Job satisfaction and sickness absence: a questionnaire survey

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Introduction

Many people spend a considerable part of their waking hours at work. Work provides the basic needs of economic sustenance and contributes to a sense of social identity and usefulness. The fourth European Working Conditions Survey (2006) showed that five out of six workers reported themselves satisfied or very satisfied with working conditions [1]. If work is failing to provide satisfaction, workers will feel unhappy or unfulfilled for long periods each day. It has been reported that job satisfaction levels are related to workers’ health [2]. The associations were strongest for measures of mental health, while those for physical health were weaker. If job satisfaction levels are related to workers’ health, one would expect an association between job satisfaction and sickness absence. However, little is known of this relationship. The few studies that have investigated it have reported inconsistent results [3–10]. Most of these studies have concentrated on long-term sickness absence, although Marmot et al. [11] found low job satisfaction to be related to higher rates of 1–2 days absences among civil servants aged 35–55 years.

Sickness absence is a substantial economic burden in societies where employees receive sick leave benefits from the state or from employers. Much attention has therefore been paid to the reduction or prevention of sickness absence. We assume that dissatisfaction at work predisposes to sickness absence. If so, it may be possible to use job satisfaction levels as a screening tool to identify workers who are at higher risk of sickness absence. We therefore designed a follow-up study to investigate the associations between job satisfaction levels at baseline and the number of subsequent sickness absence days and episodes. Job satisfaction was defined as a positive emotional evaluation and attitude of workers towards their job. It can be regarded as a global concept, but...
can also be considered as being composed of facets of satisfaction with various aspects of a job [12]. Up to 45% of the variance in job satisfaction is accounted for by personality traits, especially neuroticism and extraversion [13,14]. The concept of job satisfaction was further considered to encompass work content (variety of skills, complexity of tasks, role ambiguity), workload (time pressure, work pace, extra work), autonomy (responsibility for work, control over job decisions), personal growth (development, training or education), promotion (career advancement, job level) financial rewards, supervision, co-workers, communication and meaningfulness of work [15]. Of these factors, workload and the autonomy to organize one’s work and vary work tasks to one’s own discretion were found to be the most important determinants of job satisfaction, explaining 54% of the variance in job satisfaction [16]. Therefore, these factors were controlled for in the present study addressing the research questions:

(i) Are global job satisfaction levels at baseline associated with the number of subsequent sickness absence days?
(ii) Are global job satisfaction levels at baseline associated with the number of subsequent short or long episodes of sickness absence?

Methods

Of a total workforce including 8177 employees working in different jobs and companies, 1908 workers had an episode of sickness absence between 1 January 2003 and 1 April 2003. The personal data of these 1908 workers were transferred by the employer to the occupational health registry on the first day of sick leave and from these we drew a random sample of 898 workers, since for reasons of cost, efficiency and available resource it was not possible to include all 1908 workers in the study. A questionnaire was sent by post to the workers included in the sample directly after they had been registered sick. We could not include workers without sickness absence episodes because the absence registry did not record their personal data. Ethical approval was sought from the Medical Ethics Committee of the University Medical Centre Groningen, who advised that ethical clearance was not required for this questionnaire survey because the results were reported on group level and could not be traced to the individual. All workers agreed to the use of their results for scientific purposes.

While many different job satisfaction instruments exist, only a few have adequate reliability and construct validity [15]. The multidimensional Job Satisfaction Survey (JSS) was one of them. Dolbier et al. [17] correlated the results of a single question: ‘Are you satisfied with your job as a whole?’ with those of the JSS in a population of public agency employees. They estimated a minimum reliability using the formula $r_{xy} = r_{xy}/\sqrt{(r_{xx} \times r_{yy})}$ where $r_{xy}$ is the expected correlation between the single question ($x$) and the results of the JSS ($y$), $r_{xy}$ is the measured correlation between $x$ and $y$ and $r_{yy}$ is the reliability of $y$ [18]. When $r_{xy}$ was set at 1.0, a reliability $r_{xy}$ of 0.90 was found. When $r_{xy}$ was more conservatively set at 0.90, the reliability $r_{xy}$ was 0.73. The questionnaire used in this study assessed global job satisfaction with Dolbier’s single item scored on a seven-point Likert-type scale, ranging from 1 (i.e. very dissatisfied) to 7 (i.e. very satisfied). The questionnaire also assessed physical workload and mental workload (both scored on a seven-point Likert-type scale ranging from 1 = low to 7 = high), job autonomy (defined as being able to organize one’s work, range 1 = never to 7 = always) and decision authority (defined as being able to take decisions concerning one’s work, range 1 = never to 7 = always).

Gender differences in satisfaction levels were investigated using the non-parametric Mann–Whitney test. The effects of age (groups: 20–29; 30–39; 40–49; 50–59 years) and education (low = primary education and vocational training; medium = senior secondary education and pre-university education; high = college and university) on job satisfaction levels were analysed with non-parametric Kruskal–Wallis tests. Non-parametric Kendall’s Tau-b (ρ) correlation coefficients were computed for the correlations between the independent variables.

The results of the questionnaires were associated with the number of both sickness absence days and sickness absence episodes in 2003. The first and last dates of all absences due to sickness were recorded for each worker. The calendar days between these dates were regarded as sick days irrespective of someone’s contracted hours and considering partial days off as full sick days. Sickness absence was also assessed by counting the number of absence episodes in 2003, distinguishing between short episodes (1–7 days) and long episodes (>7 days) of absence.

The associations between job satisfaction levels and the number of sickness absence days were analysed using multiple linear regression (ENTER) in SPSS for Windows (version 15), controlling for age, gender, physical and mental workload, job autonomy and decision authority. Negative binomial distributions and Poisson distributions are a natural choice for modelling count data and are often used in sickness absence research. The number of short episodes of sickness absence was modelled with a zero-inflated negative binomial distribution using Transition Data Analysis version 6.4f. The number of long episodes of sickness absence was analysed using the Poisson distribution calculated with GENLOG for general log-linear analysis in SPSS for Windows (version 15). Age, gender, physical and mental workload, job autonomy and decision authority were included as covariates in both models.
Results are presented as mean ± standard deviation (SD) and \(P < 0.05\) was considered significant. Rate ratios (RRs) are presented with their 95% confidence interval (CI).

Results

Of the 898 questionnaires sent out, 518 (58%) were returned. The characteristics of workers who returned their questionnaires (participants) and those who did not (non-participants) are presented in Table 1. The non-participants were younger and had less sickness absence days, but more short episodes of absence. Of the returned questionnaires, 27 were excluded because they were not complete.

The results of 491 participants were eligible for analysis. Their mean ± SD global job satisfaction level was 5.1 ± 1.4 and did not differ significantly \((P = 0.40)\) between men (5.0 ± 1.4) and women (5.1 ± 1.4). The satisfaction level of workers in the age group 20–29 years \((n = 97)\) was 4.9 ± 1.5, in workers aged 30–39 years \((n = 187)\) 5.1 ± 1.3 and those aged 40–49 years \((n = 124)\) 5.1 ± 1.4. Workers of 50–59 years of age \((n = 76)\) had the highest satisfaction levels (5.3 ± 1.4), but the differences between age groups were not significant \((P = 0.37)\). The satisfaction level of workers with low education \((n = 204)\) was 5.2 ± 1.4, with medium education \((n = 219)\) 5.1 ± 1.4 and with high education \((n = 68)\) 4.8 ± 1.4, but the differences were not significant \((P = 0.15)\).

Job satisfaction correlated negatively with mental workload \((\tau = -0.16)\) and positively with both job autonomy \((\tau = 0.36)\) and decision authority \((\tau = 0.35)\) as is shown in the correlation matrix (Table 2).

Table 1. Age, gender and sickness absence characteristics of the workers who returned their questionnaire (participants) compared to those who did not (non-participants)

<table>
<thead>
<tr>
<th>Characteristics of participants and non-participants</th>
<th>Participants</th>
<th>Non-participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>518</td>
<td>380</td>
</tr>
<tr>
<td>Mean (SD) age in years</td>
<td>38.2 (10.3)</td>
<td>35.8 (10.3)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of men</td>
<td>338 (65%)</td>
<td>285 (75%)</td>
</tr>
<tr>
<td>Number of women</td>
<td>180 (35%)</td>
<td>95 (25%)</td>
</tr>
<tr>
<td>Men to women ratio</td>
<td>1.9</td>
<td>3.0</td>
</tr>
<tr>
<td>Total number of sick days</td>
<td>18926</td>
<td>10059</td>
</tr>
<tr>
<td>Mean (SD) number of sick days</td>
<td>36.5 (54.6)</td>
<td>26.5 (46.6)</td>
</tr>
<tr>
<td>Total number of episodes</td>
<td>646</td>
<td>429</td>
</tr>
<tr>
<td>Number of short (1–7 days) episodes</td>
<td>426 (66%)</td>
<td>324 (76%)</td>
</tr>
<tr>
<td>Number of long (&gt;7 days) episodes</td>
<td>220 (34%)</td>
<td>105 (24%)</td>
</tr>
</tbody>
</table>

The number of sickness absence days was skewed to the right with a mean ± SD of 32.5 ± 58.1 days and median 14.0 days. Normal distribution was approximated after logarithmic transformation: mean = 2.8, SD = 1.2 and median = 2.7. Table 3 presents the associations between job satisfaction and the log-transformed number of sickness absence days. Satisfied workers had significantly fewer sickness absence days than dissatisfied workers. Men had fewer sickness absence days than women. As was to be expected, age and physical workload were positively associated with the number of sickness absence days.

Table 4 shows the associations between job satisfaction and sickness absence episodes. Women had more short episodes of absence than men. Physical workload was positively related to the number of both short and long episodes of absence. Job satisfaction was negatively associated with the number of short absences (RR = 0.94; 95% CI = 0.89–1.00) and the number of long absences (RR = 0.92; 95% CI = 0.84–1.01) at levels which did not reach statistical significance.

Discussion

The mean job satisfaction level was 5.1 ± 1.4 and was unrelated to gender, age or education. Job satisfaction was negatively related to the number of sickness absence days. Satisfaction levels were also negatively associated with the number sickness absence episodes, particularly short episodes, although these associations did not reach statistical significance.

The strength of our study is that we used recorded sickness absence data instead of self-reported absence and there was no loss to follow-up during the study. The job satisfaction levels in our study population were closely comparable to those of Dolbier et al. [17]. Nevertheless, one should be careful about generalizing these findings to the total workforce and across countries, as it is conceivable that job satisfaction varies among populations and cultures. The study had some other limitations.

Table 2. The correlation matrix shows non-parametric Kendall’s Tau-b correlation coefficients

<table>
<thead>
<tr>
<th>Correlation matrix of the independent variables</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.07*</td>
<td>0.07*</td>
<td>0.11**</td>
<td>0.05</td>
<td>0.03</td>
</tr>
<tr>
<td>Physical workload</td>
<td>1.00</td>
<td>0.17**</td>
<td>-0.13**</td>
<td>-0.06</td>
<td>-0.06</td>
</tr>
<tr>
<td>Mental workload</td>
<td>1.00</td>
<td>-0.08*</td>
<td>-0.05</td>
<td>-0.16**</td>
<td></td>
</tr>
<tr>
<td>Job autonomy</td>
<td>1.00</td>
<td>0.53**</td>
<td>0.36**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision authority</td>
<td>1.00</td>
<td>0.35**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>1.00</td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

*\(P < 0.05\) and **\(P < 0.01\) (two-tailed).
The relationship between job satisfaction and sickness absence days

The subjects were recruited from workers who had at least one episode of sickness absence because the absence registration system did not record personal data of workers who were not absent. This could have reduced the contrast in satisfaction levels in the study population. Another shortcoming of this study is that information about personality was not available and could not be controlled for in the analyses.

The response rate was moderate (58%) and the more dissatisfied sick-listed workers might be less inclined to return their questionnaire, which might have underestimated the associations between job satisfaction levels and sickness absence. Global instruments are less suitable for detecting high and low areas of job satisfaction [15]. If global satisfaction is measured, single-item instruments should be preferred because differences in individual scores are ignored in the total mean score of a multi-item instrument [15,18]. We studied global satisfaction which is a subjective measure. Workers may report high levels of satisfaction for reasons to do with personal disposition or outlook, rather than the quality of work and work conditions. Moreover, an individual may have high global satisfaction levels, but still feel dissatisfied about specific work factors. Work content, workload, autonomy, communication, supervision, co-workers, financial rewards, promotion, personal growth and the meaningfulness of work are thought to represent the key elements of job satisfaction, with autonomy (in terms of being able to vary work tasks at one’s own discretion) being the principal determinant of job satisfaction [16]. In our study population, job satisfaction was negatively associated with mental workload and positively with job autonomy and decision authority confirming that these factors contribute to job satisfaction.

In a previous study by Faragher et al. [2], job satisfaction was found to relate to health problems, with the strongest associations being for burnout [correlation coefficient \( r = 0.48 \)], depression \( r = 0.43 \) and anxiety \( r = 0.42 \). The authors stated that these associations were sufficiently large to be of considerable clinical importance. We found a significant though weak association between job satisfaction levels and the number of sickness absence days. The association with the number of sickness absence episodes was weaker and fell short of statistical significance. However, the significant association between satisfaction levels and the number of sickness absence days points to the possible benefits of screening for job satisfaction in order to identify workers who are likely to have more sickness absence days. Dissatisfied workers may thereby be counselled and supported before their dissatisfaction leads to the onset of sickness absence. When specific aspects of work tasks or the working environment are identified as causing particular dissatisfaction, the worker can be assisted to change these appropriately and consequently reduce the risk of resulting sickness absence. The effectiveness of such an approach should be investigated using a randomized clinical trial design. Further research could also clarify whether job satisfaction levels can identify workers with mental health problems in an early stage.
Key points

- Job satisfaction was negatively related to the number of sickness absence days.
- Job satisfaction may also be negatively associated with the number of sickness absence episodes, particularly short episodes, but the association did not reach statistical significance in this study.
- The results suggest that assessing job satisfaction levels may identify those workers who are likely to have most sickness absence days.

Conflicts of interest

None declared.

References