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Abstract

Absenteeism figures are increasingly applied as an integrated measure of health in the working population. However, a comprehensive overview of employee well-being (compromising the relative impact of physical, psychological, and organizational components) and how this relates to reported absence frequency and duration is still lacking. The present study investigates these relationships. The study has been conducted in a Dutch subsidiary of an international financial consultancy firm. Three types of data collection were used: a web-based survey among the firm's employees, a physical health check, and the employees' absence rates reported to the company. Together the questionnaire and the health check included the following clusters of independent variables: (a) personal characteristics, (b) job characteristics, (c) physical health, (d) self-reported well-being, and (e) perceptions of organization and communication. Of the five clusters of variables, the perceptions of organization and communication variables appeared to be the strongest predictors of absence frequency. This study did not find the assumed relationship between physical related well-being and individual absence duration.

Employee Health, Communication and Absenteeism

There is a thin line between being healthy and being sick, especially when considering the broad definition of health the World Health Organization uses: *'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.'* Being healthy and being sick can best be seen as two ends of a continuum, where most people are situated somewhere in between (Geurts, 2003). The physical, mental and social well-being aspects of this definition underline that the workplace itself is a health issue as well. Employees express this in behaviors like positive collaborations, co-worker support, productivity, presenteeism, absenteeism and turnover. This makes improving employee well-being of great concern to organizations. Studies on the consequences of employee well-being show that well-being has significant impact on the performance and survival of organizations by affecting costs related to illness and health care (e.g., Danna & Griffin, 1999; Karasek & Theorell, 1990), and to absenteeism and turnover (e.g., Spector, 1997).

The societal effect of employee well-being should not be underestimated either. Unhealthy work organizations can end up with enormous human and economic costs. The yearly national cost of strain to United States organizations for reduced productivity, direct medical expenses, compensation claims, health insurance and absenteeism has been estimated at $150 billion. Statistics from the major employers' organization in the United Kingdom (the Confederation of British Industry) show that millions of working days are lost yearly through bad health, at a cost to the economy of £11 billion (Schabracq, Winnubst, & Cooper, 2003). In the European Union, most countries are estimated to spend about 10% of their GNP on stress-related problems (Schaufeli & Enzmann, 1998).

Absenteeism figures are increasingly applied as an integrated measure of health in the working population. However, absenteeism is, most often as a result of well-being, multi-factorial and may not only be influenced by the physical status of the individual, but also by social and psychological factors. Several studies have focused on the relationship between

employee well-being and absenteeism (for an overview, see Hensing, Alexanderson, Allebeck, & Bjurulf, 1998). The physical health of employees appears to affect *absence duration* (number of days absent per person per year), whereas the social and psychological aspects of employee well-being are important antecedents for *absence frequency* (number of times absence per person per year). However, a comprehensive overview of employee well-being (compromising the relative impact of physical, psychological, and organizational components) and how this relates to reported absence frequency and duration is still lacking. The present study investigates these relationships.

Theoretical and Empirical Relationships

The purpose of the current study was to shed light on the critical processes which initiate decisions to attend or be absent from work. To do so, the relative impact of employee well-being antecedents of individual absence frequency and individual absence duration are explored.

Figure 1 and 2 introduce the variables studied. Five clusters of independent variables were used: (a) personal characteristics, (b) job characteristics, (c) physical health, (d) self-reported well-being, and (e) perceptions of organization and communication. It is hypothesized that each cluster of variables will contribute to the amount of variance explained of individual absence frequency. Considering the literature mentioned above, for individual absence duration it is hypothesized that only the clusters (a) personal characteristics and, (c) physical health, will contribute to the amount of variance explained.

-- PLEASE INSERT FIGURE 1 AND 2--

Personal Characteristics

A first cluster of variables involves the personal characteristics of employees, including demographic variables such as gender, age, education, marital status, and childcare

responsibilities. Several studies show that women are more often absent than men (Kivimäki, Vahtera, Thomson, Griffiths, Cox, & Pentti, 1997). However, a study of Van Deursen, Houtman and Bongers (1999) found that childcare responsibilities are related to absence frequency, so gender and childcare may be confounded. Erickson, Nichols and Ritter (2000) found a relationship between having children under the age of six at home and number of days absent. Kivimäki et al. (1997) found a positive relation between age and absence. They conclude that 'older employees may be more vulnerable during stressful changes in their working and private lives.' Smulders and Nijhuis (1999) found a negative relationship between education and absenteeism, for frequency as well as for absence duration. Employees who are married or cohabiting seem to be present more often than those who are not (Keller, 1984).

Job Characteristics

Job characteristics represent a set of variables that define the job position someone has and related factors: job level, years of experience, commuting time, part-time/ fulltime and amount of overtime. Krause, Lynch, Kaplan, Cohen, Goldberg & Salonen (1997) showed that long working hours can result in long term incapacity for work. If employees have the feeling they have to invest more (e.g., amount of overtime) in the company than they will get in return, their absence frequency will increase (Geurts, Schaufeli & Rutte, 1998). Commuting employees suffered higher psychological stress, more health complaints, and greater absenteeism (Costal, Pickup & Di Martino, 1988).

Physical Health

Body mass index (BMI) is an indicator for over- or underweight. Burton, Chen, Schultz, & Edington (1998) found that people with an undesirable BMI are more likely to have additional health risks and short-term absence. Elevation of blood pressure predicts the risk of cardiovascular disease (Basile, 2002). Cholesterol can be an indicator for coronary heart disease. Bertera (1991) found that employees with undesirable levels of cholesterol had a

higher absenteeism rate. A distorted level of glucose is an indicator for diabetes mellitus. Tsai, Wendt, Ahmed, Donnelly & Strawmyer (2005) found higher absenteeism with people with high glucose levels. Hemoglobin transports oxygen from the lungs to the rest of the body and is an indicator for anemia. People who have undesirable levels of hemoglobin may be more absent (Zamora, Ramírez, vergara, Arévalo-Herrera, & Herrera, 2005).

Self-Reported Well-Being

This cluster contains two constructs that are related to the psychological health of employees: job burnout and fatigue. Job burnout is a psychological response to work demands. Erickson, Nichols, and Ritter (2000) found a strong relationship between job burnout and days absent. The most prominent predictor of sickness absence Bekkers et al. (2005) found was emotional exhaustion (the main dimension of job burnout). In another study, the dimension personal accomplishment seemed to be the most convincing predictor of absenteeism (Iverson, Olekalns, & Erwin, 1998). Kivimäki et al.(1997) found a relationship between subjective health status and absenteeism. The study of Janssen, Kant, Swaen, Janssen, and Schröer (2003) concluded that 'fatigue was associated with short term but particularly with long term sickness absence.'

Perceptions of Organization and Communication

Employees' subjective perceptions of the interaction processes within their organization are added in the final cluster of variables. This is operationalized with: communication satisfaction, information overload, information underload, intention to leave, autonomy and workload. Communication satisfaction refers to the overall degree of satisfaction employees express with the total communication environment (Rubin, Palmgreen, & Sypher, 1994). Based on Miller's (1978) and Miller and Miller' s (1990) definition which regards stress as an overload or underload of information it could be assumed that information overload and underload may function as a stressor that results in absenteeism. Intention to leave is suggested as a precursor to absenteeism because this intention decreases motivation to invest

in the current job and therefore leaves little reason to be present. Furthermore, being absent can allow an employee to search for another job or to avoid a dissatisfying job situation that the employee would like to leave. Keller (1984) found relationships in this direction. The control or autonomy an employee has over his or her own work is possibly one of the most crucial aspects of working life and one that has been extensively researched. High autonomy predicts low absenteeism. Workload has been subject of many studies as well, and shows a positive relationship with absenteeism (see Smulders, & Nijhuis, 1999; Iverson, Olekalns, & Erwin, 1998; Geurts, 2003; Spector, & Jex, 1991; Erickson, Nichols, & Ritter, 2000).

Method

Organizational Context

Data were collected in a Dutch subsidiary of an international financial consultancy firm, with 4,220 employees. The company is a typical post-industrial knowledge company, and it is known for its concern for employees' development and satisfaction. Employee satisfaction is monitored worldwide every year, and more specific issues are studied on a national level on an irregular basis.

Procedure for Data Collection

In this study, three types of data collection were used: a survey among the firm's employees, a physical health check, and the employees' absence rates reported to the company. The survey data were collected from September to November 2005 using a web-based questionnaire. Employees were informed about the online questionnaire through several digital newsletters. Employees who completed the questionnaire were offered the possibility to make an appointment for an in-company physical check-up. The results of this health check were recorded and made available for research purposes. The employees' absence rates of 2005 in the firm's administration were translated into two variables: individual absence frequency, and absence duration. These three data sources were merged on the basis of personnel identification number.

Sample and Response Rate

Of a total of 4220 employees, 948 completed the questionnaire (22% response rate). The health check was visited by a somewhat smaller group of employees (N=797; 19% response rate). A total of 663 employees (16%) completed the questionnaire and visited the health check. This response group (N=663) represented 7% more female than the total company population (response group: 50% female vs. 50% male; company: 43% female vs. 57% male). Regarding to age, the response group seemed to represent an older group than the total company population (response group: ≤ 29 years: 25%; 30–39 years: 36%; 40–49 years: 21%; ≥ 50 years: 18%; company: ≤ 29 years: 44%; 30–39 years: 33%; 40–49 years: 12%; ≥ 50 years: 10%). Most employees had an academic education (40%) or a higher vocational education (28%); 29% of all participants had middle and lower vocational education. More than one third of all employees (41%) had children living in their household, and a large proportion of workers (73%) were married or cohabiting. A large percentage of the employees (41%) had a managerial position.

Measures

Together the questionnaire and the health check included the following clusters of independent variables: (a) personal characteristics, (b) job characteristics, (c) physical health, (d) self-reported well-being, and (e) perceptions of organization and communication. The first cluster (*personal characteristics*) included gender, age, education, marital status, and child care. Cluster two (*job characteristics*) covered job level, years of experience, commuting time, part-time/ fulltime, and amount of overtime. Cluster three (*physical health*) contained eight medical variables: body mass index, systolic blood pressure, diastolic blood pressure, total cholesterol, high density lipoprotein, high density lipoprotein ratio, glucose, and hemoglobin. The cluster about peoples own perception of their psychological health (*self-reported well-being*) covered burnout symptoms and symptoms related to fatigue. The last

cluster (*perceptions of organization and communication*) included communication satisfaction, information overload, information underload, intention to leave, autonomy and workload. Dependent variables in this study were the individual absence frequency rate and the individual absence duration reported to the company in 2005.

The health check included eight physical measurements. Body mass index (BMI; fraction between weight and length) is an indicator for over- or underweight. In this study, BMI measurements equal to or between 18.5 and 25 were considered desirable. BMI measurements lower than 18.5 (underweight) or higher than 25 (overweight) were looked at as undesirable body mass (World Health Organization, International Society of Hypertension Writing Group [WHO/ISH], 2003).

Blood pressure was measured by systolic blood pressure (SBP; peak pressure during cardiac cycle) and diastolic blood pressure (DBP; pressure during rest phase cardiac cycle). Blood pressure is a good indicator of blood pressure-induced cardiovascular diseases, because risk of cardiovascular diseases increase with the rise of blood pressure above desirable levels. SBP was determined as desirable for measurements below 140 mmHg and undesirable for measurements above or equal to 140 mmHg. DBP was called desirable for measurements below 90 mmHG and undesirable for measurements above or equal to 90 mmHg (Whitworth, 2003).

Cholesterol levels (greasy substance in blood) were measured with: High Density Lipoprotein (HDL), total cholesterol, and HDL-ratio. HDL is also called “good cholesterol”, because elevated levels decrease the risk of blockages of coronary arteries. Total cholesterol is made up of high, low en very low density lipoproteins. HDL-ratio (fraction between total cholesterol and HDL) is an indicator for coronary heart disease. HDL was considered desirable above 60 mg/dl and undesirable below or equal to 60 mg/dl. Total cholesterol was considered desirable for measurements below 200 mg/dl and undesirable for measurements above or equal to 200 mg/dl. HDL-ratio measurements below or equal to 5 were seen as

desirable and above 5 as undesirable (Birtcher & Ballantyne, 2004; National Cholesterol Education Program [NCEP], 2002).

Glucose (blood sugar) is used by cells in the human body as a source of energy. A distorted level of glucose is an indicator for diabetes mellitus. Measurements below 7.8 mmol/l were considered desirable and measurements above or equal to 7.8 mmol/l as undesirable (World Health Organization [WHO], 1999).

Hemoglobin is an indicator for anemia. Hemoglobin levels were measured using separate reference points for men and women. For women, Hb levels above or equal to 7.5 mmol/ml and below or equal to 10 mmol/ml were seen as desirable. Hb levels below 7.5 mmol/ml or above 10 mmol/ml were considered undesirable for women. For men, Hb levels above or equal to 8.5 mmol/ml and below or equal to 11 mmol/ml were considered desirable. Hb levels below 8.5 mmol/ml or above 11 mmol/ml were seen as undesirable for men (Joosten & Jochems, 2003).

Burnout was measured using the Dutch version of the Maslach Burnout Inventory in the questionnaire (MBI-NL; see Schaufeli & Van Dierendonck, 1994; Schutte, Toppinen, Kalimo, & Schaufeli, 2000; Maslach, 1981). The items represent three dimensions: emotional exhaustion, depersonalization, and personal accomplishment. Emotional exhaustion refers to a depletion of emotional resources, where employees lack the energy to give to their job. Depersonalization is a process in which employees detach from their job and begin to develop indifferent attitudes. Reduced personal accomplishment refers to diminishing perceptions of ability on the job. Items on this 16 item scale were rated on a 5-point scale from 1 (*never*) to 5 (*always*). A sample item for emotional exhaustion was, “I feel emotionally drained from my work.” A depersonalization item was, “I feel I’m too detached from my work, and an example of reduced personal accomplishment was, “I have accomplished many worthwhile things in this job” (recoded). Scale reliability was high (Cronbach’s $\alpha = .85$). Although burnout is a multidimensional syndrome, this does not imply that the overall concept should be

abandoned. Because this is an exploratory study it seems more suitable to treat burnout as a single construct (cf. Brenninkmeijer & Van Yperen, 2003 for a decision tree for choosing between a multidimensional and unidimensional approach of burnout).

A 4-item scale used by the company's health and safety committee measured symptoms related to fatigue. The scale consisted of items such as "Are you often tired?" and "Do you have problems falling asleep?" A 5-point scale was used ranging from 1 (*never*) to 5 (*several times a week*). The scale was reliable (Cronbach's $\alpha = .74$).

Communication satisfaction was measured using a five-item scale. This scale focused on the employees' communication satisfaction on various organizational levels. A sample item was, "How satisfied are you with the communication at your location?" Five-point scales were used, ranging from 1 (*strongly dissatisfied*) to 5 (*strongly satisfied*). The scale appeared to be reliable (Cronbach's $\alpha = .72$).

Communication overload and underload were measured using the first part of the ICA Communication Audit (Goldhaber & Rogers, 1979; Rubin, Palmgreen & Sypher, 1994). This section of the ICA Communication Audit, "Receiving Information from Others," has two parts, one on how much information you in fact receive, and one part on how much information you need to receive to perform well. A sample item was, "This is the amount of information I (need to) receive on how I am being judged." Five-point scales were used, ranging from 1 (*very little*) to 5 (*very much*). To measure overload, a separate variable was created for respondents who received more information than they needed (information received minus information needed; Cronbach's $\alpha = .76$). The same was done to measure information underload (information needed minus information received; Cronbach's $\alpha = .87$)

Intention to leave was measured by a single item: "Are you currently looking for another job?" Respondents were offered three response possibilities: "Yes, outside the company," "Yes, inside the company," and "No."

Perception of autonomy was measured with a 4-item scale (the Decision Authority

Scale; Karasek, 1998). The scale consisted of items such as "Are you allowed to make your own plans?" and "Can you decide what the content of your tasks will be?" A 4-point scale was used, ranging from 1 (*never*) to 4 (*always*). The scale was reliable (Cronbach's $\alpha = .81$).

Workload was measured using a 7-item scale derived from Karasek's (1998) Job Content Questionnaire (JCQ). A sample item was. "Do you have to work hard?" Four-point scales were used, ranging from1 (*always*) to 4 (*never*). The scale was reliable (Cronbach's $\alpha = .78$).

Results

Descriptive Results and Correlations

Tables 1 and 2 present the descriptives of the dependent and independent variables. On average, employees called in sick 1.6 times, and were absent for 7.2 days in 2005. These figures are comparable to the absence in 2004 in this company (1.6 times and 8 days). The employees seemed relatively healthy with 61% desirable weight, 68% desirable systolic blood pressure, 78% desirable diastolic blood pressure, 81% with a desirable level of total cholesterol, 40% had a desirable HDL level and 90% a good HDL-ratio level. Glucose was for 98% of the response group on a healthy level and Hemoglobin for 82%. The mean of the burnout score ($M = 2.22$) was below the midpoint of the five-point scale, which indicates a relatively low average score on burnout. Employees' feelings related to fatigue were close to the midpoint of the five-point scale ($M = 2.94$).

On average, the employees were satisfied with the communication ($M = 3.66$; five-point scale). Though a few respondents experienced information underload, this was felt in a moderate way ($M = .47$); information overload was experienced even less ($M = .12$). Only 9% of the employees reported an intention to leave their job. In general, the employees felt some degree of autonomy ($M = 2.74$; four-point scale) and workload was considered somewhat high ($M = 2.40$; four-point scale).

Table 3 presents the scale inter-correlations of the dependent and independent

variables. Of the twenty-six independent variables, eleven correlated significantly with individual absence frequency and four with individual absence duration. Fatigue showed the strongest correlation with absence frequency (r = .18, p < .001). The second and third strongest correlations with absence frequency concerned gender and amount of overtime (r .14, p < .001 and r =-.13, p < .001, respectively). Fatigue also showed the strongest correlation with absence duration (r = .15, p < .001). The second and third strongest correlations with absence duration concerned information underload and burnout symptoms (r .10, p < .001 and r =-.09, p < .01, respectively).

--PLEASE INSERT TABLE 1, 2 AND 3 --

Organizational Determinants of Absenteeism

The hypothesized relationships between absence frequency and duration and the determinants used in this study were tested using hierarchical regression analysis. Together, the determinants explained a considerable proportion of the variance in absence frequency (Adjusted R^2 = .37, p < .001). Table 4 shows the results of this analysis. The determinants were not able to explain absence duration to a high degree (Adjusted R^2 = .11, *ns*). These results can be found in table 5.

For the two dependent variables, absence frequency and duration, five identical models were included in the hierarchical regression analysis. First the variance explained by these clusters for absence frequency is discussed, followed by a discussion of the explanatory power of these clusters concerning absence duration.

The first model considers only the cluster of personal characteristics; these explain a very small, although significant proportion of the variance within absence frequency (Adjusted R^2 = .08, p < .05; Adjusted ΔR^2 = .08, p < .05). In the second model, the job characteristics were added to the respondents' personal characteristics. This resulted in a small, but significant

improvement in the proportion of variance explained (Adjusted R^2 = .17, p < .005; Adjusted Δ R^2 = .09, p < .05). In the third model, the physical health variables were added, again resulting in a significant improvement in the proportion of variance explained (Adjusted R^2= .26, p < .005; Adjusted Δ R^2 = .09, p < .05). The fourth model incorporates self-reported well-being, which does not explain more of the variance (Adjusted R^2 = .26, p < .005; Adjusted Δ R^2 = .00, *ns*). The final model included perceptions of organization and communication variables; all together, this explains 37% of the variance (Adjusted R^2 = .37, p < .001; Adjusted Δ R^2 = .11, p < .01). Of the five clusters of variables, the perceptions of organization and communication variables appeared to be the strongest predictors of absence frequency, but physical health variables also made an important contribution. In the fifth model, six variables contributed significantly to the prediction of individual absence frequency: job level, commuting time, hemoglobin, information overload, intention to leave, and workload.

For absence duration the first model (personal characteristics) explained a very small, non-significant proportion of the variance (Adjusted R^2 = -.01, *ns*; Adjusted Δ R^2 = -.01, *ns*). In the second model, the job characteristics were added to the respondents' personal characteristics. This did not result in a significant improvement in the proportion of variance explained (Adjusted R^2 = -.01, *ns*; Adjusted Δ R^2 = .00, *ns*). In the third model, the medical variables were added, again not resulting in a significant improvement in the proportion of variance explained (Adjusted R^2= .06, *ns*; Adjusted Δ R^2 = .07, *ns*). The fourth model incorporates self-reported well-being which, again, doesn't explain more of the variance (Adjusted R^2 = .04, *ns*; Adjusted Δ R^2 = -.02, *ns*). The final model included perceptions of organization and communication variables; all together, this explains 11% of the variance (Adjusted R^2 = .11, *ns*; Adjusted Δ R^2 = .07, *ns*). Of the five clusters of variables, the perceptions of organization and communication variables appeared to be the strongest predictors of absence duration, but this did not result in significant findings. In the fifth model, two variables contributed significantly to the prediction of individual absence duration: hemoglobin and autonomy.

--- PLEASE INSERT TABLE 4 AND 5 ABOUT HERE ---

Discussion

The purpose of the current study was to shed light on the critical processes that initiate decisions to go to work or not. To do so, the relative impact of employee well-being antecedents (compromising the relative impact of physical, psychological, and organizational components) on individual absence frequency and individual absence duration were explored. The hypothesis about individual absence duration could not be supported with the current study. Neither cluster (a) personal characteristics, nor cluster (c) physical health, could significantly contribute to the amount of variance explained. This study could not establish the assumed relationship between physical related well-being and individual absence duration. An explanation could be that the measured physical variables did not manifest themselves into serious health problems yet. Otherwise, it would be more difficult for the employee to attend the health check. This generally acknowledged complication is called “the healthy workers effect” (Schaufeli & Buunk, 2003).

In this study, support was found for the first hypothesis: each cluster of variables contribute to the amount of variance explained of individual absence frequency. Surprisingly, the cluster perceptions of organization and communication explained most of the variance (11%). Three out of the five variables contributed significantly to the explanation of individual absence frequency. Information overload showed a positive relationship with absenteeism, just as intentions to leave and workload. Gaining insight in this kind of predictors of absenteeism can enable organizations to redesign the work place into a win-win situation: reducing absenteeism and turnover, while at the same time enhancing employee well-being.

The physical health variables were not able to predict absence duration and for 9

percent absence frequency. The latter does not come as a surprise (see Hensing, Alexanderson, Allebeck, & Bjurulf, 1998), but overall the influence of the physical health variables on absenteeism measures seems minor. The findings of this study do raise the question if it is worthwhile for an organization to invest in a health check. An economic analysis has led to the conclusion that the effects of health checks must be shown to last for at least 10 years if they are to be cost-effective (Hanlon, Carey, Tannahill, Kelly, Gilmour, Tannahill and McEwen, 1998). Considering this study, an emphasis on organizational and communication matters seems more valuable to improve employee well-being.

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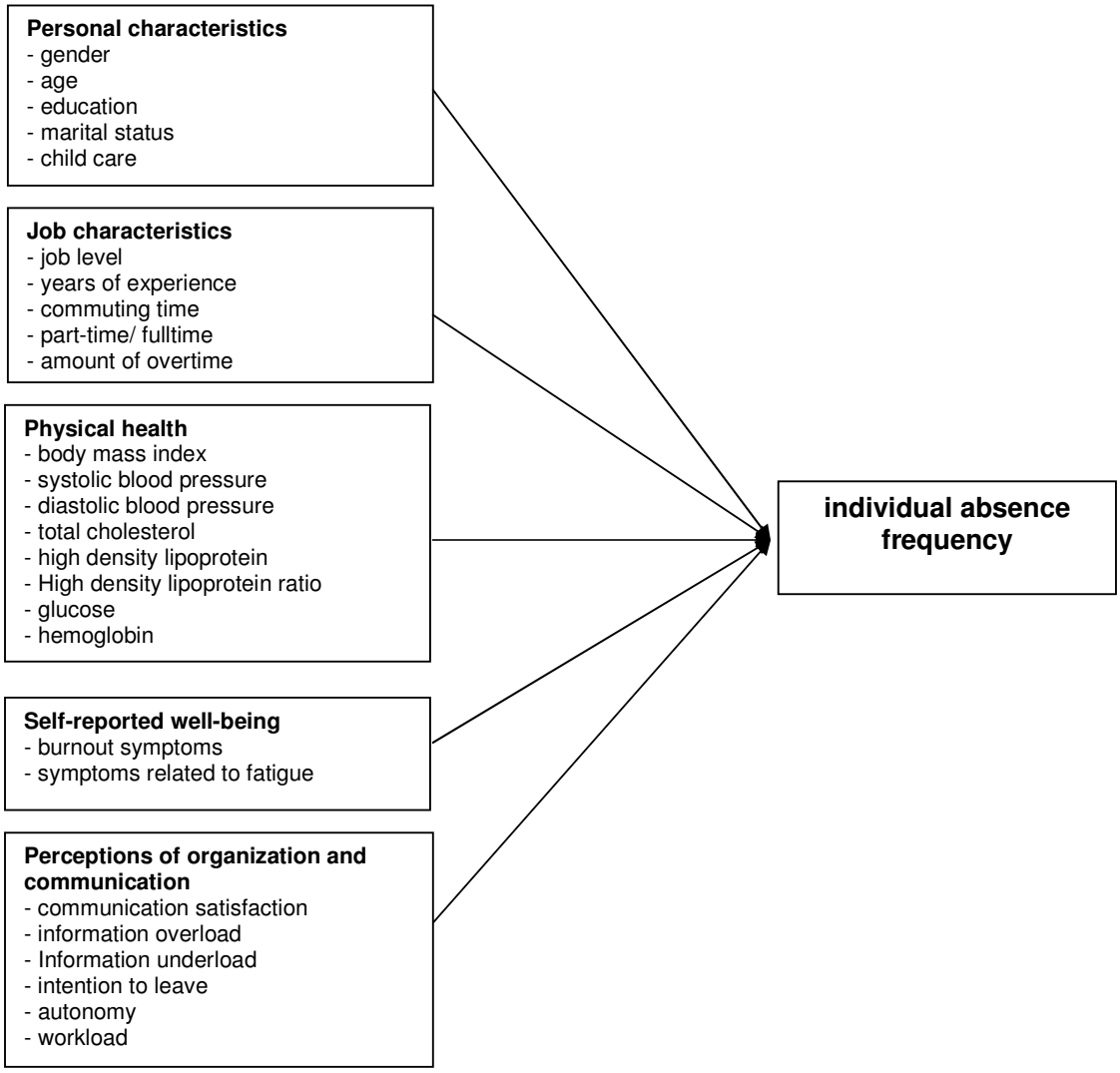

Figure 1. Five clusters of antecedents of absence frequency

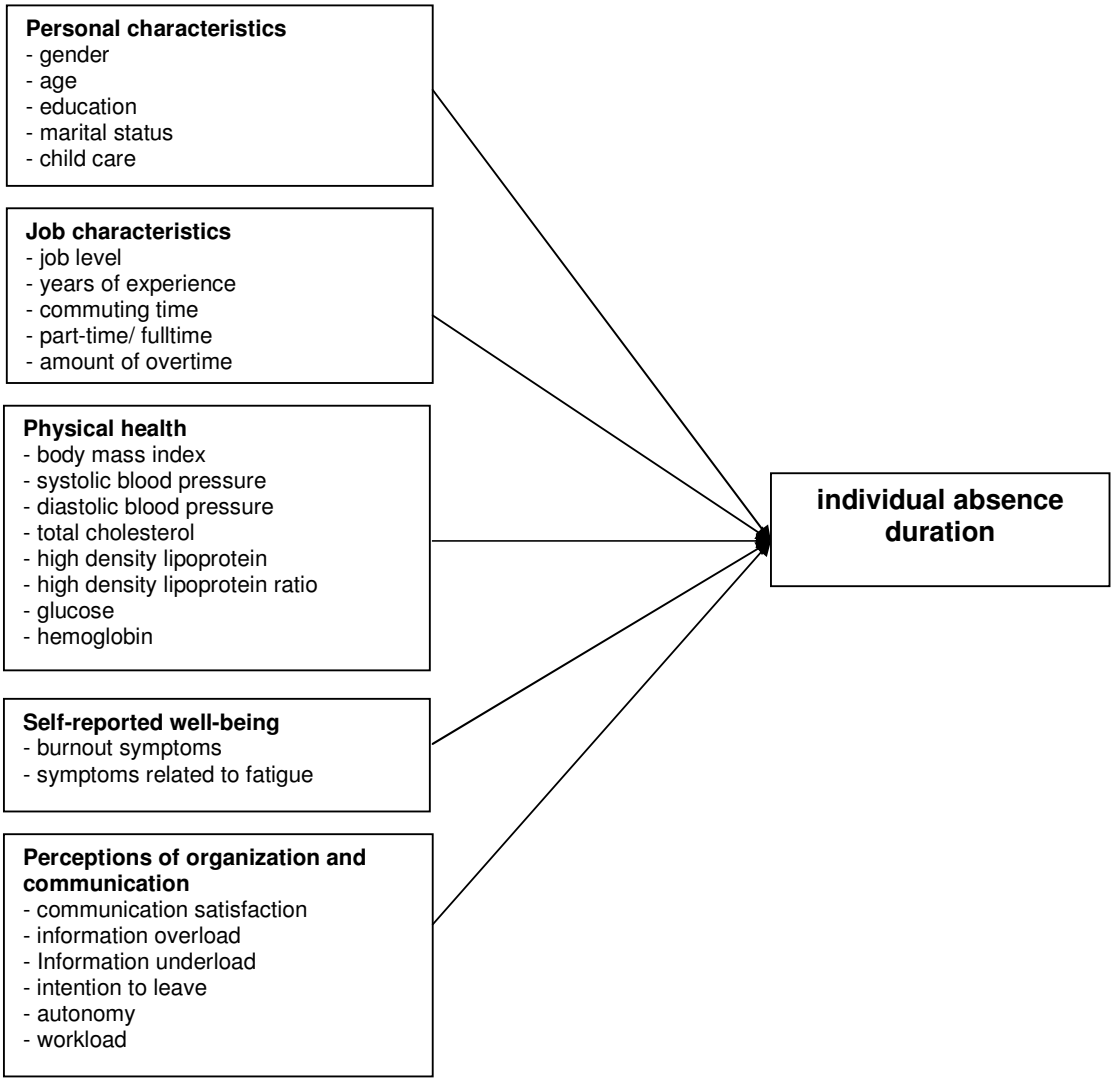

Figure 2. Five clusters of antecedents of absence duration

Table 1

Descriptive Variables

Variables	**Sample characteristics**
Absence Frequency	Mean: 1.6 times (*SD*=1.71)
Absence Duration	Mean: 7.2 days (*SD*=17.50)
Gender	52% male ; 48% female
Age	Mean: 37.2 years (*SD*=10.30)
Education	30% lower and middle vocational education; 70% higher vocational or an academic education
Marital status	72% married or cohabiting; 28% not married/cohabiting
Child care	62% child care responsibility; 38% no child care responsibility
Job level	1% level 0 (lowest job level); 31% level 1; 24% level 2; 18% level 3; 8% level 4; 17% level 5, 1% level 6 (highest job level). Mean: 2.6 (*SD*=1.51)
Years of experience	Mean: 7.9 years (*SD*=7.14)
Commuting time	Mean: 34.9 minutes one way (*SD*=19.78)
Part-time/ fulltime	31% part-time (less than 40 hours); 69% fulltime
Amount of overtime	Mean: 3.3 hours (*SD*=7.33)
Intention to leave	9% has an intention to leave; 91% no intention to leave
Body mass index	61% desirable weight; 39% over- or underweight
Systolic blood pressure	68% desirable pressure; 32% undesirable pressure
Diastolic blood pressure	78% desirable pressure; 22% undesirable pressure
Total cholesterol	81% desirable level; 19% undesirable level
High density lipoprotein	40% desirable level; 60% undesirable level
High density lipoprotein ratio	90% desirable level; 10% undesirable level
Glucose	98% desirable level; 2% undesirable level
Hemoglobin	82% desirable level; 18% undesirable level

Table 2

Mean, Standard Deviation, and Reliability

Variables	Measurement	# Items	Cronbach's α	*M*	*SD*
Burnout symptoms	5 point scale	16	.85	2.22	.48
Symptoms related to fatigue	5-point scale	4	.74	2.94	.81
Communication satisfaction	5-point scale	5	.72	3.66	.48
Information overload[1]	5-point scale	13	.76	.12	.19
Information underload[2]	5-point scale	13	.87	.47	.45
Autonomy	4-point scale	4	.81	2.74	.57
Workload	4-point scale	7	.78	2.53	.46

[1] information received minus information needed
[2]information needed minus information received

Table 3

Correlations among all variables

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
1 Absence frequency	-																										
2 Absence duration	.41**	-																									
3 Gender	.14**	.04	-																								
4 Age	-.07*	-.06	-.08*	-																							
5 Education	-.09*	-.02	-.36**	-.12**	-																						
6 Marital status	-.03	-.04	-.10**	.24**	.05	-																					
7 Child care	.11*	-.01	.62**	-.05	-.38**	-.20**	-																				
8 Job level	-.12**	-.04	-.49**	.19**	.56**	.27**	-.48**	-																			
9 Years of experience	-.05	-.06	-.03	.57**	-.14**	.10*	.02	.06	-																		
10 Commuting time	.04	-.08	-.06	-.05	.12**	-.02	-.25**	.08*	.03	-																	
11 Part-time/ fulltime	-.10**	.02	-.41**	-.14**	.32**	-.14**	-.56**	.29**	-.08	.05	-																
12 Amount of overtime	-.13**	-.03	-.14**	-.04	.22**	.04	-.19**	.28**	-.07	.02	.03	-															
13 Body mass index	.04	.00	-11**	.17**	.00	.14**	-.07	.07	.15**	-.09	-.00	-.08	-														
14 Systolic blood press	-.02	-.04	-.23**	.15**	.06	.05	-.20**	.12**	.23**	.02	.10**	-.02	.13**	-													
15 Diastolic blood press	-.02	-.00	-.06	.24**	-.02	.04	-.06	.07	.20**	-.03	.01	-.00	.13**	.44**	-												
16 Total cholesterol	-.04	.03	.12**	.24**	-.12	.02	-.05	-.01	.12*	.03	-.05	.02	.08*	.00	.10**	-											
17 HDL	-.06	-.01	-.37**	-.10**	.15**	.05	-.17**	.17**	-.00	-.03	.17**	.06	.18**	.14**	.07	-.15**	-										
18 HDL ratio	.03	-.05	-.17**	.05	.10*	.02	-.12*	.11**	.02	-.05	.03	.09	.16**	.11**	.06	-.01	.27**	-									
19 Glucose	.03	.01	-.05	.11**	.02	.01	-.06	.06	.06	.05	.07	.06	.03	.03	-.02	-.01	-.03	.06	-								
20 Hemoglobin	-.03	-.03	-.07	-.01	.05	-.01	.02	.04	-.03	.03	.07	.04	-.02	-.03	-.05	-01	-.01	-.01	-.01	-							
21 Burnout symptoms	.12**	.09**	-.01	-.08*	.09**	-.04	-.00	-.02	-.06	.09*	-.04	-.01	.05	-.02	-.05	-.00	.02	.02	.01	-.01	-						
22 Fatigue	.18**	.15**	.14**	-.14**	-.00	-.09**	.20**	-.16**	-.05	.12**	-.10**	-.07*	-.00	-.08*	-.05	-.01	-.02	.04	-.06	-.05	.53**	-					
23 Comm. satisfaction	-.08*	-.09*	-.03	.04	-.03	-.04	-.04	.02	.03	-.08*	.05	-.01	-.05	.05	.06	-.02	-.05	-.05	-.02	-.07	-.45**	-.23**	-				
24 Info overload	-.00	.00	-.07*	.09**	-.03	-.01	.01	.02	-.02	-.06	.07*	-.01	-.00	-.04	-.04	.02	.00	-.01	.02	-.04	-.09**	-.11**	.19**	-			
25 Info underload	.02	.10**	.01	-.21**	.14**	-.05	-.01	.02	-.07	.09*	.02	.06	.02	-.05	-.09*	.04	.04	.12**	-.02	.04	.27**	.16**	-.46**	-.23**	-		
26 Intention to leave	.06	-.01	.00	-.07*	.09**	-.03	-.02	.02	-.06	.06	-.03	.04	-.03	-.06	-.05	-.02	-.05	-.05	.04	-.01	.23**	.09**	-.22**	-.02	.15**	-	
27 Autonomy	-.07*	-.04	-.23**	-.23**	.21**	-.15**	-.20**	.41**	.03	.01	.09**	.18**	.02	.03	.07	.06	.09*	.10**	.06	-.01	-.25**	-.23**	.20**	.08*	-.14**	-.06	-
28 Workload	-.02	.03	-.05	-.00	.16**	.07*	-.15**	.23**	.05	.05	.05	.20**	-.07	-.08*	-.04	.03	.00	.05	.05	.03	.15**	.14**	-.13**	-.03	.19**	.02	.13**

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)

Table 4

Hierarchical Regression to Predict Individual Absence Frequency (Dependent Variable – Individual Absence Frequency)

Predictors	**Model 1**		**Model 2**		**Model 3**		**Model 4**		**Model 5**	
	β	**t**	**β**	**t**	**β**	**t**	**β**	**t**	**β**	**t**
1 Gender	.24	1.7	.17	.82	.14	.68	.13	.61	.35	1.76
2 Age	.03	.27	.06	.57	.11	1.02	.13	1.19	.18	1.73
3 Education	.09	.71	.22	1.62	.23	1.74	.23	1.75	.19	1.45
4 Marital status	-.21	-2.00*	-.24	-2.26*	-.24	-2.38*	-.23	-2.23*	-.15	-1.49
5 Child care	.08	.64	.16	1.37	.10	.81	.07	.62	-.04	-.33
6 Job level			-.27	-1.76	-.28	-1.90	-.27	-2.23	-.30	-2.05*
7 Years of experience			-.01	-.09	-.05	-.52	-.07	-.69	.29	-1.09
8 Commuting time			.36	3.54**	.35	3.37**	.31	2.95**	-.30	2.95**
9 Part-time/ fulltime			.05	.26	.03	.15	.02	.12	.12	.74
10 Amount of overtime			-.61	-.61	-.02	-.19	-.01	-.09	.02	.17
11 Body mass index					-.14	-1.50	-.14	-1.46	-.15	-1.66
12 Systolic blood pressure					.05	.51	.04	.36	.12	1.23
13 Diastolic blood pressure					-.16	-1.46	-.15	-1.33	-.15	-1.35
14 Total cholesterol					-.16	-1.54	-.15	-1.44	-.19	-1.86
15 HDL					-.10	-.90	-.11	-.97	-.10	-.95
16 HDL ratio					-.05	-.48	-.06	-.50	-.07	-.61
17 Glucose					.05	.49	.04	.46	.02	.17
18 Hemoglobin					.23	2.52*	.21	2.23*	.23	2.59*
19 Burnout symptoms							-.06	-.52	-.16	-1.36
20 Fatigue							.15	1.25	.18	1.49
21 Comm. satisfaction									-.02	-17
22 Info overload									.25	2.61*
23 Info underload									.10	.91
24 Intention to leave									.22	2.34*
25 Autonomy									-.12	-1.03
26 Workload									.19	2.18*
Adjusted R^2	.08*		.17**		.26**		.26**		.37***	
Adjusted ΔR^2	.08*		.09*		.09*		.00		.11**	
F	2.80		2.95		2.91		2.69		3.20	
df	5, 93		5, 88		8, 80		2, 78		6, 72	

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 5

Hierarchical Regression to Predict Individual Absence Duration (Dependent Variable – Individual Absence Duration)

Predictors	**Model 1**		**Model 2**		**Model 3**		**Model 4**		**Model 5**	
	β	**t**	**β**	**t**	**β**	**t**	**β**	**t**	**β**	**t**
1 Gender	-.13	-.86	-.12	-.55	-.08	-.34	-.08	-.33	.02	.08
2 Age	-.11	-1.02	-.07	-.63	-.08	-.70	-.08	-.63	.03	.28
3 Education	.07	.52	.16	1.09	.20	1.32	.20	1.32	.02	.15
4 Marital status	-.08	-.70	-.08	-.73	-.11	-.93	-.10	-.87	-.06	-.52
5 Child care	.21	1.66	.25	1.95	.20	1.50	.19	1.40	.05	.33
6 Job level			-.23	-1.35	-.23	-1.36	-.23	-1.32	-.29	-1.66
7 Years of experience			-.04	-.32	-.08	-.72	-.09	-.75	-.10	-.86
8 Commuting time			.21	1.85	.19	1.60	.18	1.46	.14	1.21
9 Part-time/ fulltime			.09	.46	.11	.55	.11	.54	.04	.22
10 Amount of overtime			.03	.23	.09	.79	.09	.81	.09	.82
11 Body mass index					.09	.81	.09	.80	.08	.69
12 Systolic blood pressure					.04	.35	.04	.31	.05	.41
13 Diastolic blood pressure					-.13	-1.02	-.12	-.98	-.04	-.34
14 Total cholesterol					-.02	-.16	-.02	-.15	-.10	-.84
15 HDL					.01	.04	.00	.01	.01	.10
16 HDL ratio					-.16	-1.31	-.16	-1.29	-.20	-1.59
17 Glucose					.06	.51	.05	.50	.06	.52
18 Hemoglobin					.36	3.53**	.36	3.36**	.38	3.62**
19 Burnout symptoms							-.03	-.21	-.12	-.89
20 Fatigue							.05	.36	.10	.68
21 Comm. satisfaction									-.22	-1.60
22 Info overload									.14	1.22
23 Info underload									.14	1.08
24 Intention to leave									.01	.04
25 Autonomy									.28	2.07*
26 Workload									.18	1.69
Adjusted R^2	-.01		-.01		.06		.04		.11	
Adjusted ΔR^2	-.01		.00		.07		-.02		.07	
F	.85		.92		1.37		1.21		1.45	
df	5, 93		5, 88		8, 80		2, 78		6, 72	

*$p < .05$. **$p < .01$. ***$p < .001$.