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Job strain, gender and wellbeing at work: A case study of public sector line managers

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Job strain, gender and wellbeing at work: A case study of public sector line managers

Abstract

Purpose – The purpose of this paper is to further the understanding of public sector line managers' work-related wellbeing and health in relation to job strain, gender and workplace social support.

Design/methodology/approach - An on-line survey was sent to all senior and middle line managers (N=357) in three administrative departments of Iceland's largest municipality. The response rate was 64.7%. Multivariate logistic regression was used to analyse the data.

Findings - A minority of respondents experience high job strain. However, for these managers, the risk of experiencing emotional exhaustion is about five-fold, compared to those not experiencing high job strain. Social support is an important buffering against job strain and enhances wellbeing. Female managers are more likely than their male counterparts to report myositis, back or shoulder pain and sleeping difficulty.

Implications - The study emphasises that workplace social support attenuates the negative impact of job strain on line managers' work-related wellbeing. Furthermore, it demonstrates that in a society at the forefront in gender equality, gender differences in health symptoms exist among line managers in the public sector – a finding that highlights the importance of studying all aspects of workplace wellbeing by gender. This calls for future research using a more comprehensive survey data and interviews to shed light on the pathways through which female line managers' health is negatively affected.

Originality/value - Knowledge relating to wellbeing and health of line managers in the public sector is scarce. This study contributes to filling that gap. As work-related wellbeing is often gender-blind, the value of the study is also the investigation of the gender patterns in our data.

Keywords Public sector line managers, Job strain, Gender, Wellbeing, Health symptoms, Workplace social support

Paper type Research paper

Introduction

Line managers in public organisations play a critically important role in organisational operations and can enhance the performance and wellbeing of employees (Boes-Nehles, 2010; Corin and Björk, 2016; Guest, 2017). Most public organisations are human service organisations, where managerial work is characterised by lack of resources, increase of demanding clients (and recipients), and handling conflicts in the workplace (Berntson, Wallin and Härenstam, 2012). The psychosocial working context may have consequences on public managers' work stress (Løkke and Madsen, 2014). However, it is unclear from prior studies whether public sector managers experience a more intense work strain and poorer work-related wellbeing because of difficult working conditions as compared to corresponding management positions in the private sector (Berntson et al., 2012; Løkke and Madsen, 2014). Taking stand in that, we analyse job strain, health and wellbeing among female and male line managers in a public organization in Iceland.

Corin (2016, p 14), claims that new public management in Sweden appears to have changed public managerial work radically, in which "...a troublesome work situation in which organisational changes, economic constraints, and disadvantageous psychosocial working conditions" have become a large part of public managerial work.

Senior and middle line managers, in charge of business or functional units, are the key actors with the role and responsibility of decision-making and implementation of human resource management (HRM) policies and practices (Guest and Bos-Nehles, 2013). Line managers also play the key role of handling challenging people-management activities, including interpersonal conflicts in the workplace (Lawless and Trif, 2016; Teague and Roche, 2012; Whittaker and Marchington, 2003). HRM devolution literature review reveals middle line managers' perception of increased workload, time pressure and role conflicts (Holt Larsen and Brewster, 2003; Hutchinson and Purcell, 2010; McConville, 2006; Renwick, 2003). At the same time, they have to practice conscious and effective communication (Currie and Procter, 2001), coaching and support (Perry and Kulik, 2008; Renwick, 2003) which help line managers in fulfilling their HRM roles and handle difficult people-management issues.

Due to increased scope of duties and psychological job-demands that line managers in public organizations have had to face, knowledge is needed about work-related wellbeing and health symptoms of this group of employees in relation to job characteristics (Bernin, 2002; Björklund, Lohela-Karlsson, Jensen and Bergström, 2013;

Blom, Bodin, Bergström and Svedberg, 2016; Landstad and Vinberg, 2013). Our study will contribute to fill that gap of knowledge, using survey data collected from the City of Reykjavik Municipality, the largest in Iceland. The aim of the study is to analyse, through a gender lens, the relationship between job strain on the one hand and health and wellbeing on the other, among senior and middle line public sector managers. The outcomes explored are job satisfaction, emotional exhaustion, personal accomplishment and 14 health symptoms. Further, we examined the effect of social support on the health symptoms and the three wellbeing outcomes.

Conceptual framework and related research

Different management levels

In large public organisations like the settings in this study, there are generally at least three managerial levels. At the highest level are senior line managers or top executives working directly with the CEO (e.g. the City Mayor) and working closely with the specialist support functions like human resource (HR). Middle line managers are positioned below senior or top management level (Floyd and Wooldridge, 1997; Huy, 2001). They “maintain a central position in organisational hierarchies, are responsible for implementing senior management strategies, and exercise control over junior staff” (Harding, Lee, and Ford, 2014, p. 2). Middle line managers are also responsible for supervising lower-level managers and employees. Their role is to find the best way to organise, coordinate and direct human and other resources to achieve the objectives of their department or business unit (Bos-Nehles, 2010; Op de Beeck, Wynen and Hondeghem, 2018). Finally, first-line managers (or front-line managers) are at the lowest management level. They are mostly involved in operational tasks and oversee and supervise employees in the daily work practice on the shop floor (Hales, 2006; Op de Beeck et al., 2018). The focus in our study is on senior and middle line managers in central positions in the organisation and in charge of operational business and HRM. We refer to these as higher-level managers.

Work-related wellbeing and the JDC model

Wellbeing is a function of multiple aspects of life, including work and leisure. To what

extent health and wellbeing are affected by job characteristics and working context, as opposed to lifestyle in general, is challenging to decipher. According to the Job Demand-Control Model (JDC model) (Karasek, 1979; Karasek and Theorell, 1990), jobs that are characterised by high job demands combined with low job control are so-called high strain jobs. As a measurement tool, the JDC model has dominated research on the relationship between job strain and work-related wellbeing for decades (Sanne, Torp, Mykletun and Dahl, 2005) and has been shown to predict both physical health symptoms (e.g. troubles with low back) and psychological health complaints (e.g. anxiety, depression, mental strain) (e.g. Björklund et al., 2013; de Jonge, Bosma, Peter and Siegrist, 2000; Häusser, Mojzisch, Niesel and Schulz-Hardt, 2010; Van der Doef and Maes, 1999).

Studies on wellbeing at work generally focus on individual and subjective job experiences, emotions and health complaints. Workplace wellbeing has been characterised as the absence of mental strains such as emotional exhaustion, reduced personal accomplishment (i.e. low self-evaluation of effectiveness at work) and depersonalisation (i.e. detaching oneself from work and recipients of the service) (Bakker and Demerouti, 2007; de Jonge et al., 2000; Jackson, Rothmann and Van de Vijver, 2006; Schaufeli and Bakker, 2004). These are the three dimensions behind the definition of burnout by Maslach and Jackson (1981), of which two are explored here. Work-related wellbeing has also been characterised by how satisfied or dissatisfied individuals are in their jobs (Bakker and Demerouti, 2007; de Jonge et al., 2000; Häusser et al., 2010), which we too explore.

Workplace social support and wellbeing at work

Workplace social support has been defined as the “overall levels of helpful social interaction available on the job from both co-workers and supervisors” that might affect the wellbeing of the recipient (Karasek and Theorell, 1990, p. 69). Deelstra et al. (2003, p. 324) referred to workplace social support as “actions of others that are either helpful or intended to be helpful”. Workplace social support can involve concrete help and tangible assistance, as well as advice on how to approach a problem. An important type of social support in the workplace is offer of advice, listening and showing empathy or trust (House, 1981; Lam, 2019; Moeller and Chung-Yan, 2013). The sources of workplace social support might for example be a supervisor, supporting functions

specialist or colleagues. Karasek and Theorell (1990), adding the factor of workplace social support to the job strain model, found that social support substantially diminished psychological distress in the job characteristic categories in their model. Nevertheless, prior studies have in general provided inconsistent results about the buffering effect of social support vis-à-vis job demands, job strain, and psychological wellbeing (Gadinger et al., 2010; Häusser et al., 2010; Van der Doef and Maes, 1999). We therefore explore the possible buffering effect of workplace social support in our models.

Many scholars have shown the importance of a gendered perspective when work and health are considered (Bildt, 2001; Gunnarsdottir, Tomasson and Rafnsdottir, 2004; Karlqvist, 2001; Messing and Kilbom, 1998; Rafnsdottir, Gunnarsdottir and Tomasson, 2004). There are different reasons for this, including how the labour market is divided along gender lines, differences in family responsibility, and biological factors. Further, ill health, pain and other symptoms can manifest in different ways in the sexes. Despite women generally living longer than men, this does not imply that they are healthier: as the saying goes, “women are sicker, but men die quicker” (Emslie, 2014).

Women are more likely to seek medical help for various symptoms, often showing patterns that badly fit known syndromes or diseases (Bury, 2005; Olafsdottir, 2004; Vilhjalmsón, 2000). This is what Messing and Kilbom (1998) called the gender paradox in health. Icelandic public health data from 2007 showed that women are more likely than men to show symptoms of malaise, and were also less likely to be free of the symptoms that are asked about in the survey (Thorvaldsdottir, 2010). A strong link has been observed between risk factors in women’s work environment and self-reported symptoms in the musculo-skeletal system and/or mental malaise (Bildt, 2001; Gunnarsdottir, Tomasson and Rafnsdottir, 2004; Karlqvist, 2001; Olafsdottir and Rafnsson, 2000; Rafnsdottir, Gunnarsdottir and Tomasson, 2004).

Wellbeing, gender and management

The number of female managers is increasing worldwide, making the situation of women in managerial jobs a crucial issue in gender equality (Alvesson and Billing, 2009). However, even though gender diversity in managerial jobs is increasing, women are still considered as too few in top management positions (J. P. Morgan, (n.d.); Perrault, 2014). This also applies for the relatively gender-equal country that is under scrutiny here, Iceland (Juliusdottir, Rafnsdottir and Einarsdottir, 2018). Gender equality regarding

work-related wellbeing is an important prerequisite for general gender equality in the labour market (Messing et al. 2003). Therefore, possible gender differences in wellbeing among managers is an important issue to analyse.

Most studies concerning job strain, health and work-related wellbeing have focused on all employees in the organisation rather than solely on line managers (Björklund et al., 2013). The few studies conducted on managers in general have categorised their job as active, which in general is seen as positive (Bernin and Theorell, 2001; Karasek, 1979, 1989). These studies also indicate that managers in general have good health, despite many of them considering their job very stressful (Björklund et al., 2013; Lundqvist, Eriksson and Ekberg, 2012). Even though many studies on wellbeing among managers are gender blind, those focusing on possible gender differences show mixed results.

According to Nordenmark (2002), Swedish women are more likely than men to experience role stress in coordinating family and professional life. However, Nordenmark (2002) found that this did not apply to people in managerial positions, as little gender difference was observed in those cases. Nordenmark (2002) explained this by pointing out that remuneration is higher for such jobs, resulting in a more positive self-image and higher self-esteem, which are protective factors. This is in line with Bernin and Theorell (2001) who found that gender differences were almost non-existent in a study on eight state-owned Swedish companies, where managers experienced not only very high psychological job demands in their working life, but also a high degree of job control, i.e. decision-making authority and skill discretion. The managers did not report higher social support than other groups, despite reporting significantly higher job demands. However, the authors discussed the importance of the effect of social support for managers in their managerial role and advocated the need for more long-term studies. They concluded that high job control seemed to modify or buffer the effect of high job demands and may thus decrease the risk factors for ill health. This correlates with Karasek's theory (1979, 1989), which predicts that demanding job situations involving high level of control will reduce the risk of psychological strain (fatigue, anxiety, depression and the risk of physical illness). However, the buffering effect of social support on managers' high job demands seems to be unclear.

The gender differences were more apparent in a study made by Björklund et al. (2013), who studied managers in Swedish municipalities. They found that lower-level managers had about double the relative risk of experiencing high job strain, compared to

higher-level managers. Their results also indicated that women in lower-level managerial positions had a three-fold risk of experiencing job strain, vis-a-vis men in higher managerial positions. Higher-level female managers had 1.7 times higher risk of experiencing job strain, compared to their higher-level male colleagues. Further, women in lower-level managerial positions suffered to a greater extent from poor health as well as more work-related stress, compared to higher-level male managers. On the other hand, women in higher-level managerial positions had health and work-related stress patterns that were quite similar to those of men in lower-level managerial positions, but did not seem to have significantly more health problems than men at the same managerial level (Björklund et al., 2013).

Gadinger et al. (2010), who investigated 424 higher-level managers in Germany, Austria and Switzerland, also found gender differences in wellbeing, as rising levels of job demands were associated with an increase in the intensity of psychosomatic complaints, more in women than in men. Their data suggested that female managers have an increased risk of stress-related health complaints, because they experience lower job control and lower social support than their male colleagues. Moreover, their findings showed that female managers experienced a higher buffering effect from social support than from job control, whereas male managers benefited equally from social support and job control. Gadinger et al. (2010) concluded that increased social support for female managers might help to overcome gender inequalities in managerial positions.

Based on the review of previous research-based literature, our aim is to further the understanding of senior and middle line managers' work-related wellbeing and health complaints, in relation to their subjective experience of high job strain. We are especially keen to investigate whether we find gender patterns with regard to job strain, wellbeing and health symptoms among middle and higher line managers in Iceland's largest municipality, as Iceland is ranked number one in gender equality in the world (World Economic Forum, 2019).

Against this background, we seek to address the following research questions:

- RQ 1: Is there a relationship between self-assessed high job strain and work-related physical and psychosocial symptoms among female and male line managers?
- RQ 2: Are there gender differences with regard to job strain, health problems and outcomes of wellbeing?
- RQ 3: What is the impact of high social support on managers' job strain and the outcomes of health and wellbeing?

Data and Methods

We use data from an on-line survey conducted from mid-April to end-May 2017. A questionnaire was sent to all senior and middle line managers in three administrative departments in Iceland's largest municipality, the City of Reykjavik, to a total of 357 recipients. The three departments are the Department of Environment and Planning, Department of Welfare, and Department of Education and Youth.

The City of Reykjavik municipality represents different types of operations (care, education, technical services) and various categories of employees, both skilled and unskilled. It has a pro-active gender equality policy in accordance with Icelandic law on equal status and equal rights of women and men (Government of Iceland, Ministry of Social Affairs (n.d.)). Therefore, it is an appropriate case to choose for this study.

The questionnaire is mainly based on the Icelandic version of the General Nordic Questionnaire for Psychological and Social Factors at Work (QPS Nordic) and the questionnaire on Health and Wellbeing of Icelanders (Gudlaugsson, Magnusson and Jonsson, 2014). With 231 individuals completing the survey, the response rate was 64.7%. A final sample of 193 observations or 54.1% of the original sample was then created, conditional on non-missing observations on variables used in the analyses. In terms of gender, 29% of the respondents were male and 71% female. Ages ranged from 29 to 67 years. Middle line managers accounted for 89% of the respondents, while 11% were at the executive or senior management level.

We follow de Jonge et al. (2000) and Bosma, Peter, Siegrist and Marmot (1998), and apply Karasek's JDC model, though using proxy measures, since measures of job characteristics and outcome variables are not identical to the original measures of the JDC model. For statistical analyses we use multivariate logistic regression analyses to explore whether job strain, gender and social support associate with the wellbeing of line managers. We report odds ratios with 95% confidence intervals derived from the logistic regression models. In Model 1, gender and job strain are the independent variables of interest and in Model 2, we add social support to the model to explore its impact on managers' job strain and the outcomes of health and wellbeing. Thus, gender and job strain are simultaneously controlled, while in Model 2, we added workplace support as a control.

Independent variables

All items used in our analyses were measured using a five-point Likert-like scale, apart from the physical symptoms, which have a four-level answer range (Tables 1 and 2). Gender is an independent variable of interest in our analyses, along with job strain and workplace social support, the job characteristics of main interest. The job strain variable was generated by combining information on job demand and job control, with a focus on psychological demands. Following previous research (Bosma et al., 1998; Karasek, 1979; Karasek and Theorell, 1990), the indicator for job strain equals unity if the job demand index (explained below) is above the median and the job control index is below the median, but otherwise job strain equals zero. As reported in Table 1, a significantly higher proportion of women (p -value <0.05) report low job control than men (50% vs. 30%) but men and women report job demand in a similar manner.

The job demand index was created by summing up the values of the answers to a four-item questionnaire with five-range answer options, from “very seldom or never” to “very often or always”. The questions were: Is your workload irregular, such that work piles up? Do you have too much to do? Does your work require complex decisions? Does your work require more skills and knowledge than you already have? Cronbach alpha was calculated as 0.641.

A job control index was created in a manner similar to the job demand index, i.e. from a five-item questionnaire with five-range answer options, namely: Can you influence the amount of work assigned to you? Do you know in advance what kind of tasks to expect a month from now? Can you yourself decide when you are going to take a break? Can you set your own working hours (flexitime)? Can you influence decisions that are important for your work? Cronbach alpha was calculated as 0.626.

An index for workplace social support was created by aggregating the following three items in the questionnaire: If needed, can you get support and help with your work from your immediate supervisor? If needed, can you get support and help with your work from the department’s specialist functions, e.g. HR and/or Finance functions? If needed, can you get support and help with your work from your colleagues (i.e. other higher-level managers in the department)? Cronbach’s alpha was calculated as 0.699. A dummy for high workplace social support was created conditional on values being higher than the median of the index variable.

Table 1 Summary statistics

Variables	Men			Women			t ¹	Total		
	Mean	SD	N	Mean	SD	N		Mean	SD	N
<i>Independent variable</i>										
Job strain	0.21	0.41	56	0.32	0.47	137		0.29	0.46	193
High social support	0.45	0.50	56	0.48	0.50	137		0.47	0.50	193
High demand	0.46	0.50	56	0.50	0.50	137		0.49	0.50	193
Low control	0.30	0.46	56	0.50	0.50	137	**	0.44	0.50	193
<i>Control variables</i>										
Age	51.39	10.90	56	50.65	9.00	137		50.87	9.56	193
Graduate studies	0.48	0.50	56	0.44	0.50	137		0.45	0.50	193
Married	0.89	0.31	56	0.72	0.45	137	**	0.77	0.42	193
Span of control ²	2.16	1.92	56	2.18	1.78	137		2.18	1.82	193
Type of manager ³	0.14	0.35	56	0.09	0.29	137		0.11	0.31	193
Health index ⁴	2.71	2.53	56	3.99	2.90	137	***	3.62	2.85	193
<i>Dependent variables</i>										
Job dissatisfaction ⁵	0.75	0.44	56	0.65	0.48	137		0.68	0.47	193
Emotional exhaustion	0.29	0.46	56	0.39	0.49	137		0.36	0.48	193
Low accomplishment	0.25	0.44	56	0.23	0.42	137		0.24	0.43	193

¹ T-test is calculated for differences in means by gender. * $p < 0.10$, ** $p < 0.05$; *** $p < 0.01$.

² Number of employees measured on a scale from 1 to 9. True values range from 1 to 1,400 with 50% reporting 20 or fewer employees, and 90% reporting 86 or fewer employees. One line-manager reported 1,400 employees.

³ Type of manager=1 if senior line-manager but equals zero if middle line-manager.

⁴ The health index variable, high demand and low control are not included in regression analyses.

⁵ Job dissatisfaction is the fraction of respondents who did not very much agree with the statement "Overall I'm satisfied with my job".

Table 2 Summary Statistics for Health Symptoms

Variables	Men			Women			t ¹	Total		
	Mean	SD	N	Mean	SD	N		Mean	SD	N
<i>Health symptoms</i>										
Lack of stamina	0.38	0.49	56	0.51	0.50	134	*	0.47	0.50	190
Myositis	0.29	0.46	56	0.63	0.48	136	***	0.53	0.50	192
Back or shoulder pain	0.36	0.48	56	0.62	0.49	134	***	0.54	0.50	190
Headache	0.20	0.40	56	0.36	0.48	135	**	0.31	0.47	191
Abdominal pain	0.11	0.31	55	0.13	0.33	134		0.12	0.33	189
Breathing difficulty	0.09	0.29	56	0.10	0.31	134		0.10	0.30	190
Sleep difficulty	0.30	0.46	56	0.53	0.50	137	***	0.46	0.50	193
Excessive worrying	0.34	0.48	56	0.52	0.50	134	**	0.47	0.50	190
Anxiety	0.25	0.44	56	0.34	0.48	135		0.31	0.47	191
Melancholy	0.15	0.36	56	0.18	0.38	134		0.17	0.38	189
Arrhythmia	0.11	0.31	56	0.14	0.35	136		0.13	0.34	192
High blood pressure	0.18	0.39	56	0.22	0.41	134		0.21	0.40	190
Bowel spasm	0.02	0.13	56	0.13	0.34	133	**	0.10	0.29	189
Cold	0.25	0.44	56	0.28	0.45	134		0.27	0.45	190

¹ T-test is calculated for differences in means by gender. * $p < 0.10$, ** $p < 0.05$; *** $p < 0.01$.

Dependent variables

The wellbeing and health of higher-level line managers was analysed with the following outcomes: Job satisfaction, emotional exhaustion, personal accomplishment and 14 health symptoms (Bakker and Demerouti, 2007; de Jonge et al., 2000; Schaufeli and Bakker, 2004).

Job satisfaction is measured by answers to the question: Overall, I am satisfied with my present job. The answer options range from “very much disagree” to “very much agree” on a five-level scale. We generated a dummy variable, with the highest tertile of the distribution taking the value 0 and the lower two thirds having the value 1, which represents job dissatisfaction. We could not define job dissatisfaction conditional on the lowest tertile, because of a left skewness in the distribution of answer options, i.e. only 15% chose answer options 1-3. The use of a single item to measure job satisfaction is supported by previous research (Scarpello and Campell, 1983).

Emotional exhaustion is measured by the question: I feel emotionally drained due to my work. Five-level answer options ranged from “very seldom or never” to “very often or always”. We created an indicator variable equal to unity that was conditional on the answers “rather often” and “very often” on a five-level answer range.

Personal accomplishment is an indicator that equals unity and is conditional on the lowest tertile (27%) from the sum of a four-item questionnaire with a five-level answer range: Are you satisfied with how you complete your tasks? Are you satisfied with your abilities to solve problems in your job? Can you immediately assess whether you have completed your tasks in an adequate manner? And: Are you satisfied with your skills in having good relations with other employees? Cronbach’s alpha was calculated as 0.75.

We explored 14 outcomes that were answers to questions on health symptoms with a four-level answer range of never, seldom, sometimes/occasionally and always/constantly, and created an indicator variable equal to unity if a question was answered “sometimes” or “always”. Respondents were asked: “Has one of the following symptoms interfered with your daily life?” The symptoms were lack of stamina, myositis, back or shoulder pain, headache, abdominal pain, breathing difficulty, sleeping difficulty, excessive worrying, anxiety, melancholy, arrhythmia, high blood pressure, bowel spasm and cold (Table 2). To check the robustness of the results to defining the health symptom variables as binary variables, we also conducted the analyses assuming ordinality and cardinality in the health variables. However, this did not alter the results.

A health index was created for each individual, consisting of the sum of answers to the 14 questions on physical symptoms, where an indicator had been created for each question if answered “sometimes” or “always”. Women reported more physical symptoms than men as they scored higher on the health index (t-test for difference in means significant at the 10% significance level) (Table 1).

Covariates

Other control variables used in our analyses are following demographics: age, gender, binary variables for graduate studies, marital status and additionally, for workplace responsibility we included type of manager (senior or middle-line) and span of control (number of employees) to our models.

We use multivariate logistic regression analyses to explore whether job strain, as measured above, is related to the wellbeing of line managers, with a special focus on gender effects in Model 1. Thus, gender and job strain are simultaneously controlled, while in Model 2 we added workplace support as a control.

Results

In Tables 3 and 4, we report odds ratios from multivariate logit regression models.

The results in Table 3 show that high job strain (high demands and low control) reported by line managers is associated with a twofold risk of reporting job dissatisfaction at the 10% confidence level (OR=2.10, $P=0.053$) (Model 1). However, if high social support is added to the model, high job strain is not associated with increased risk for job dissatisfaction, but high social support reduces the risk of job dissatisfaction (OR=0.31, $P<0.001$).

The risk of emotional exhaustion for managers with high job strain is about five times as high as that for managers with low job strain. The risk of reporting a feeling of low accomplishment is higher in the case of high job strain (OR=2.31, $P=0.025$). However, in Model 2, high social support is associated with lower risk for a feeling of low accomplishment and the risk for high job strain is attenuated between Models 1 and 2. As Model 1 is not statistically significant overall in the case of job dissatisfaction and low accomplishment, these results should be interpreted with caution (Prob>chi2=0.35).

Table 3 Odds Ratios (ORs) and 95% Confidence Intervals (CIs) of poor Wellbeing by Gender, Job Strain and Workplace Social Support

Independent variables	Wellbeing								
	Job Dissatisfaction			Emotional Exhaustion			Low Accomplishment		
	OR	(95% CI)	<i>p</i>	OR	(95% CI)	<i>p</i>	OR	(95% CI)	<i>p</i>
<i>Model 1¹</i>									
Female	0.56	(0.27, 1.16)	0.12	1.73	(0.82, 3.64)	0.15	0.72	(0.34, 1.56)	0.41
High job strain	2.10	(0.99, 4.47)	0.05	4.90	(2.41, 9.94)	1.0E-5	2.31	(1.11, 4.8)	0.03
Prob>Chi2	0.35			1.0E-4			0.20		
<i>Model 2</i>									
Female	0.57	(0.26, 1.21)	0.14	1.77	(0.84, 3.74)	0.14	0.74	(0.33, 1.64)	0.46
High job strain	1.79	(0.82, 3.89)	0.14	4.68	(2.29, 9.55)	2.0E-5	2.03	(0.95, 4.32)	0.07
High support	0.31	(0.16, 0.59)	3.8E-4	0.72	(0.37, 1.38)	0.32	0.30	(0.14, 0.65)	-3
Prob>Chi2	7.1E-3			1.0E-4			9.8E-3		
N	193			193			193		

¹ Models 1 for job dissatisfaction and low accomplishment as the dependent variables are not statistically significant at the 5% level. Odds ratios (ORs) in bold are significant at the 5% level. Table notes: Model 1 is adjusted for age, education, marital status, number of employees and type of manager. In Model 2 a dummy variable for high social support is included in the model in addition to the covariates in Model 1.

In Table 4, we report results for the four health symptoms that varied by gender or job strain at the 5% significance level. Regressing each of the 14 health problems separately on gender and controlling for job strain, demographics, tenure, number of staff and type of manager, revealed that women in this sample are more likely than men to report having some of the health problems sometimes or always. The risk of reporting myositis for women is more than four times as high as that for men (OR=4.42, $P<0.001$), the risk of reporting back or shoulder pain is three times as high as that for men (OR=3.03, $P<0.002$), and the risk of reporting sleeping difficulty is two and a half times as high as that for men (OR=2.51, $P=0.01$). The risk of excessive worrying does not differ by gender at the 5% significance level ($P=0.07$) in the multivariate analysis, although more women than men say that they experience that feeling (Table 2). Nevertheless, the risk of excessive worrying by those who have high job strain is about three times as high as for line-managers with low job strain (OR=3.19, $P=0.001$ Model 1). This seems to be attenuated by the quantum of workplace support, as the OR for job strain is 2.89 in Model

2 where high workplace social support is simultaneously controlled. Interestingly, no significant association is observed between job strain and myositis, back or shoulder pain, and sleeping difficulty.

Table 4 Odds Ratios (ORs) and 95% Confidence Intervals (CIs) of Health Symptoms by Gender, Job Strain and Workplace Social Support

Independent variables	Health Symptoms											
	Myositis			Back or Shoulder Pain		Sleep Difficulty		Excessive Worrying				
	OR	(95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>	OR	(95% CI)	<i>p</i>		
<i>Model 1</i>												
Female	4.42	(2.18, 8.96)	3.7E-5	3.03	(1.52, 6.02)	2.0E-3	2.51	(1.25, 5.04)	0.01	1.92	(0.95, 3.90)	0.07
High job strain	1.44	(0.74, 2.83)	0.29	1.91	(0.98, 3.74)	0.06	1.37	(0.71, 2.65)	0.34	3.19	(1.60, 6.35)	1.0E-3
Prob>Chi2	5.5E-3		0.02		0.04		4.2E-3					
<i>Model 2</i>												
Female	4.61	(2.26, 9.41)	2.6E-5	3.18	(1.57, 6.47)	1.0E-3	2.56	(1.27, 5.18)	9.0E-3	2.07	(1.00, 4.29)	0.05
High job strain	1.35	(0.69, 2.67)	0.38	1.78	(0.90, 3.50)	0.10	1.30	(0.67, 2.52)	0.44	2.89	(1.41, 5.91)	4.0E-3
High support	0.66	(0.35, 1.22)	0.18	0.62	(0.33, 1.15)	0.13	0.71	(0.38, 1.30)	0.26	0.43	(0.22, 0.82)	0.01
Prob>Chi2	7.8E-3		0.03		0.07		4.5E-3					
N	192		190		193		190					

Table notes: Model 1 is adjusted for age, education, marital status, number of workers and type of manager. In Model 2 a dummy variable for high social support is included in the model in addition to the covariates in Model 1. Odds ratios (ORs) in bold are significant at the 5% level.

Discussion

The aim of this study is to analyse the health and wellbeing of line managers in the public sector, in relation to job strain, workplace social support and gender. We sought to ascertain whether there is a relationship between self-assessed high job strain and work-related physical and psychosocial symptoms, whether there are any gender differences regarding these issues and the impact of high social support. This is important as the wellbeing of women in managerial jobs is a crucial issue in the aim of improving the gender balance in leadership positions (Alvesson and Billing, 2009).

One of the noteworthy findings in this study is that despite increasingly complex and psychologically- demanding working conditions in the public sector (see Berntson et

al., 2012; Hutchinson and Purcell, 2010), only a minority (33 out of 193 respondents) of the line managers experience high job strain. These findings indicate that there are important factors in the working environments, such as social support and job control, that mitigate the negative consequences of high job demands. What is important though, is that those who do report high job strain in our study are more likely than other managers to experience emotional exhaustion, job dissatisfaction and low work accomplishment. We therefore find high job strain to be a risk factor for sub-optimal health and wellbeing among public-sector line managers.

As Iceland is in the forefront of gender equality globally (World Economic Forum, 2019; The Economist, 2019, March 8th), and as results on gender differences in health among managers are mixed (Bernin and Theorell 2001; Björklund et.al 2013; Gadinger et al. 2010; Nordenmark, 2002), it was worthwhile to see whether gender differences in health appeared in our data. Interestingly, we find that female managers are more vulnerable than male managers, when it comes to some of the health symptoms. The data reveal that when controlling for job strain and covariates, women are more likely than men to report having sometimes or always some of the health problems. Three health symptoms stand out with a significant gender difference: myositis, back or shoulder pain, and sleeping difficulty. A slightly smaller gender difference is also found in the case of excessive worrying, which is the health complaint most sensitive to high job strain. However, the fact that gender difference is not significant for high job strain in our data contradicts both Björklund et al. (2013), who studied male and female managers working at different levels in municipalities in Sweden, and Gadinger et al. (2010), who investigated higher-level female managers, as they had found that higher-level female managers were at greater risk of experiencing job strain than their male colleagues.

It is hard to explain with our data why some of the health symptoms are worse for women than for men. Recent studies show a gender pattern in work life balance among business leaders in Iceland, where female leaders still seem to have more responsibility for the closest family and get less support from spouses than applies for their male counterparts (Rafnsdottir and Juliusdottir 2018; Juliusdottir, Rafnsdottir and Einarsdottir, 2018). That might be the case for the line managers in our data and therefore influence the women's health negatively. Another possible explanation, of interest for future research, may be that female and male line managers in public organisations handle demanding work situations differently and that possible gender difference in coping

behaviour may affect illness risk (see Bernin, 2002). To capture the “lived experience” from the perspectives of public line managers and to seek deeper understanding from the insiders’ point of view on the phenomena in question, we suggest further investigations using qualitative research approaches.

In our study, the relationship between high job strain and poor wellbeing was attenuated when high social support was added to our empirical model. Thus, workplace social support seems to be a buffer against job dissatisfaction and low work accomplishment. High social support also attenuates excessive worrying of those managers who experience high strain in their jobs (OR=2.89, $P<0.01$). The risk of excessive worrying was about three times higher for those who have high job strain than those with low job strain.

Social support is a major component of health psychology (Lam, 2019). Key features of social support are types of communication such as dissemination of information, offering advice and feedback, and last but not least, active-empathetic listening (Albrecht and Adelman, 1987; Jonsdottir and Fridriksdottir, 2019). These types of communication help individuals feel more certain about a situation and thus feel as if they have control over the situation (Mattson and Hall, 2011). The above-mentioned results from our study indicate that when managers in our study perceive that they get help or support at the workplace, it enhances their wellbeing. This might suggest reduced uncertainty, more self-esteem, and less work stress. What we do not know from our study is how various types of workplace social support from different sources, interact with job demands and job strain to predict wellbeing at work and good health among public managers.

Strength, limitations and further research

Our study is based on a single quantitative case research. However, one of its strengths is that the online questionnaire was sent to all senior and middle line managers, in three largest departments in Iceland’s largest organization, but not to a sample. This, in addition to the 64.7% response rate, speaks well of the data’s strength and soundness. In future research, mixed methods - whereby qualitative interviews, combined with survey and register data - could possibly shed further light on working conditions (e.g. perceived job control and social support) and how line managers cope with job demands and their

experience of occupational health and wellbeing. That would be valuable for practical interventions in bringing about changes in working life.

Iceland is an interesting place to study line management in relation to gender and wellbeing at work as the country has been ranked in the frontline regarding gender equality. It is therefore of particular interest to explore whether gender differences appear in health and wellbeing in the institutional context of the public sector in Iceland.

As work-related wellbeing is often gender -blind, i.e. either no special discussion of men and women is present or gender differences are controlled statistically, the research results are often inaccurate (Messing et al., 2003). Therefore, the strength of our study is also that it keeps the gender dimension in the data and compares the work of women and men who have the same working titles. However, it is worth mentioning that it is not uncommon that men and women who have the same title do not in fact have the same tasks; but unfortunately, we were unable to analyse that in our data. This in turn causes inaccuracies in studies looking into work-related wellbeing of the sexes (Zahm, 2000). That we cannot compare the economic or social status of the line managers in our data could be seen as a weakness, meaning that we are unable to conclude whether the gender differences we found are due to different status.

The implications of our study are that it is important to reduce the chances of job strain among public line managers as it associates with poor wellbeing. The findings stress the importance of workplace social support. Furthermore, through this study we demonstrate that even in a society at the forefront in gender equality, some prerequisites of general gender equality in the labour market may fall short, as we find that gender differences in health symptoms exist among line managers. We conclude that it is important for public as well as private organisations to pay attention to the cost of occupational stress-related illness of line managers and to design the working context and workplace support interventions built on empirically based knowledge on managers' job situation, gender perspective and the focus on wellbeing at work.

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