain, and devise prioritised action plans to address significant issues. The Work Positive Tool is based on a similar intervention introduced in the UK, the Management Standards approach. Both interventions involve facilitating a risk assessment based on evidence-informed, organisational-level predictors of work-related stress, and the development of an action plan to address the causative factors in an organisation. Evidence is accumulating that a combination of

individual and organisational focused interventions is better placed to address work-related stress [64] and have longer lasting effects than individually focused interventions for burnout [65]. Organisations should consider the use of such tools, generally available with supports from the HSE (UK) and HSA (Ireland). With regard to specific interventions to reduce workplace bullying, systematic reviews indicate that few interventions that have been evaluated have, to date, shown a positive impact on bullying levels [66,67]. The best evidence at present is for an intervention designed specifically to address incivility (rude and aggressive interpersonal behaviour, which can be a precursor to bullying), which is underpinned by a participative, preventative approach. On the other hand, it has been strongly argued that specific legislative provision is required, an argument based on the notion that legislative silence sends the wrong message to employers and society [68], although this is likely to be strongly opposed by relevant stakeholder groups, as was the case previously in 1999 and 2004 [33]. Therefore, given the increasing rate of work-related stress reported in Ireland and the significant proportion of the workforce affected by workplace bullying, it may be timely to review the Irish legislation and policy, including an evaluation of current Codes of Practice and employer awareness.

4.3. Limitations

In terms of limitations to our analysis, a number of caveats should be borne in mind. First, the study relies on self-reported data and, therefore, the results may be influenced by common method variance. Furthermore, both our dependent and key independent variables are single item measures, and this is potentially problematic for a number of reasons. For example, research has shown that self-labelling style bullying questions with a definition, as employed here, tend to obtain lower estimates of bullying in comparison with other methods, e.g., behavioural checklists [69]. This is because, while generally acceptable as a measure, self-labelling measures of bullying may invoke various defence strategies associated with 'victimhood'. As a result, this should be borne in mind in the context of the associations explored within our study. Similarly, by using a single item measure of stress, differences in sources of stress among respondents are not reflected. For example, some studies note that men and women may be affected and appraise stressors differently [70,71].

Another limitation of our analysis is that our survey data are from 2009. However, there is no recent dataset available for Ireland of which we are aware that contains the large sample size and rich array of variables required to undertake our analysis. We also acknowledge that since our data are cross-sectional in nature, the results from our econometric models represent independent associations, as opposed to causal effects. We are unaware of suitable instrumental variables or natural experiments that would allow us to convincingly identify the causal effect of bullying and workplace relationships on work-related stress, though this is something that should be prioritised in future research. We are also unaware of any relevant panel/longitudinal data that would allow us to control for time-invariant individual-level heterogeneity.

Nonetheless, despite these limitations, our study adds to the evidence base suggesting that when contextual variables are controlled for, gender differences in work-related stress are not found and that more research examining gender differences in the relationships between stress and exposure to specific stressors is warranted. We highlight that employees who reported that they were bullied were considerably more likely to report that they were often or always stressed, and that bad and very bad relationships between management and staff were also significantly associated with greater stress, particularly for female employees. Thus, our study confirms the need to find and implement robust interventions that include but go beyond the development and dissemination of a policy document, as well as pay due attention to implementation factors. Finally, the lack of gender differences evident in experience of bullying found in this study also adds to the evidence base suggesting that larger-scale, representative studies are less likely to report gender differences across the working population [72].

Appendix A 'Psychological Approach' to the Conceptualisation of Work-Related Stress

Table A1. Stressful characteristics of work.

Category	Conditions Defining Hazard
Content of Work	
Work Environment and Equipment	Problems regarding the reliability, availability, suitability and maintenance or repair of both equipment and facilities.
Task Design	Lack of variety or short work cycles, fragmented or meaningless work, underuse of skills, high uncertainty.
Workload/Work Pace	Work overload or underload, lack of control over pacing, high levels of time pressure.
Work Schedule	Shift working, inflexible work schedules, unpredictable hours, long or unsocial hours.
Context of Work	
Organisational Culture and Function	Poor communication, low levels of support for problem-solving and personal development, lack of definition of organisational objectives.
Role in Organisation	Role ambiguity and role conflict, responsibility for people.
Career Development	Career stagnation and uncertainty, under-promotion or over-promotion, poor pay, job insecurity, low social value of work.
Decision Latitude/Control	Low participation in decision-making, lack of control over work (control, particularly in the form of participation, is also a contextual and wider organisational issue).
Interpersonal Relationships at Work	Social or physical isolation, poor relationships with superiors, interpersonal conflict, lack of social support.
Home-work Interface	Conflicting demands of work and home, low support at home, dual career problems.

Source: Adopted from Cox, Griffiths, and Rial-González [22].

Appendix B Additional Analysis

Table A2. Cross tabulations of stress and management relationship by gender and overall (%).

| | **Females** | | | | | | **Males** | | | | | | **All** | | | | | |
| | *Management Relationship* | | | | | | *Management Relationship* | | | | | | *Management Relationship* | | | | | |
	VG	*G*	*N*	*B*	*VB*	*All*	*VG*	*G*	*N*	*B*	*VB*	*All*	*VG*	*G*	*N*	*B*	*VB*	*All*
Stress																		
Never	18.14	10.56	9.16	4.03	6.98	12.58	20.93	13.65	9.05	6.38	9.09	14.40	19.32	12.09	9.10	5.17	7.98	13.44
Hardly ever	15.58	11.64	6.54	5.37	3.49	11.72	13.95	11.19	9.05	11.35	7.79	11.48	14.89	11.42	7.86	8.28	5.52	11.60
Sometimes	47.49	51.66	46.86	41.61	32.56	48.26	43.17	52.32	51.19	42.55	45.45	48.70	45.66	51.99	49.13	42.07	38.65	48.47
Often	12.70	16.56	19.37	22.82	17.44	15.94	14.53	15.47	17.62	21.28	12.99	15.80	13.48	16.02	18.45	22.07	15.34	15.87
Always	6.08	9.58	18.06	26.17	39.53	11.50	7.41	7.37	13.10	18.44	24.68	9.63	6.65	8.48	15.46	22.41	32.52	10.61
p-value			0.000						0.000						0.000			
Obs	937	1117	382	149	86	2679	688	1099	420	141	77	2431	1625	2216	802	290	163	5110

Source: Analysis of NWS 2009 data. Notes: *p*-values are from Pearson chi-squared tests for differences in *Stress* across groups. *VG* denotes very good; *G* denotes good; *N* denotes neither good nor bad; *B* denotes bad; *VB* denotes very bad. The table excludes 14 missing observations for the variable *Management Relationship*.

Table A3. Cross tabulations of stress and staff relationship by gender and overall (%).

| | **Females** | | | | | | **Males** | | | | | | **All** | | | | | |
| | *Staff Relationship* | | | | | | *Staff Relationship* | | | | | | *Staff Relationship* | | | | | |
	VG	*G*	*N*	*B*	*VB*	*All*	*VG*	*G*	*N*	*B*	*VB*	*All*	*VG*	*G*	*N*	*B*	*VB*	*All*
Stress																		
Never	16.06	10.59	6.67	3.85	7.69	12.58	17.44	13.57	9.84	0.00	9.09	14.40	16.66	12.10	8.20	2.11	8.33	13.44
Hardly ever	14.54	10.75	5.13	3.85	0.00	11.72	12.24	11.14	8.74	16.28	18.18	11.48	13.54	10.95	6.88	9.47	8.33	11.60
Sometimes	47.46	49.49	49.74	36.54	30.77	48.26	47.34	50.42	45.36	32.56	45.45	48.70	47.41	49.96	47.62	34.74	37.50	48.47
Often	13.74	17.88	14.87	23.08	23.08	15.94	13.97	16.00	22.40	25.58	0.00	15.80	13.84	16.92	18.52	24.21	12.50	15.87
Always	8.21	11.29	23.59	32.69	38.46	11.50	9.01	8.87	13.66	25.58	27.27	9.63	8.56	10.06	18.78	29.47	33.33	10.61
p-value			0.000						0.000						0.000			
Obs	1121	1275	195	52	13	2679	866	1319	183	43	11	2431	1987	2594	378	95	24	5110

Source: Analysis of NWS 2009 data. Notes: *p*-values are from Pearson chi-squared tests for differences in *Stress* across groups. *VG* denotes very good; *G* denotes good; *N* denotes neither good nor bad; *B* denotes bad; *VB* denotes very bad. The table excludes 32 missing observations for the variable *Staff Relationship*.

Table A4. Estimated marginal effect of bullying on work-related stress—females and males.

	ME of Bullying	
Stress	**Females**	**Males**
Never	–0.081***	–0.101***
Hardly ever	–0.067***	–0.071***
Sometimes	–0.089***	–0.107***
Often	0.090***	0.115***
Always	0.146***	0.165***

Source: Analysis of NWS 2009 data (n = 4816). Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5. Estimated marginal effect of relationship between management/staff on work-related stress—females.

Marginal Effects Relative to Very Good Management Relationship					
		Management Relationship			
Stress	**Very Good**	**Good**	**Neither**	**Bad**	**Very Bad**
Never	-	–0.042***	–0.068***	–0.089***	–0.105***
Hardly ever	-	–0.027***	–0.047***	–0.066***	–0.082***
Sometimes	-	0.004	–0.008	–0.034*	–0.071**
Often	-	0.034***	0.061***	0.088***	0.111***
Always	-	0.031***	0.063***	0.101***	0.148***

Source: Analysis of NWS 2009 data (n = 2497). Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A6. Estimated marginal effect of relationship between management/staff on work-related Stress—males.

Marginal Effects Relative to Very Good Management Relationship					
		Management Relationship			
Stress	**Very Good**	**Good**	**Neither**	**Bad**	**Very Bad**
Never	-	–0.040***	–0.074***	–0.085***	–0.069**
Hardly ever	-	–0.020***	–0.040***	–0.048***	–0.037**
Sometimes	-	0.008*	0.000	–0.008	0.003
Often	-	0.029***	0.060***	0.073***	0.055**
Always	-	0.023***	0.054***	0.068***	0.048*

Source: Analysis of NWS 2009 data (n = 2319). Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7. Estimated marginal effect of relationship between staff on work-related stress—females.

Marginal Effects Relative to Very Good Staff Relationship					
		Staff Relationship			
Stress	**Very Good**	**Good**	**Neither**	**Bad**	**Very Bad**
Never	-	0.002	–0.024	–0.043**	–0.062
Hardly ever	-	0.001	–0.017	–0.032*	–0.049
Sometimes	-	0.000	–0.007	–0.022	–0.049
Often	-	–0.002	0.022	0.042*	0.064
Always	-	–0.002	0.026	0.055	0.095

Source: Analysis of NWS 2009 data (N = 2497). Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8. Estimated marginal effect of relationship between staff on work-related stress—males.

Marginal Effects Relative to Very Good Staff Relationship					
		Staff Relationship			
Stress	**Very Good**	**Good**	**Neither**	**Bad**	**Very Bad**
Never	-	0.012	–0.009	–0.027	0.036
Hardly ever	-	0.006	–0.005	–0.016	0.018
Sometimes	-	0.000	–0.001	–0.006	–0.005
Often	-	–0.009	0.008	0.024	–0.027
Always	-	–0.009	0.007	0.025	–0.023

Source: Analysis of NWS 2009 data (n = 2319). Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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