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## Psychological climate, sickness absence and gender

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We examined whether the relationship between psychological climate and sickness absence is moderated by gender. We expected that this relationship would be stronger among men than among women. We tested this general hypothesis using two samples of men and women nurses (made up of 114 and 189 subjects, respectively). The results obtained supported our expectation. The three climate facets considered (support, goals orientation and rules orientation) showed a significant relationship with sickness absence in the men sample, but not in the women sample.

*Clima psicológico, absentismo y género.* Se investigó si la relación entre clima psicológico y absentismo por enfermedad está moderada por el género de los empleados. Se esperaba que la relación fuera más fuerte en hombres que en mujeres. Esta hipótesis general se puso a prueba utilizando dos muestras de enfermeros/as formadas por 114 varones y 189 mujeres. Los resultados obtenidos respaldaron nuestra hipótesis general. Las tres dimensiones de clima consideradas (apoyo, orientación hacia objetivos y orientación hacia reglas) mostraron una relación estadísticamente significativa con absentismo en la muestra de varones, pero no en la de mujeres.

Job absenteeism is a costly problem for organizations. According to some estimations, in large U. S. companies employing more than 1000 workers, absenteeism costs \$1.17 million per year (Erickson, Nichols and Ritter, 2000). In European countries, direct and indirect costs produced by absenteeism are also an issue of concern (Gründemann and van Vuuren, 1997). Thus, from a practical point of view, research efforts aimed at identifying the correlates of absenteeism are justified. However, absenteeism is a complex phenomenon with multiple factors impacting on it. Thus, from a theoretical point of view, research efforts are needed to improve our understanding about the role of these factors in the genesis of absenteeism.

Several types of absenteeism can be distinguished (see Harrison and Martocchio, 1998). In the present study we focus on sickness absence. *Sickness absence* refers to medically-certified absence. This type of absence is considered a composite outcome, comprising health and social behavior, that is primarily a proxy measure of ill health implying reduced occupational functioning, but that can also be seen as a social outcome, a form of illness behavior leading to withdrawal from work, which may be related to a wide range of psychosocial factors (Rael et al., 1995). Actually, recent research has showed that psychosocial factors are important correlates of sickness absence (North et al., 1993; Rael et al., 1995; Undén, 1996; Kivimäki et al., 1997; Vahtera, Kivimäki, Pentti and Theorell, 2000; Kivimäki et al., 2001; Piirainen, Räsänen and

Kivimäki, 2003; Melchior, Niedhammer, Berkman and Goldberg, 2003; Väänänen et al., 2003).

One of those psychosocial factors that has received scarce attention in the literature on sickness absence is *climate*. At the individual level, climate is employee descriptions in psychologically meaningful terms of the social work environment of which the person is a part (Rousseau, 1988). These individual descriptions are called *psychological climate*. Nicholson and colleagues (Chadwick-Jones et al., 1982; Nicholson and Johns, 1985) have argued that the social work environment in which absence is examined must also be taken into account when studying absence behavior. The results of the meta-analysis carried out by Farrell and Stamm (1988) are congruent with this assertion. These authors found that work environment and organization-wide correlates were better predictors of employee absence than psychological or demographic correlates. Recently, Piirainen et al. (2003) found that psychological climate was a significant predictor of sickness absence in a multi-occupational sample.

The literature suggests that the relationship between psychosocial factors and sickness absence may differ between men and women (Hendrix, Spencer and Gibson, 1994; North et al., 1996; Kivimäki et al., 1997). For instance, work demands and job control have been related to sickness absence more strongly among men than among women (North et al., 1993; North et al., 1996). VandenHeuvel and Wooden (1995) studied whether predictors of absenteeism were different for men and women. They found that the absence behavior of women was more sensitive to factors external to the workplace (e. g., stressful life events), whereas the absence behavior of men was more responsive to factors internal to the workplace (e. g., job satisfaction). Probably, these findings have to do with the fact that paid work is more central to the lives of men than to the lives of women (Taveggia and Ziemba, 1978; MOW, 1987; Mannheim, 1993; Kulik, 2001). Men are socialized

to view paid work as very important to their self-identity (VandenHeuvel and Wooden, 1995). «Women are often involved in a variety of roles and are generally not socialized to view employment as a critical part of their identity; thus, they are less likely to view work as their central life interest» (VandenHeuvel and Wooden, 1995, p. 1.311).

As mentioned above, there is cumulated evidence suggesting that the relationship between psychosocial factors and sickness absence differs between men and women. Then, it makes sense to examine whether the relationship between psychological climate and sickness absence is moderated by gender. This is the aim of the present study. Taking into account the findings and ideas presented above, we expect that sickness absence behavior is more strongly related to perceptions of the work environment (that is, psychological climate) among men than among women.

## Method

### *Participants and procedure*

The sample used in the present study was composed of 303 nurses who worked in a Regional Public Health Service (RPHS). The participant nurses were randomly selected from the population of RPHS nurses. A professional interviewing agency approached each sampled nurse on his/her job and asked him/her to answer the questionnaire items.

Regarding gender, 62.4% were women. Female nurses showed an average age of 40.7 years ( $SD=9.1$ ) and an average job tenure of 7.8 years ( $SD=6.8$ ). Male nurses showed an average age of 43.1 ( $SD=10.1$ ) and an average job tenure of 8.8 years ( $SD=7.8$ ). The age difference observed between women and men nurses was statistically significant ( $t=-2.2, p<0.05$ ), but the difference between groups regarding job tenure was not statistically significant ( $t=-1.1, p>0.05$ ).

### *Measures*

*Psychological climate.* Respondents were asked to describe the climate of their work-unit by answering a 9-item scale which measures three important facets of climate (Payne and Phesey, 1971; Kopelman, Brief and Guzzo, 1990; Koys and DeCotiis, 1991; Boada, de Diego and Agulló, 2004): support (the extent to which there are kindly and supportive relationships among employees), rules orientation (the extent to which employees' behavior is regulated by formal rules and procedures), and goals orientation (the extent to which goals are clearly defined and their achievement is evaluated and stressed). Each climate facet was measured by means of three items answered using a 5-point Likert scale. Examples of these items are «In my work-unit, people show concern and support for work mates' personal problems» (support), «In my work-unit, the goals to be reached within a period of time are clearly defined» (goals orientation), and «In my work-unit, the compliance to rules and procedures is emphasized a lot» (rules orientation).

The polychoric correlation matrix for the 9 items was submitted to a Confirmatory Factor Analysis (CFA), in order to test the fit of the hypothesized 3-factor model. The Weighted Least Square (WLS) method of estimation as implemented in LISREL 8 (Jöreskog and Sörbom, 1993) was used. The results obtained ( $\chi^2=78.6, df=24, p<0.01$ ; RMSEA= 0.08; AGFI= .93; CFI= 0.93; NNFI= 0.90) showed an acceptable fit for the model. The 3-factor model's fit was compared with the fit of a 1-factor model ( $\chi^2=$

183.7,  $df=27, p<0.01$ ; RMSEA= 0.14; AGFI= 0.86; CFI= 0.80; NNFI= 0.74). The difference between chi-square values ( $\chi^2=105.1, df=3, p<0.01$ ) revealed that the 3-factor model yielded a better fit. Cronbach's alphas for the three climate subscales were: Support: 0.83 and 0.84 for the women and men samples, respectively; Goals Orientation: 0.77 for both samples, and Rules Orientation: 0.63 and 0.60, respectively.

*Sickness absence.* Sickness absence frequency (i.e. the number of sickness absence episodes during the previous 18 months preceding the interview) was chosen as an indicator of sickness absence. Absence frequency measures are more stable than time lost measures (Hammer and Landau, 1981; Zaccaro, Craig and Quinn, 1991). In hospital settings, the majority of all recorded absences tend to be short-term absences (Hackett, Bycio and Guion, 1989; Gellatly, 1995). Moreover, it has been shown that hospital employees tend to exhibit low rates of time lost, but moderate levels of absence frequency (Chadwick-Jones et al., 1982). According to the existing legal regulations, only sickness absences longer than 2 days were registered into the RPHS personnel files, and they include employees' inability to attend work due to common illness, work-related illness, work accidents, and maternity. Under the corresponding law, all absences have to be certified by the employee's family physician, and the workers are fully compensated financially for their absence at work. Maternity leaves were excluded from the study analysis.

Because the distribution of absenteeism measures is truncated, the absence frequency measure showed high levels of kurtosis (greater than 5) and skewness (greater than 2) in the men sample (5.3 and 2.3, respectively) and in the women sample (5.6 and 2.1, respectively). This problem was tackled by applying the following transformation:  $\ln(\text{absence episodes} + 1)$ . Once this transformation was implemented, the levels of kurtosis and skewness in the sample of men (0.9 and 1.5, respectively) and in the sample of women (0 and 1.0) were acceptable (Aiken and West, 1991).

### *Analysis*

To test the hypothesis that the relationship between psychological climate and sickness absence is moderated by gender, a model-comparison approach was implemented using LISREL 8 (Jöreskog and Sörbom, 1993). The fit of a regression model with latent variables that imposes invariance restrictions across gender groups on the parameters estimating the influence of support, goals orientation and rules orientation on sickness absence (Model A) was compared to the fit of a model in which those parameters were freely and simultaneously estimated in both groups of women and men nurses (Model B). Model A neglects that the aforementioned relationship is moderated by gender, whereas Model B assumes that gender moderates it. Model A is nested within Model B. The difference between the chi-square fit statistics of two nested models can be used to compare the fit of the nested models. This difference is distributed as a chi-square statistic with degrees of freedom equal to the difference between the degrees of freedom of each model.

Taking into account that previous research has shown that age is significantly related to absenteeism (Gellatly, 1995; Kivimäki et al., 1997; Kivimäki et al., 2001), age was included in both regression models as a control variable. Previous studies have reported that the age-absenteeism relationship varies across gender (Hackett, 1990; VandenHeuvel and Wooden, 1995). Therefore, we did not impose any constraints across samples on the coefficient estimating this relationship. Moreover, considering that some authors

have found a curvilinear U-shaped relationship between age and absenteeism (Allen, 1984; Leigh, 1991; VandenHeuvel and Wooden, 1995), before estimating the regression models we tested whether the age-absenteeism relationship fitted a curvilinear relationship in the study samples. By means of hierarchical multiple regression, we found in both samples that the inclusion of an age-squared variable into the regression model did not improve the proportion of variance of absenteeism explained by age. Therefore, only respondents' age (and not age squared) was included into both regressions models (A and B) as a control variable.

In both regression models (A and B), the correlations between age and the three climate facets were fixed to zero because there are no theoretical reasons to expect significant correlations between them. These restrictions make it possible for model B to be a non-saturated model.

ence between the chi-square statistics of both models was statistically significant ( $\chi^2= 16.6$ ,  $df= 4$ ,  $p<0.01$ ), indicating that Model B fitted the data significantly better than Model A. Consequently, the invariance constraints could not be maintained, and this meant that, as we expected, the relationship between the three facets of psychological climate considered and sickness absence was moderated by gender.

The parameter estimates provided by Model B are displayed in Table 2. In the men sample, the three climate facets showed a statistically significant relationship with sickness absence. The coefficients estimating the relationship between sickness absence and support and rules orientation were positive (0.58 and 0.53, respectively), whereas the coefficient estimating the relationship between sickness absence and goals orientation was negative (-0.67). In the women sample, no climate facet showed a significant relationship with sickness absence.

*Table 1*  
Descriptive statistics and correlations among the study variables

Variables	Mean <sup>a</sup>	SD <sup>a</sup>	Pearson Correlations <sup>b</sup>				
			1	2	3	4	5
1. Age	40.69 43.15	9.13 10.06	-	.09	.08	.06	.21**
2. Support	4.04 4.04	0.94 0.85	.13	-	.59**	.13	-.14
3. Goals	3.41 3.54	1.02 0.97	.19*	.47**	-	.21**	-.07
4. Rules	3.48 3.18	0.97 0.93	.21*	.01	.28**	-	.02
5. Sickness absence	0.36 0.28	0.49 0.47	.16	.18 <sup>#</sup>	-.09	.21*	-

*Note:* <sup>a</sup> Within each cell, the upper number is for the women nurses sample, the lower number is for the men nurses sample. <sup>b</sup> The correlations above the diagonal are for the women nurses sample, the correlations below the diagonal are for the men nurses sample. \*\* $p<.01$ ; \* $p<.05$ ; <sup>#</sup>  $p<.06$ ; two-tailed tests.

We used one indicator per latent variable. Information regarding the reliability of the indicators of the climate latent variables was incorporated into the models by assigning the fixed value of one minus the reliability estimate times the variance of the variable to the corresponding parameters estimating measurement error. It was assumed that age and absenteeism were measured without error. The input matrix for the analysis was the variables' covariance matrix in each sample.

**Results**

Descriptive statistics and correlation coefficients among the study variables are shown in Table 1. In the women sample, sickness absence was only related to age ( $r= .21$ ,  $p<.01$ ). In the men sample, sickness absence was only related to the climate facets of support ( $r= .18$ ,  $p<.06$ ) and rules orientation ( $r= .21$ ,  $p<.05$ ).

The goodness-of-fit indices obtained for Model A, the model imposing invariance restrictions on regression coefficients ( $\chi^2= 26.3$ ,  $df= 10$ ,  $p<0.01$ ; RMSEA= 0.081; NNFI= 0.78; CFI= 0.89), indicated an inadequate fit to data. However, Model B, the model that did not impose any invariance restrictions, yielded a good fit to data ( $\chi^2= 9.7$ ,  $df= 6$ ,  $p>0.05$ ; RMSEA= 0.047; NNFI= 0.92; CFI= 0.97). The differ-

*Table 2*  
Model B standardized regression coefficients estimating the relationship between age, psychological climate facets and sickness absence

Predictors	Regression coefficients
Age	.24** .10
Support	-.23 .58**
Goals orientation	.07 -.67**
Rules orientation	.03 .53**
R <sup>2</sup>	.08 .35

*Note:* Predicted variable: sickness absence. Within each cell, the upper entry is for the women nurses sample, the lower entry is for the men nurses sample. The estimates presented are those provided by the common metric completely standardized LISREL solution. \*\*  $p<0.01$ .

Age showed a different relationship pattern across gender. In the men sample, the coefficient estimating the relationship between age and absenteeism was not statistically significant. In the women sample, the relationship was significant and positive (0.24). Finally, the proportion of variance of sickness absence explained by Model B in both samples was quite different: 0.35 in the men sample, and 0.08 in the women sample.

### Discussion

The aim of the present study was to examine whether the relationship between psychological climate and sickness absence is moderated by gender in a sample of nurses. We expected that sickness absence behavior was more strongly related to psychological climate among men nurses than among women nurses. The results obtained supported our expectation. The three climate facets considered (support, goals orientation and rules orientation) showed a significant relationship with sickness absence in the men sample, but not in the women sample.

The results obtained in the present study and those reported by other researchers (North et al., 1993; Rael et al., 1995; Undén, 1996; Kivimäki et al., 1997; Kivimäki et al., 2001; Piirainen, Räsänen and Kivimäki, 2003) support the idea of Rael and colleagues (1995) that sickness absence is a composite outcome, not only depending on ill health, but on psychosocial factors as well.

Our results suggest that men nurses' sickness absence behavior is more responsive than women nurses' sickness absence behavior to variations in perceptions of their social work environments. These results are congruent with the idea that the absence behavior of men is more responsive to factors internal to the workplace, whereas it seems that the absence behavior of women would be more sensitive to factors external to the workplace (e.g., stressful life events) (VandenHeuvel and Wooden, 1995). These differences may be rooted in the differences observed in work centrality across gender: paid work is more central to the lives of men than to the lives of women (Taveggia and Ziemba, 1978; MOW, 1987; Mannheim, 1993; Kulik, 2001). And differences in work centrality seem to be based on distinct socialization processes and the fact that women are more involved than men in a variety of roles outside work organizations (VandenHeuvel & Wooden, 1995; Gjerdingen et al., 2000).

Focusing on the relationships found in the men sample, it is interesting to pay some attention to the positive relationship found between the climate facet of support and sickness absence. Previous research has yielded contradictory results on this relationship. Undén (1994) found a negative relationship between social support at work and self-reported sickness absence. Rael et al. (1995), using objective absence data, found a positive relationship between emotional support from the closest person (generally, the spouse/cohabitee) and sickness absence. Finally, Kivimäki et al. (1997), using objective absence data as well, found that social support, measured as the number of important others from each of a number of social role domains, did not relate to sickness absences either in men or in women. The differences among the measures of support and sickness absence used may partially account for the distinct results reported by the cited studies. Our results coincide with those reported by Rael et al (1995). The positive relationship that we found between the climate facet of support and sickness absence suggests that a supportive work environment may increase self-esteem and sense of control, facilitating employees tak-

ing time off as a way of coping with illness (Rael et al., 1995). A supportive work environment may also act as a facilitating mechanism leading employees to take time off work when they are sick because they know that their work mates will understand and will fill in for them as necessary. Future research should address this relationship, which has yielded mixed results up until now.

The negative relationship found between goals orientation and sickness absence suggests that a work environment in which goals are clearly defined and their achievement is evaluated and stressed, encourages men nurses to attend work. On the contrary, the negative relationship found between rules orientation and sickness absence suggests that a work environment in which employees' behavior is highly regulated by formal rules and procedures, «pushes out» men nurses from work. These relationships may be important when men nurses are sick, but not unable to attend work, and they have to make a decision about attending work. A work environment perceived as high in goals orientation may act as a «pulling» factor stimulating work attendance, because the achievement of men nurses' work goals requires presence at the job. A work environment perceived as high in rules orientation may act as a «pushing» factor stimulating absence from work, because it constrains men nurses' autonomy and professional development (Adler and Borys, 1996), decreasing their psychological well-being.

Age was included in our analysis as a control variable. Previous research has provided inconsistent results as to the relationship between age and absenteeism (see VandenHeuvel and Wooden, 1995). Probably, part of these inconsistencies have to do with the measure of absenteeism used. Short-term absence has been negatively correlated with age, whereas long-term absence has been positively associated with age (Kivimäki et al., 1997). Taking into account that some authors have reported that the age-absenteeism relationship varies across gender (Hackett, 1990; VandenHeuvel and Wooden, 1995), we did not impose any restrictions across gender on the parameter estimating the aforementioned relationship. We found that the parameter estimating the age-sickness absence relationship is positive in both samples, but it reaches statistical significance only in the women nurse sample. Kivimäki et al. (2001) found a positive relationship between age and long-term sickness absence spells (>3 days) in a sample of nurses in which 96.5% were women. They also found this positive relationship in two samples of men and women physicians. A possible explanation for the positive relationship between age and long-term absences is that as age increases, employees are more vulnerable to illness and fatigue. As stated before, we only found this relationship in our women sample. Gjerdingen et al. (2000) reported that women's total workloads (including workload, household tasks and childcare) are greater than those of men. Because of these differences, it is possible that, as age increases, women become more responsive to fatigue due to total workloads than men do. This could explain the differences across gender observed here in the age-sickness absence relationship.

Our findings have important implications for future research. First, the differences observed in the psychological climate-sickness absence relationship across gender highlight the importance of analyzing samples of men and women separately when studying the relationship between sickness absence and its hypothetical psychosocial correlates. Otherwise, the analysis of pooled data could impede uncovering the important differences existing across gender (see VandenHeuvel and Wooden, 1995). Second, in our men nurses sample, the three facets of psychological climate ac-

count for about one third of the variance of sickness absence. Taking into account that we did not use a self-report measure of sickness absence, which precludes common method variance as a factor contributing to this result, we can state that the proportion of explained variance is notably high. This emphasizes the importance of men nurses' perceptions of their social work environment in explaining sickness absence, and renders support to Nicholson and colleagues' idea that the social work environment in which absence is examined must be taken into account when studying absence behavior (Chadwick-Jones et al., 1982; Nicholson and Johns, 1985).

Our study has important practical implications. RPHS managers should regard psychological climate as an important factor influencing men nurses' sickness absence. Previous studies have shown that managers play a key role in modeling employees' climate perceptions (e.g., Kozlowski and Doherty, 1989). Managers may serve as interpretative filters of relevant work events, features

and processes (Weick, 1995). Thus, they should realize that influencing psychological climate may be a way to prevent and reduce men nurses' sickness absence.

The present study has a number of limitations. First, its cross-sectional nature precludes any sound conclusion about the causality among the studied variables and suggests that the results obtained should be interpreted with caution. Second, instead of a convenience sample, we have used a random sample of nurses, and this is a positive point of the present research. However, we can only, although with confidence, generalize the observed relationships to the population of RPHS nurses. Future studies should investigate the psychological climate-sickness absence relationship in distinct occupational samples. And third, we could only study absences longer than 2 days, because these are the only absences that are registered into the RPHS personnel files. Other studies should test whether the observed relationships appear when shorter absence spells are used.

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