

ORIGINAL ARTICLE

Physicians' Mental Health and Nationality Affect how Work Characteristics Influence Presenteeism

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This study aimed to investigate how variations in mental health and nationality affect the influence of job demands and job resources on presenteeism among physicians. By differentiating between hindrances and challenging job demands and between buffering and motivational job resources, the current study investigated the mechanisms of physicians' presenteeism by conducting separate analyses for respondents with good and poor mental health within two countries. A total of 1596 physicians employed at Swedish and Norwegian university hospitals were split into four subsamples according to nationality and mental health status. A score of ≥ 4 on the General Health Questionnaire-12 defined poor mental health. A set of *t*-tests showed that overall, the Norwegian sample experienced higher presenteeism, lower demands, and higher resources than the Swedish sample. Within the national samples, the samples with poor mental health indicated that they experienced higher demands and lower resources and showed higher presenteeism than the samples with good mental health. A set of regression analyses in the four subsamples showed that hindrance demands were positively associated with presenteeism and buffering resources were negatively associated with presenteeism in all four subsamples. However, only the subsamples of physicians with good mental health were found to have positive associations between both challenging demands and motivating resources and presenteeism. The study concludes that the association of both demands and resources with presenteeism depend upon how they interact with both personal health and national context.

Keywords: context; job demands; job resources; mental health; nationality; physicians; presenteeism

Presenteeism has received an increased interest among scholars for the last decades. The most commonly used definition in occupational health research refers to presenteeism as the phenomenon of employees attending work despite illness (Aronsson, Gustafsson and Dallner, 2000). As presenteeism can have severe negative consequences for individual health and for organizational productivity (e.g., Aronsson, Gustafsson and Mellner, 2011; Hemp, 2004; Schultz, Chen and Edington, 2009; Skagen and Collins, 2016), a considerable amount of research has focused on presenteeism as a negative phenomenon triggered by high job demands and pressure to attend work. In contrast, recent research shows that some employees also report positive reasons for attending work despite illness. This behavior can be triggered by more positive and motivational attitudes, reinforced by a high level of job resources such as job enjoyment (Johansen, Aronsson and Marklund, 2014; Marklund et al., 2015; Miraglia and Johns,

2016), job satisfaction and work involvement (Claes, 2011; Giæver, Lohmann-Lafrenz and Lovseth, 2016; Miraglia and Johns, 2016), and professional identity, support, and positive leadership (Giæver et al., 2016).

Although presenteeism has been associated with both job demands and job resources, the directions of these associations are not always predictable (Miraglia and Johns, 2016). Also, there clearly are contextual factors that influence these associations, including both individual and environmental factors. Furthermore, there are special occupational groups for whom presenteeism is the dominant, if not only, response to illness. For medical doctors, absenteeism is low and work demands so high that presenteeism has become an important measure of work-related health (Rosvold and Bjertness, 2001). Because presenteeism among physicians can lead to decreased individual health (Bergström et al., 2009; Thun et al., 2014), poor performance (Ford et al., 2011), professional misconduct, and inadequate quality of care for patients (Brooks, Gerada and Chalder, 2011), it is important from a societal perspective to investigate the underlying mechanisms of physicians' presenteeism. By investigating the combined effect of job demands and job resources on presenteeism and separating the estimates by contextual factors, such as respondent's nationality and mental health

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status, the current study was designed to explore some of the mechanisms behind physicians' presenteeism.

Background and Theory

Physicians as a special group in relation to presenteeism

Physicians constitute a very homogenous upper socioeconomic status group that are among the healthiest professional groups (Aasland, 2015). Moreover, it has been emphasized that physicians overall find their jobs meaningful, interesting and satisfying (Caplan, Cobb and French, 1975). At the same time, international studies have repeatedly shown that physicians work while ill (Bracewell et al., 2010; McKeivitt et al., 1997; Waldron, 1996), and studies have found prevalence of presenteeism as high as 80% among physicians (Bracewell et al., 2010; McKeivitt et al., 1997; Waldron, 1996), compared to 47% among police officers (Leineweber et al., 2011), and 68% among nurses (Aronsson et al., 2000). In a study of employees without sickness absence over a period of five years (so called zero-absentees), it was found that personal attitudes and self-efficacy were more important than social pressures of managers, colleagues or patients (Schreuder et al., 2013). The study concludes that the employees were intrinsically motivated to attend work when ill. This can indicate that employees who enjoy their work and have good health can manifest presenteeism due to an experience of high job resources and support, and that going to work ill due to positive experiences and motivation can be a sign of good mental health.

However, recent reports also show discontent among physicians and complaints about stress, burnout and loss of professional autonomy (Aasland, 2015). Moreover, numerous studies show that physicians face a large number of risk factors associated with mental health problems (Brooks et al., 2011), and that physicians have shown high rates of depression (Firth-Cozens, 2006), anxiety (Kroenke et al., 2007), and burnout (Rø et al., 2008; Shanafelt et al., 2002; Thun et al., 2014). The study by Thun et al. (2014) showed that many physicians continued to work with reported symptoms of burnout. This indicates that many physicians continue to work despite symptoms of poor mental health, which is one type of presenteeism.

The role of mental health in presenteeism

Good mental health is important in managing the challenges of daily living (Taylor and Stanton, 2007) and managing work stress (Pohling et al., 2015; Ramirez et al., 1996). Moreover, studies have shown that mental health status may change employees' perception of the same job across time (De Lange et al., 2005). Consequently, mental health can influence employees' perceptions of the effect of job demands and job resources on well-being, including health outcomes such as presenteeism. Böckerman and Laukkanen (2010) estimated the effect of job demands on presenteeism separately for employees who had poor and good health. The results showed that the effects of job demands on presenteeism were highly conditional on a worker's self-assessed health level, such that the pattern of job demands associated with presenteeism in the total sample did not prevail when calculating the estimates for the subsamples of poor and good health. Individual health can thus constitute important contextual dynamics with

which presenteeism can be better understood. As research on presenteeism has largely ignored worker heterogeneity in terms of health (Böckerman and Laukkanen, 2010), further comparisons of the relative effects of job demands and job resources between subsamples of poor and good health are highly relevant.

The role of national legislations for presenteeism

Other contextual factors, such as national legislations for paid sick leave, can be reflected in the broader social environment. Although there are many similarities between the Swedish and the Norwegian welfare systems, the amount of compensation for sick leave differs. Swedish employees have no legal guarantee of pay the first day of sick leave. From the second day of absence, Swedish employees are entitled to receive 80% of their wages, while Norwegian employees are guaranteed 100% pay from the first day of absence (International Social Security Association, 2004, 2012). Such cross-national differences in social benefits can be considered contextual differences that control or even limit employee behavior. However, there is a lack of empirical studies investigating such contextual differences in presenteeism and the relative effects of both job demands and job resources in this regard by comparing estimates between countries. Moreover, as studies report significant differences between Swedish and Norwegian employees in prevalence of presenteeism (Marklund et al., 2015; Rostad et al., 2017) and reported reasons for presenteeism (Johansen et al., 2014; Marklund et al., 2015), it is important to investigate the situational dynamics of presenteeism and possible differences in influential factors between countries.

The role of job demands and job resources on presenteeism

The Job-Demand-Resources (JD-R) model is an established framework in occupational research (Bakker and Demerouti, 2007, 2014, 2017; Demerouti et al., 2001) and can serve as a theoretical model to explore how presenteeism can be triggered by both negative and positive factors. The JD-R model emphasizes that all working environments constitute job demands and job resources (Bakker and Demerouti, 2014). Job demands refer to those physical, psychological, social or organizational aspects of the job that require sustained effort and are therefore associated with certain physiological or psychological costs (Demerouti et al., 2001). Job resources refer to physical, social and organizational factors of work that can reduce job demands and are functional in achieving work goals (Demerouti et al., 2001). Furthermore, the model postulates that the dynamic relationship between job demands and job resources triggers either a health impairment process or a motivational process (Bakker and Demerouti, 2014). A recent meta-analysis of the correlates of presenteeism by Miraglia and Johns (2016) showed that presenteeism can derive from negative and positive factors, through a dual-path model. Following a health impairment path, employees can be pressured to attend work when ill due to high job demands. In contrast, following a motivational path, employees can be motivated to attend work when ill due to high job resources. Together, the JD-R model (Bakker and Demerouti, 2017) and the dual-path model

of presenteeism (Miraglia and Johns, 2016) serve as a conceptual framework to understand how presenteeism is influenced by both job demands and job resources.

The Current Study

The current study was designed to explore the mechanisms of physicians' presenteeism by investigating the combined effect of job demands and job resources on presenteeism. The study adds to the literature on physicians' presenteeism by considering that the mechanisms of presenteeism may follow both a negative strain-related process and a more positive motivational process. By calculating the estimates separately for respondents with good and poor mental health within each country, it becomes possible to identify differences in the relative influence of job demands and job resources between the four subsamples.

Job demands

Job demands have shown a substantial longitudinal relationship with presenteeism (Demerouti et al., 2009). However, job demands are not necessarily negative (Bakker and Demerouti, 2014), and several researchers have emphasized a need to reconstruct job demands into hindrance demands and challenging demands (Bakker and Demerouti, 2017; Crawford, LePine and Rich, 2010; Schaufeli and Taris, 2014; Van den Broeck et al., 2013). Hindrance job demands include demands that require high effort, and can be appraised as having the potential to harm or block personal growth (Bakker and Demerouti, 2017; Crawford et al., 2010). Role conflict and work/family conflict are examples of job demands that may pressure employees to work while ill (Ádám, Györfy and Susánszky, 2008; Allen et al., 2000; Demerouti et al., 2009; Miraglia and Johns, 2016; Piko, 2006; Thun and Lovseth, 2016), and were categorized as hindrance job demands in the present study. Specifying the relationship between hindrance and challenging demands, and presenteeism can be complicated by individual differences in the emotional and cognitive effort associated with coping with such demands (LePine, Podsakoff and LePine, 2005). Research has repeatedly found, however, that hindrance demands, such as role conflict, are related to negative outcomes, including decreased job satisfaction and burnout (Kirk-Brown and Wallace, 2004), psychological distress (Finne, Christensen and Knardahl, 2014; Johannessen, Tynes and Sterud, 2013), sleep disturbance (Eriksen et al., 2008; Vleeshouwers, Knardahl and Christensen, 2016), headaches (Christensen and Knardahl, 2012) and neck pain (Christensen and Knardahl, 2010). It was therefore expected in the current study that hindrance demands would increase presenteeism regardless of the state of the employee's mental health.

Hypothesis 1: Hindrance demands increase presenteeism in all physicians.

Challenging job demands are viewed by employees as obstacles to overcome (Bakker, Demerouti and Sanz-Vergel, 2014) and tend to be appraised as having the potential to promote personal growth or gains (Bakker and Demerouti, 2017; Cavanaugh et al., 2000; Crawford et al., 2010). Crawford et al. (2010) demonstrated

that challenging demands such as job responsibility, time urgency and workload were positively associated with engagement. This indicates that challenging demands may motivate employees to work while ill (Miraglia and Johns, 2016). Moreover, demands such as unpredictability and everyday challenges that to many others are regarded as negative can be the very features that physicians appreciate about their work and that make their work attractive (Dellve, Hadzibajramovic and Ahlborg, 2011; Schreuder et al., 2013). One of the main reasons for physicians to choose a career in academic medicine, outside of an interest in patient care, is an interest in research (Borges et al., 2010). Thus, conducting research can be perceived as a challenging demand that motivates university hospital physicians to work while ill. In the present study, time working with patients and time working with research are categorized as challenging demands. As emotional and cognitive effort is associated with appraising and coping with challenging demands (Bakker and Demerouti, 2017; LePine et al., 2005), employees may need a certain energy level for the demands to be perceived as challenging and not as a hindrance. Good mental health might therefore be a prerequisite for employees to be motivated by challenging demands. The following hypothesis was tested:

Hypothesis 2: Challenging demands increase presenteeism in physicians with good mental health (but not in physicians with poor mental health).

Job resources

Job resources are important for employees to cope with their daily work (Bakker et al., 2014) and to get adequate rest and recovery after demanding work tasks (Lu et al., 2014). According to the JD-R model, job resources can influence presenteeism in two ways. First, job resources can buffer against the impact of job demands on strain (Bakker and Demerouti, 2014). Consequently, job resources can decrease presenteeism by reducing the effect of job demands through a health impairment process (Miraglia and Johns, 2016). As argued by Miraglia and Johns (2016), job control has the capacity to offset demands and associated stress, which triggers presenteeism. Thus, employees who have high job control may manage better with their job demands and feel less pressured to work while ill than employees with low control. Moreover, a supportive workplace may foster confident workers who trust their employer and avail themselves of the opportunity to take time off from work when needed (Miraglia and Johns, 2016). Several studies have provided evidence for the buffer hypothesis suggested by the JD-R model by testing the interaction effect of job resources and job demands on employee well-being (Bakker, Van Veldhoven and Xanthopoulou, 2010; Xanthopoulou et al., 2007). The present study categorized job control and organizational care as buffering resources that were expected to decrease presenteeism regardless of good or poor mental health. The hypothesis was:

Hypothesis 3: Buffering resources decrease presenteeism in all physicians.

Second, job resources can increase motivation when job demands are high (Bakker and Demerouti, 2017). Thus, by facilitating positive attitudes, motivation, and dedication to the job, resources can contribute to presenteeism among physicians through a motivational process (Bakker and Demerouti, 2007; Miraglia and Johns, 2016). In other words, high job demands and physicians' motivation to work may have an additive effect in increasing the likelihood of working while ill (Bakker and Demerouti, 2014; Bakker, Demerouti and Euwema, 2005; Bakker et al., 2010; Giæver et al., 2016). Karasek (1979) argued that in jobs with high demands, the amount of influence a person has over his/her work is an important determinant of mental health. Ramirez et al. (1996) found that autonomy was important for job satisfaction among British hospital consultants. In light of the recent increase of discontent among physicians (Aasland, 2015), the amount of autonomy or influence over work is a relevant job resource that may act as a motivator for physicians to work while ill. However, as mental health can influence how employees perceive their job (De Lange et al., 2005; Pohling et al., 2015; Ramirez et al., 1996), good mental health can be a prerequisite to benefiting from the existing job resources when work demands are high. Thus, employees with good mental health will benefit more from motivational job resources than employees with poor mental health. The present study included influence over work methods and influence over work amount as motivational resources. We hypothesized the following:

Hypothesis 4: Motivational resources increase presenteeism in physicians with good mental health (but not in physicians with poor mental health).

Method

Participants and procedures

The present study used cross-sectional survey data among physicians employed at university hospitals in Norway and Sweden. The data used is part of an international study of Health and Organization among University Hospital Physicians in Europe (HOUPE, 2nd phase), an ongoing research program concerning work-related health, organizational culture, career paths and work conditions among physicians in Europe. The project was approved by the administrations of each hospital involved and by the respective national regional ethical boards and data inspectors.

Written invitations to participate in the study were sent to all permanently employed and actively working physicians at the time of data collection. The invitation included information about the purpose of the study, guarantees for their anonymity and plans for subsequent dissemination of the results. The survey was administered as a web survey, with an opportunity to complete it on paper for those who were reluctant to answer the web survey. The survey was organized centrally at the project website www.houpe.no, hosted by the Department of Research and Development at St Olav's University Hospital. Norwegian and Swedish respondents received the survey

in English. Participation in the study was voluntary and confidentiality was guaranteed.

The total study sample consisted of 1594 physicians employed at selected university hospitals in Sweden and Norway. The response rates were, respectively, 41% (1049/2589) in Sweden, and 71.8% (545/759) in Norway. The total sample had an even distribution of gender (47.2% women), which aligns with the gender distribution in the total population. Moreover, 448 of the respondents were resident physicians, and the mean age group was 40–44 years.

Measurements

The dependent variable *sickness presenteeism* was measured with one item 'Have you gone to work with an illness in a situation you would have recommended a patient to stay home?' (Rosvold and Bjertness, 2001; Sendén et al., 2013) was used to measure sickness presenteeism. Responses were given on a 5-point scale from 'Very seldom or never' (1) to 'Very often or always' (5).

Independent variables. Nationality and mental health served as grouping variables in the analysis. One selected university hospital was included from Sweden and one from Norway. The variable nationality represented the country in which the respondents were employed. To differentiate the estimates by nationality and mental health, the variables were combined to make four subsamples: Swedish sample in good mental health = SweGMH, Swedish sample in poor mental health = SwePMH, Norwegian sample in good mental health = NorGMH and Norwegian sample in poor mental health = NorPMH.

The 12-item version of the General Health Questionnaire (GHQ-12) was used to measure respondents mental health (Goldberg, Williams and Williams, 1988). The respondents were asked whether they had experienced 12 symptoms of psychological distress (e.g., depression, loss of confidence, sleep disturbance) in the past six months. Responses were given on a scale from 1 (not at all) to 4 (much more than usual). In line with earlier research, we used the standard GHQ-12 scoring method with cut-off ≥ 4 (Ramirez et al., 1996). Consequently, respondents that had a GHQ-12 score from 1 to 3 were classified as having good mental health, and those with a GHQ-12 score from 4 to 12 were classified as having poor mental health. The proportion of those with a GHQ-12 score of 4 or more was 26% in the total sample. According to validation studies, GHQ-12 scores of 4 or more are predictive of the need for treatment and onset of more severe mental disorders (Goldberg et al., 1997; Makowska et al., 2002).

In line with the JD-R model, the current study differentiated between hindrance job demands (role conflict, work-to-family conflict) and challenging job demands (percentage of time spent on patient care and on research) and between buffering job resources (control over work pace, organizational care) and motivational job resources (influence over work methods and influence over work amount). Unless otherwise stated, measurements derive from the General Nordic Questionnaire for

Psychological and Social Factors at Work (QPS Nordic; Lindström, 2000).

Hindrance job demands. Role conflict was measured with three items (QPS Nordic; Lindström, 2000). The items measured the level of confronting assignments and incompatible requests. For example, 'Do you receive incompatible requests from two or more people?' Responses were given on a 5-point scale from 'Very seldom or never' (1) to 'Very often or always' (5). The alpha of this scale ($\alpha = .73$) corresponded to the validation data of QPS Nordic (Wännström et al., 2009).

Work-to-family conflict was measured with three items taken from Carlson, Kacmar and Williams (2000). The items measured the respondents experience of strain related to the interplay between work and family. One of the items was 'When I get home from work I am often too frazzled to participate in family activities/responsibilities'. Responses were given on a 4-point scale from 'Totally agree' (1) to 'Totally disagree' (4). The alpha of this scale ($\alpha = .85$) corresponded to a validation study (Carlson et al., 2000).

Challenging job demands. Time spent on research and patient care was measured with an instrument taken from the Physician Career Path Questionnaire (Fridner, 2004). Participants were asked how much of their work was taken up by 1) patient care, 2) research, 3) teaching and 4) management/administration. As the combination of research and patient care is considered to be one of the main reasons that physicians choose a career in academic medicine, these work tasks were included as challenging demands in the analyses (Borges et al., 2010). Responses were given in percentages for each task and summed up to 100%. In the current study we used the percentage of time spent on patient care and research.

Buffering job resources. Control over work pace was measured with four items (QPS Nordic; Lindström, 2000). An example of an item was 'How often can you set your own work pace?' Responses were given on a 5-point scale from 'Very seldom or never' (1) to 'Very often or always' (5). The alpha of the scale ($\alpha = .81$) corresponded to the validation data of QPS Nordic (Wännström et al., 2009).

Organizational care was measured with three items regarding the perception of the level of managerial concern and interest (Lindström, 2000). One of the items was 'At your organization, are you rewarded for a job well-done?' Responses were given on a 5-point scale from 'Very seldom or never' (1) to 'Very often or always' (5). The alpha of the scale ($\alpha = .81$) corresponded to the validation data on QPS Nordic (Wännström et al., 2009).

Motivating job resources. Influence over work method was measured with the item 'If there are alternative methods for doing your work, can you choose which method to use?' (QPS Nordic; Lindström, 2000). Responses were given on a 5-point scale from 'Very seldom or never' (1) to 'Very often or always' (5).

Influence over work amount was measured with the item 'Can you influence the amount of work assigned to you?' (QPS Nordic; Lindström, 2000). Responses were given on a 5-point scale from 'Very seldom or never' (1) to 'Very often or always' (5).

Control variables. The analyses controlled for gender (men = 0, women = 1), age ('29 or younger', '30–34', '35–39', '40–44', '45–49', '50–54', '55–59', '60–64', '65 or older'), and position (residents = 0, senior consultants = 1).

Statistical Analyses

The inherent vulnerability to Common Method Variance (CMV) of self-report surveys was addressed with procedural remedies such as minimizing response bias from social desirability by emphasizing confidentiality. Also, clearly separated sections with instructions were created to aid the respondents in thinking of separate matters independently. To assess for common method bias (Podsakoff et al., 2003) and the validity of the measurement model in the present study, all latent variables were included in a confirmatory factor analysis (CFA) using IBM AMOS 25 for Windows. The CFA was performed for the complete combined sample, and missing variables were removed through imputation of mean replacement beforehand. The hypothesized factor structure included five latent factors: 1) GHQ-12, 2) role conflict, 3) work-to-family conflict, 4) control over work pace, 5) organizational care. Adhering to conservative recommendations for model adjustment based on modification indices and theoretical soundness, two covariations were included between error terms belonging to the same latent variable (Byrne, 2001). The five-factor structure yielded a reasonable fit ($df = 287$, $\chi^2 = 1345.321$, $\chi^2/df = 4.688$, AGFI = .921, TLI = .931, CFI = .939, RMSEA = .048). Conversely, a one-factor structure similarly adjusted with three error term covariance yielded a considerably poorer fit ($df = 296$, $\chi^2 = 5614.724$, $\chi^2/df = 18.969$, AGFI = .699, TLI = .662, CFI = .692, RMSEA = .106).

All independent variables were sufficiently normally distributed to warrant parametric tests, and there was no indication of problematic outliers. Additionally, standard assumptions underlying regression analysis additivity and linearity, normal distribution, independence and homoscedasticity of residuals as well as multicollinearity were met (Gelman and Hill, 2007; Tabachnick and Fidell, 2013). Differences in mean scores of presenteeism, job demands and job resources between countries and between physicians with good and poor mental health within countries were tested using independent sample *t*-tests. Bivariate associations between the variables were analyzed using Pearson's product-moment correlation coefficient (*r*). Multivariate, hierarchical block-wise regression analyses were performed to investigate the relative effects of job demands and job resources on presenteeism. Separate analyses were performed for respondents with good and poor health within each country to enable comparison of the relative influence of job demands and job resources in the four subsamples. Control variables, including gender, age and position, were entered in Step 1. Job demands were entered in Step 2, while job resources were entered in Step 3.

Data analyses were conducted using IBM SPSS Statistics 24 for Windows.

Results

Descriptive

As reported in **Table 1**, the Norwegian sample had significantly higher presenteeism than the Swedish sample ($p < .001$). Moreover, the Norwegian sample had significantly lower mean scores on job demands, role conflict and work-to-family conflict compared to the Swedish sample (p 's $< .001$) and significantly higher mean scores on job resources, influence over methods and organizational care (p 's $< .05$).

Descriptive statistics for the good and poor mental health subsamples within each country are shown in **Table 2**. Physicians in good mental health had significantly lower presenteeism than physicians in poor mental health within both country samples ($p < .001$; see **Table 1**). Moreover, physicians in good mental health had significantly lower mean scores on job demands (all p 's $< .001$) and higher mean scores on job resources (all p 's $< .05$) compared to physicians in poor mental health both in the Swedish and the Norwegian samples (see **Table 1**). The exception was for percentage of time spent on research and patient care, in which difference between the subsamples was not significant.

Tables 3 and **4** present correlational matrixes for the physicians with good and poor mental health in the Swedish and Norwegian subsamples respectively. The correlational matrixes (**Tables 3** and **4**) show similar patterns of relations in the four subsamples.

Tables 5 and **6** show the results of the multiple block-wise regression analyses performed to test the effects of job demands and job resources on presenteeism in the subsamples of Swedish (**Table 5**) and Norwegian (**Table 6**) physicians with good and poor mental health. In general, the variables explained more of the variance in the poor mental health subsamples (Sweden $R^2 = .19$, $p < .001$; Norway $R^2 = .18$, $p < .001$) than in the good mental health subsamples (Sweden $R^2 = .11$, $p < .001$; Norway $R^2 = .11$, $p < .001$). The additive effect of job resources on presenteeism was higher in the Norwegian samples than in the Swedish samples. All the job demands

that were significant in Step 2 remained significant when job resources were introduced in Step 3.

Hypothesis testing

Hypothesis 1 stated that hindrance demands (role conflict and work-family conflict) increase presenteeism among all physicians. In support of *Hypothesis 1*, hindrance demands were positively associated with presenteeism in all four subsamples (see **Tables 5** and **6**). Role conflict was positively associated with presenteeism in SweGMH ($\beta = .14$) and in SwePMH ($\beta = .19$). Work-family conflict was positively associated with presenteeism in SweGMH ($\beta = .18$), NorGMH ($\beta = .22$), and in NorPMH ($\beta = .21$).

Hypothesis 2 stated that challenging demands (research tasks and patient care) increase presenteeism only in physicians with good mental health. *Hypothesis 2* was partially supported. Challenging demands were not associated with presenteeism in the two subsamples with poor mental health (see **Tables 5** and **6**). However, challenging demands were associated with presenteeism in one of the subsamples with good mental health. In NorGMH, research tasks ($\beta = .15$) was positively associated with presenteeism. Challenging demands did not have a significant association with presenteeism in SweGMH.

Hypothesis 3 stated that buffering resources (control over work pace and organizational care) decrease presenteeism in all physicians, and this received some support. As shown in **Tables 5** and **6**, control over work pace was negatively associated with presenteeism in NorGMH ($\beta = -.18$) and in SweGMH ($\beta = -.15$). Organizational care was negatively associated with presenteeism in NorPMH ($\beta = -.23$). None of the buffering resources decreased presenteeism in SwePMH.

Hypothesis 4 stated that motivational resources (influence over work amount and influence over work methods) increase presenteeism only in physicians with good mental health. *Hypothesis 4* was partially supported. None of the motivational resources were associated with presenteeism for any of the subsamples of poor mental health. In SweGMH, influence over work amount was

Table 1: Descriptive Statistics (M, SD, 95% CI) for Presenteeism and Independent Variables Shown for Total Country Samples. Independent Sample t-tests Performed for the Difference between Countries.

Variable	Sweden			Norway			p
	M	SD	95% CI	M	SD	95% CI	
Presenteeism	2.81	1.17	2.73 to 2.88	3.10	1.07	3.01 to 3.20	<.001
Role conflict	2.82	0.81	2.77 to 2.87	2.64	0.75	2.58 to 2.71	<.001
W-F conflict	2.36	0.68	2.32 to 2.41	2.24	0.64	2.19 to 2.30	<.001
% research	11.66	14.27	10.74 to 12.59	12.82	19.79	11.04 to 14.59	.157
% patient care	53.39	23.6	51.86 to 54.93	54.65	26.54	52.26 to 57.03	.151
Influence methods	3.40	0.95	3.34 to 3.46	3.49	0.95	3.40 to 3.57	.014
Influence amount	2.56	0.99	2.50 to 2.63	2.59	1.00	2.50 to 2.68	.284
Control pace	2.68	0.94	2.62 to 2.75	2.63	0.90	2.55 to 2.71	.434
Organizational care	2.75	0.90	2.69 to 2.81	2.81	0.87	2.73 to 2.89	.045

Note. M = mean; SD = standard deviation; CI = confidence interval; W-F conflict = work-to-family conflict.

Table 2: Descriptive Statistics (*M*, *SD*, 95% *CI*) for Presenteeism and Independent Variables Shown for Subsamples of Good and Poor Mental Health Within Country. Independent Sample t-tests Performed for the Difference between Subsamples of Good and Poor Mental Health within Country.

Variable	SweGMH (n = 768)			SwePMH (n = 279)			NorGMH (n = 368)			NorPMH (n = 174)			p
	M	SD	95%CI										
Presenteeism	2.71	1.15	2.63 to 2.79	3.04	1.22	2.90 to 3.18	2.97	1.04	2.86 to 3.07	3.36	1.06	3.20 to 3.52	<.001
Role conflict	2.66	0.77	2.61 to 2.72	3.20	0.78	3.11 to 3.29	2.54	0.72	2.47 to 2.61	2.78	0.83	2.65 to 2.90	<.001
W-F conflict	2.20	0.62	2.15 to 2.24	2.81	0.65	2.73 to 2.89	2.10	0.60	2.04 to 2.17	2.47	0.64	2.37 to 2.57	<.001
% research	12.0	14.5	10.9 to 13.1	11.0	13.9	9.23 to 12.8	14.3	21.0	11.9 to 16.6	12.2	16.6	7.87 to 13.5	.066
% patient care	54.2	24.3	52.5 to 56.0	55.4	22.2	52.7 to 58.0	56.1	25.7	53.4 to 58.7	57.1	28.0	52.9 to 61.3	.667
Influence methods	3.47	0.94	3.40 to 3.53	3.12	0.97	3.01 to 3.24	3.56	0.93	3.46 to 3.66	3.37	0.98	3.23 to 3.52	.033
Influence amount	2.72	0.99	2.65 to 2.79	2.14	0.93	2.03 to 2.25	2.70	1.01	2.60 to 2.80	2.45	1.00	2.30 to 2.60	.008
Control pace	2.81	0.94	2.75 to 2.88	2.31	0.85	2.21 to 2.41	2.72	0.90	2.63 to 2.81	2.48	0.87	2.35 to 2.61	.003
Organizational care	2.89	0.84	2.83 to 2.95	2.36	0.93	2.25 to 2.47	2.95	0.87	2.86 to 3.04	2.64	0.87	2.51 to 2.77	<.001

Note. *M* = mean; *SD* = standard deviation; *CI* = confidence interval; W-F conflict = work-to-family conflict.

Table 3: Correlations between Variables for the Swedish Subsamples (Pearson's r). SweGMH (n = 768) Under the Diagonal; SwePMH (n = 279) Above.

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Gender (women)	—	-.06	-.08	-.05	.06	.01	.13	-.11	-.11	-.10	-.15	.30*
2. Age	-.12*	—	.60*	-.02	-.02	.16*	.16*	.08	.02	.11	-.02	.15
3. Position (seniors)	-.14*	.64*	—	.09	-.01	.12	.07	.15	-.01	.07	.02	.10
4. Research	-.08	.09	.10	—	-.24*	-.11	.01	.08	.12	.12	.14	-.12
5. Patient care	-.06	-.16*	-.08	-.32*	—	-.05	.01	-.08	-.15	-.23*	-.19*	.02
6. Role conflict	.01	.03	.05	-.01	-.15*	—	.31*	-.22*	-.20*	-.20*	-.32*	.27*
7. Work to family conflict	.11*	.06	.03	-.01	-.01	.26*	—	-.17*	-.22*	-.20*	-.27*	.20*
8. Influence methods	-.10*	.19*	.18*	.05	-.08	-.16*	-.14*	—	.29*	.32*	.22*	-.11
9. Influence amount	-.15*	.17*	.16*	.14*	-.12*	-.17*	-.18*	.35*	—	.40*	.31*	-.17*
10. Control work pace	-.16*	.30*	.16*	.09	-.28*	-.13*	-.14*	.26*	.51*	—	.35*	-.18*
11. Organizational care	-.11*	.07	.09	.01	-.08	-.26*	-.23*	.30*	.34*	.28*	—	-.27*
12. Presenteeism	.15*	.02	-.02	.00	-.03	.21*	.22*	-.04	-.06	-.18*	-.15*	—

*p < .01.

Table 4: Correlations between Variables for the Norwegian Subsamples (Pearson's r). NorGMH (n = 368) Under the Diagonal; NorPMH (n = 174) Above.

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Gender (women)	—	-.12	-.06	.05	.02	-.18	.02	.04	-.18	-.11	.02	.14
2. Age	-.20*	—	.65*	.18	-.07	-.04	-.04	.05	-.04	.12	-.04	-.17
3. Position (seniors)	-.19*	.71*	—	.04	-.06	-.03	.06	.11	-.07	.11	-.04	-.06
4. Research	-.01	.02	.09	—	-.53*	-.02	-.05	.05	-.04	.08	.02	.09
5. Patient care	.05	-.12	-.15*	-.53*	—	-.09	-.09	.02	-.06	-.28*	-.10	-.03
6. Role conflict	.13	-.00	.03	-.10	-.03	—	.26*	-.30*	-.19	-.13	-.29*	.10
7. Work to family conflict	.08	.02	.03	-.10	.02	.32*	—	-.24*	-.32*	-.17	-.28*	.30*
8. Influence methods	-.13	.08	.16*	-.05	.03	-.28*	-.14*	—	.19	.17	.19	-.06
9. Influence amount	-.10	.17*	.17*	.19*	-.23*	-.30*	-.21*	.24*	—	.53*	.45*	-.28*
10. Control work pace	-.18*	.17*	.16*	.30*	-.36*	-.22*	-.15*	.17*	.57*	—	.44*	-.29*
11. Organizational care	-.03	.19*	.14	-.04	-.08	-.26*	-.20*	.26*	.38*	.37*	—	-.34*
12. Presenteeism	.14*	-.05	-.02	.12	-.03	.17*	.27*	.01	-.14*	-.19*	-.15*	—

*p < .01.

positively associated with presenteeism ($\beta = .10$), whereas influence over work methods was not. In NorGMH, influence over work methods was positively associated with presenteeism ($\beta = .13$), whereas influence over work amount was not (see **Tables 5 and 6**).

Discussion

The main results of the present study support the initial hypothesis that presenteeism among physicians can be triggered by a combination of high job demands and job resources. This is in line with studies indicating that physicians can simultaneously be driven to work while ill by positive as well as negative forces (Giæver et al., 2016). The results demonstrated that the effect of job demands and job resources differs between physicians with good and

poor mental health, supporting earlier studies implying that job characteristics are conditional on a respondent's health status (Böckerman and Laukkanen, 2010; De Lange et al., 2005). The effects of job demands and job resources also differed between the two subsamples of Swedish and Norwegian physicians.

Interpreted within the JD-R framework, and within the dual-path model of presenteeism (Bakker and Demerouti, 2017; Miraglia and Johns, 2016), the results indicate that a health impairment process can manifest in physicians regardless of mental health status, as physicians with both good and poor mental health showed the hypothesized effect of hindrance job demands and buffering resources. Conversely, it seems that the motivational process (Bakker et al., 2014; Miraglia and Johns, 2016) can be dependent

Table 5: Hierarchical Regression Analysis with Enter Method; Summary for Variables Predicting Sickness Presenteeism in Swedish Sample of Good and Poor Mental Health.

Variable	SweGMH (n=611)					SwePMH (n=208)				
	β	<i>t</i>	<i>p</i>	R^2	ΔR^2	β	<i>t</i>	<i>p</i>	R^2	ΔR^2
Step 1				.04					.12	
Gender (women)	.20	4.86	.00			.32	4.91	.00		
Age	.08	1.49	.14			.11	1.34	.18		
Position (seniors)	-.03	-0.54	.59			.04	0.50	.62		
Step 2				.11	.07				.20	.08
Gender (women)	.17	4.20	.00			.30	4.62	.00		
Age	.05	1.04	.30			.06	0.69	.49		
Position (seniors)	-.03	-0.64	.52			.04	0.49	.62		
Research tasks	.00	0.05	.96			-.08	-1.20	.23		
Patient care	-.01	-0.21	.84			-.02	-0.27	.78		
Role conflict	.15	3.74	.00			.23	3.40	.00		
Work to family conflict	.19	4.63	.00			.09	1.31	.19		
Step 3				.13	.02				.23	.03
Gender (women)	.15	3.81	.00			.27	4.15	.00		
Age	.08	1.60	.11			.08	1.05	.30		
Position (seniors)	-.05	-0.90	.37			.04	0.45	.65		
Research tasks	-.01	-0.33	.74			-.07	-1.02	.31		
Patient care	-.04	-0.95	.34			-.06	-0.90	.37		
Role conflict	.14	3.33	.00			.19	2.67	.01		
Work family conflict	.18	4.46	.00			.05	0.69	.49		
Influence methods	.02	0.53	.60			.02	0.24	.81		
Influence amount	.10	2.17	.03			-.04	-0.57	.57		
Control work pace	-.15	-3.12	.00			-.10	-1.36	.18		
Organizational care	-.04	-0.85	.40			-.12	-1.60	.11		

Note. Significant β 's are in bold face ($p < .05$). SweGMH: F change (4,603) = 12.31, $p < .001$ in Step 2; F change (4,599) = 2.97, $p < .05$ in Step 3. Durbin Watson = 1.97. SwePMH: F change (4,200) = 5.25, $p < .001$ in Step 2; F change (4,196) = 1.79, $p = ns.$ in Step 3. Durbin Watson = 2.14.

on mental health status, as challenging demands and motivational resources significantly increased presenteeism only in physicians with good mental health and not in physicians with poor mental health. Challenging demands were only significant in the Norwegian subsample of good mental health, however. Further inspection of the standardized regression coefficients (β) for challenging demands clearly demonstrates that the real difference between the Norwegian physicians with good and poor mental health in the study is the sample size. A more conservative conclusion from our results is that there is no support to indicate that challenging demands increase presenteeism only in those with good mental health. This means that the difference between the subsamples of good and poor mental health is the relationship between motivational resources and presenteeism.

As argued by Gæver et al. (2016), physicians' high job demands and intrinsic motivation to work can represent a 'double-risk' of working while ill, which can potentially

lead to a situation where the physician finds it difficult to push the 'stop button'. Thus, motivational presenteeism among physicians serve as a potential risk, both for individual health of physicians and the delivery of health-care services, especially since physicians have been found to work while having infectious diseases, risking infecting vulnerable patients (Widera, Chang and Chen, 2010). However, to investigate the causal relationships of the interplay between the dual processes of health impairment and motivation leading to physicians' presenteeism, it is highly relevant with longitudinal study designs.

In general, physicians with good mental health exhibit less presenteeism than physicians with poor mental health. Furthermore, the results showed that physicians with good mental health had lower levels of demands and higher levels of resources than physicians with poor mental health. There are at least two ways to interpret these results. Firstly, this relationship is in line with the JD-R model (Bakker and Demerouti, 2017) indicating

Table 6: Hierarchical Regression Analysis with Enter Method; Summary for Variables Predicting Sickness Presenteeism in Norwegian Sample of Good and Poor Mental Health.

Variable	NorGMH (n = 301)					NorPMH (n = 157)				
	β	<i>t</i>	<i>p</i>	<i>R</i> ²	ΔR^2	β	<i>t</i>	<i>p</i>	<i>R</i> ²	ΔR^2
Step 1				.02					.04	
Gender (women)	.13	2.20	.03			.10	1.24	.22		
Age	-.01	-0.08	.93			-.20	-1.96	.05		
Position (seniors)	.04	0.54	.59			.10	0.97	.33		
Step 2				.10	.08				.05	.11
Gender (women)	.12	2.03	.04			.10	1.31	.19		
Age	.01	0.07	.94			-.20	-2.01	.05		
Position (seniors)	.01	0.14	.89			.08	0.81	.42		
Research tasks	.12	1.88	.06			.17	1.87	.06		
Patient care	.00	0.02	.99			.08	0.88	.38		
Role conflict	.10	1.70	.09			.05	0.63	.53		
Work to family conflict	.23	3.96	.00			.30	3.74	.00		
Step 3				.15	.05				.24	.09
Gender (women)	.10	1.74	.08			.07	0.89	.37		
Age	.04	0.51	.61			-.22	-2.28	.02		
Position (seniors)	-.01	-0.19	.85			.07	0.76	.45		
Research tasks	.15	2.26	.02			.14	1.50	.13		
Patient care	-.07	-1.02	.31			.00	-0.01	.99		
Role conflict	.09	1.49	.14			-.02	-0.27	.79		
Work to family conflict	.22	3.82	.00			.21	2.58	.01		
Influence methods	.13	2.19	.03			.06	0.72	.47		
Influence amount	-.04	-0.52	.60			-.09	-0.96	.34		
Control work pace	-.18	-2.54	.01			-.08	-0.81	.42		
Organizational care	-.03	-0.50	.62			-.23	-2.57	.01		

Note. Significant β 's are in bold face ($p < .05$). NorGMH: F change (4,293) = 6.76, $p < .001$ in Step 2; F change (4,289) = 3.99, $p < .01$ in Step 3. Durbin Watson = 2.06. NorPMH: F change (4,149) = 4.81, $p < .001$ in Step 2; F change (4,145) = 4.27, $p < .05$ in Step 3. Durbin Watson = 1.76.

that high levels of demands and low levels of resources represent a potential stressor and have a negative effect on employee mental health, consequently increasing presenteeism. In regard to research indicating that physicians face a large number of risk factors for mental health problems in their work (Brooks et al., 2011), this is important, as it suggests that low job demands and high job resources can promote mental health, and simultaneously prevent unhealthy presenteeism. Secondly, the results of this study is in line with studies indicating that mental health influences the managing of work stress (Pohling et al., 2015; Ramirez et al., 1996) and that mental health status can influence employees' perception of the same job across time (De Lange et al., 2005). As such, the results may indicate that mental health influences the capacity to manage high job demands and utilize available job resources, and even further, affects how physicians perceive their work environment.

Although the result in general support the initial hypotheses, there were national differences in the particular job demands and job resources associated with presenteeism. This is in line with earlier studies that have shown country differences in prevalence and reported reasons for presenteeism between Sweden and Norway (Johansen et al., 2014; Marklund et al., 2015; Rostad et al., 2017). The pattern of job demands and resources can also vary across different work sites. In line with the propositions of the JD-R model, different work environments can have meaningful variations in levels of specific job demands and resources, as well as unique job demands and resources that impact the well-being and work performance of employees (Bakker and Demerouti, 2014). One would thus expect to find differences in the impact of specific job demands and resources when comparing the estimates of physicians employed at two different hospitals.

Moreover, the results demonstrated that in addition to reporting higher levels of presenteeism, the Norwegian physicians generally experienced fewer demands and more resources compared to the Swedish physicians. This indicated that, even though Norwegian physicians reported higher levels of presenteeism, they generally seem to experience better working conditions compared to the Swedish physicians. A plausible explanation for this rather paradoxical finding can be related to the question used to measure presenteeism. By asking physicians who had gone to work with an illness if they would have recommended that a patient stay home, the question used to measure presenteeism may have confounded national differences with sick-listing practices (Werner et al., 2016). Although limited to patients with severe subjective health complaints, the study by Werner et al. (2016) demonstrated that Norwegian physicians grant sick leave to patients more often than do Swedish physicians. By illustrating how structures in the broader social environment can influence studies on presenteeism, this highlights the relevance of differentiating estimates by respondents' nationality.

Limitations and Future Directions

The current study used questionnaire data and is obviously limited by the cross-sectional design and the reliance on self-reports. The former limits conclusions about causality, and the latter increases the risk of common method bias, including recall-bias (Miraglia and Johns, 2016; Podsakoff et al., 2003). However, self-reports of presenteeism are difficult to avoid, as it is only the individuals themselves that know if they have been working while ill (Claes, 2011; Johns, 2011). According to the CFA conducted, the current study does not seem to be unduly influenced by this.

Generally the results should be interpreted carefully due to the risk of Type I error related to multiple testing. Multiple testing is a major source of false positives, especially in exploratory research like the present study. Formal procedures such as the Bonferroni adjustment exist, but are impractical, especially in exploratory research (Sainani, 2009). Instead, we have followed the recommended practice of interpreting p-values with caution. It might be added that in the present study, the problem of multiple tests must also be weighed against relatively low sample sizes, which increases the likelihood of false negatives. This is difficult to solve in a single study but might be evaluated more properly in meta-analytic reviews. Finally, the different national contexts in presenteeism research makes it necessary to look for different predictors across national samples, which makes it difficult to avoid multiple tests.

The question used to measure presenteeism was chosen due to physicians' unwillingness to adopt the patient role (McKevitt et al., 1997). On the one hand, as Norwegian physicians have been shown to recommend sick leave to patients more often than Swedish physicians (Werner et al., 2016), the question measuring presenteeism may have confounded with national differences in sick-listing practices. On the other hand, however, as physicians have limited experience with their own sick leave, the question

forced the physicians to relate to a common context by having them consider themselves as patients.

The homogenous sample of the current study permits an investigation of the job demands and resources associated with presenteeism that is not confounded by occupational differences. Johns (2006) argues that variations in base rates of key organizational variables across occupations can have a marked impact on the inferred significance of the correlates. As the prevalence of presenteeism is found to vary systematically across sector and occupation (Aronsson et al., 2000), the homogenous sample of professional physicians can be considered as a major strength of the study. The homogenous sample may restrict the generalizability of the study findings. However, many professional groups are highly motivated in their jobs while experiencing high job demands. Although this study focuses on university hospital physicians, the results can be relevant for other professionals sharing the same motivation to work with high demands.

Moreover, the included variables in the analyses generally explain more of the variance in presenteeism among those in poor mental health compared to those in good mental health. This can reflect the traditional focus on presenteeism as a negative behavior triggered by high job demands, consequently decreasing health. However, research now acknowledges that presenteeism can be caused by more positive and motivational attitudes (Miraglia and Johns, 2016). A few studies also emphasize that presenteeism, in some situations, may result in more positive consequences (Howard, Mayer and Gatchel, 2009; Lau, Victor and Ruud, 2016). That being said, there is no absolute link between positive antecedents of presenteeism and positive consequences. These mechanisms may be dependent on a number of variables ranging from biology and inner personal characteristics to the broader social environment. The question of what works for whom and in which circumstances is an interesting area for future research.

Conclusion

The present study demonstrates that physicians' mental health and nationality affect how job demands and job resources influence presenteeism. Both physicians with good and poor mental health are influenced by hindrance demands and buffering resources. However, only physicians with good mental health seem to be influenced by challenging demands and motivational resources, indicating that work characteristics' influence on presenteeism is conditional on a physician's mental health status. There were also national differences in the particular job demands and job resources associated with presenteeism. The results highlight the need for context-specific research on presenteeism, as there were both individual differences based on mental health and national differences in the work characteristics associated with presenteeism.

Competing Interests

The authors have no competing interests to declare.

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