The Impact of Effort–Reward Imbalance and Learning Motivation on Teachers’ Sickness Absence

Hanne Derycke1*, Peter Vlerick2, Bart Van de Ven2, Isabel Rots3 & Els Clays4

1Department of Sociology, Ghent University, Ghent, Belgium
2Department of Personnel Management, Work and Organizational Psychology, Ghent University, Ghent, Belgium
3Department of Educational Studies, Ghent University, Ghent, Belgium
4Department of Public Health, Ghent University, Ghent, Belgium

Abstract

The aim of this study was to analyse the impact of the effort–reward imbalance and learning motivation on sickness absence duration and sickness absence frequency among beginning teachers in Flanders (Belgium). A total of 603 teachers, who recently graduated, participated in this study. Effort–reward imbalance and learning motivation were assessed by means of self-administered questionnaires. Prospective data of registered sickness absence during 12 months follow-up were collected. Multivariate logistic regression analyses were performed.

An imbalance between high efforts and low rewards (extrinsic hypothesis) was associated with longer sickness absence duration and more frequent absences. A low level of learning motivation (intrinsic hypothesis) was not associated with longer sickness absence duration but was significantly positively associated with sickness absence frequency. No significant results were obtained for the interaction hypothesis between imbalance and learning motivation. Further research is needed to deepen our understanding of the impact of psychosocial work conditions and personal resources on both sickness absence duration and frequency. Specifically, attention could be given to optimizing or reducing efforts spent at work, increasing rewards and stimulating learning motivation to influence sickness absence.

Introduction

Sickness absence is an important occupational problem that can have adverse effects for both individuals and organizations (Bakker, Demerouti, de Boer, & Schaufeli, 2003). This is also the case in the field of education. Belgian teachers, who worked in the Flemish Community, were in 2009 on average 14.3 days absent from work because of illness (Ministry of the Flemish Community, 2009). Sickness absences can be problematic because teachers who are absent need to be temporarily replaced by a teacher from the existing staff or an external teacher, implying respectively fluctuations in staff workload and financial costs (Eurydice, 2002). Planning teachers’ replacement can be complicated because sickness absence is generally unpredictable and can vary in length, from very short periods (i.e. 1 day) to longer periods. When a teacher is absent unexpectedly, their classes can suffer disruption. This is especially the case for frequent short-term sick leaves, when the school fails to find immediately an appropriate substitute to cover for the absent teacher. Subsequently, all classes lectured by this teacher are skipped for this period, which can be detrimental for the educational institutions and, in particular, for their pupils. However, unlike long-term sickness absence, which is less common and occurs more frequently among middle-aged and older teachers, shorter-term sick leaves occur more frequently and are common among younger teachers (Blank & Diderichsen, 1995). In general, almost half of the younger teachers (<36 years) in the Flemish Community, who had been on sick leave, were absent for short periods (Ministry of the Flemish Community, 2009). The youngest teachers (<25 years) were in total, on average, 5 days absent from work because of illness. For the teachers between 26 and 35 years, this was already 5.4 days for men and 9.6 days for women (Ministry of the Flemish Community, 2009). The total number of sickness absence days appeared to be higher with increasing age (Ministry
of the Flemish Community, 2009). In contrast to the younger age categories, more than 60% of the older teachers (>45 years), who had been on sick leave, were absent for more than 1 month (Ministry of the Flemish Community, 2009).

Sickness absence is a complex phenomenon that is influenced by a number of social, organizational, personal and non-work-related factors, such as employees’ health and life style, socio-demographic factors and physical and psychosocial job-related characteristics (i.e. workload, physical workplace) (Dekkers-Sanchez, Hoving, Sluiter, & Frings-Dresen, 2008, Virtanen et al., 2008). Sickness absence can be divided in two components: sickness absence duration and sickness absence frequency (Bakker et al., 2003). Absence duration is considered as an indicator of involuntary absenteeism resulting from the inability rather than the unwillingness to work, for instance as a result of involuntary factors such as illness due to a reaction to job stress (Steel, 2003). Contrary to absence duration, absence frequency is considered to be an indicator of voluntary absenteeism and can be interpreted as a way for employees to withdraw from adverse work conditions (Schaufeli, Bakker, & Van Rhenen, 2009). Although absence frequency has been found to be related to employees’ motivation (Bakker et al., 2003), involuntary factors such as physical symptoms (e.g. headaches) induced by stress may also lead to frequent absence.

In general, sickness absence has been acknowledged to be an indirect measure of employees’ health and well-being (Griep, Rotenberg, Chor, Toivanen, & Landsbergis, 2010; Head et al., 2007). So, to improve employee well-being and to reduce sickness absence, it is essential to understand why teachers take sick leaves. An adverse psychosocial work environment has received growing attention as a potential antecedent of sickness absence (Head et al., 2007). However, most empirical studies examining the relations between the psychosocial work environment and sickness absence have been cross-sectional (Head et al., 2007) and focused almost exclusively on sickness absence duration, thereby neglecting sickness absence frequency (Schreuder, Roelen, Koopmans, Moen, & Groothoff, 2010). Moreover, in earlier research, the job-demand control support (JDCS) model (Karasek, 1979; Karasek & Theorell, 1990) was commonly used as a proxy of the psychosocial work environment, whereas the effort–reward imbalance (ERI) model (Siegrist, 1996) has been applied to a lesser extent on sickness absence (Allebeck & Mastekaasa, 2004; Van Veghel, De Jonge, Bosma, & Schaufeli, 2005). Nevertheless, the ERI model may have some distinct advantages in comparison with the JDCS model. Marmot, Siegrist, Theorell, and Feeny (1999) argued that the ERI model might have more power for explaining stress in the service occupations and professions, in particular those dealing with person-based interaction such as teachers. Another advantage of the ERI model is that it also takes into account personal variables (e.g. employees’ resources) (Siegrist, 1996).

The ERI model is based on the premise that a failed reciprocity between high efforts spent at work and low occupational rewards received (ERI) elicits a state of emotional distress, which in turn can result in a sustained stress reaction and adverse effects on health and employee well-being (cf. labelled by Siegrist et al., 2004 as the extrinsic hypothesis). It is assumed that employees will not passively remain in a high effort–low reward situation but instead will try to reduce their efforts and/or maximize their rewards (Van Veghel et al., 2005) by means of homeostatic regulation processes, which involve self-regulation processes to cope with states of psychological imbalance at work induced by stressors at work (Pomaki & Maes, 2002; Vancouver, 2000). In this view, being absent from work because of illness might be viewed as a coping mechanism to deal with an ERI (cf. involuntary absenteeism). In addition, recurrent reward frustration was found to reduce commitment and motivation of employees and to increase withdrawal behaviour (cf. voluntary absenteeism) (Godin & Kittel, 2004).

Besides situation-specific (extrinsic) work characteristics such as effort and reward, an intrinsic component is included in the ERI model, namely overcommitment. Overcommitment refers to an exhaustive work-related coping style. Overcommitted employees underestimate challenging situations and overestimate their own capacities; they tend to exaggerate their efforts (Siegrist et al., 2004; Van Veghel et al., 2005). As a result, their susceptibility to reward frustration is increased (Siegrist et al., 2004). Employees who are highly overcommitted, which possibly results in continued exaggerated efforts combined with disappointing rewards, are expected to have an increased risk of developing negative emotions that can cause possible adverse effects on health and employee well-being (cf. labelled by Siegrist et al., 2004 as the intrinsic hypothesis).

Consequently, employees experiencing high levels of overcommitment are assumed to respond with more strain reactions to an ERI, in comparison with their less overcommitted colleagues (Siegrist et al., 2004; Tsutsumi & Kawakami, 2004) (cf. labelled by Siegrist et al. (2004) as the interaction hypothesis).

Both the intrinsic and interaction hypotheses have been less frequently investigated, and the findings for these hypotheses have been less consistent, especially with regard to sickness absence (van Veghel et al., 2005). This might be attributed to the overcommitment concept itself. According to Preckel, Meinel, Kudielka, Haug, and Fischer (2007), the scale items
from the ‘overcommitment’ construct suggest certain conceptual ambiguity. In addition, Siegrist (2008) suggested to make a differentiation between two possible sources of overcommitment: informal pressure imposed on employees by their work environment and truly intrinsic motivation of employees.

Intrinsic motivation refers to the extent to which an employee is excited about a work activity and engages in it for the sake of the activity itself. Intrinsically motivated employees are assumed to be more innovative and typically have a high learning motivation (LM), next to being curious, cognitive flexible, risk taking and persistent in the face of barriers. In contrast, employees who are not driven by the love of the job itself but are more motivated by external rewards such as acknowledgement, status or salary would appear to be less innovative on the job and show less LM (Zhou & Shalley, 2003).

Because of the particularity of the teaching profession and the relevance and importance of LM for students and their teachers, we focused in the current study on the latter and substituted the generic overcommitment construct of the ERI model by the intrinsic component LM.

The ERI model focuses on the affiliations of self-esteem that result from reward frustration due to a failed social reciprocity between the efforts spent and the perceived inappropriate rewards (Siegrist, 2008). Opposed to the general concept of overcommitment, LM may be considered as a positive coping mechanism to deal with this perceived failed reciprocity and to enhance employees’ self-esteem. Moreover, being highly motivated to learn new things at work can influence the way employees appraise their job demands (i.e. efforts) and value work-related rewards (Taris, 2004).

The concept of LM refers to the degree to which employees report themselves to be motivated to learn new behaviour patterns and skills on their job and to how keen they are to solve problems at their job and to adapt to the environment (Taris, 2004). Teachers in Flanders (Belgium) have been confronted with recurrent changes in the education system for instance due to curriculum reforms (Aelterman, Engels, Van Petegem, & Verhaeghe, 2007). These changes force teachers to deal with new circumstances, which may cause strain-inducing situations (Verhaeghe, Vlerick, Gemmel, Van Maele, & De Backer, 2006). Having a high LM could be considered as a personal resource, which enables teachers to adapt easier to these changes. Accordingly, we assume that having high LM protects teachers from being absent from work (cf. intrinsic hypothesis).

Additionally, previous research has indicated that excessive job strain adversely influences LM (Taris, Kompier, De Lange, Schaufeli, & Schreurs, 2003). So, we presume that teachers experiencing a high ERI will be even more absent from work if they also have a low level of LM (cf. interaction hypothesis).

Nevertheless, up till now, the relationship between ERI, LM and sickness absence in teachers has never been studied in a prospective way. In addition, scientific research on sickness absence among beginning teachers is almost completely lacking. However, newly graduated teachers, who enter the educational work environment for the first time, represent an interesting group of employees given that at the start of their career, they have to go through a socialization process that shapes their adaptation to the physical and social–cultural setting in which they work (Vandenberghhe, Panaccio, Bertine, Mignonac, & Roussel, 2011). Undergoing this process may be quite stressful and might in turn be related to sickness absence. Additionally, this group of neophyte teachers is characterized by high attrition levels; more than 30% of the beginning teachers in secondary schools in Flanders leave their teaching job within 5 years (Ministry of the Flemish Community, 2011; Sharpin, O’Neill, & Chapman, 2011). Teachers’ attrition, which can be considered as a more drastic form of withdrawal behaviour than sickness absence, is found to be influenced by personal factors and psychosocial work characteristics (Borman & Dowling, 2008; OECD, 2005). Because beginning teachers have not yet been exposed for years to stressors related to their psychosocial work environment, it is specifically interesting to investigate the relations between psychosocial work conditions and sickness absence. Therefore, the aim of the present study was to investigate the impact of ERI, LM and their interaction on both sickness absence duration and frequency in a sample of beginning teachers.

Study hypotheses:

Hypothesis 1 (extrinsic hypothesis): An imbalance between high occupational efforts and low rewards is positively associated with longer sickness absence duration (H1a) and more sickness absence episodes during 12 months follow-up (H1b).

Hypothesis 2 (intrinsic hypothesis): A low level of LM is positively associated with longer sickness absence duration (H2a) and more sickness absence episodes during 12 months follow-up (H2b).

Hypothesis 3 (interaction hypothesis): Effort–reward imbalance in combination with a low level of LM is even stronger positively associated with longer sickness absence duration (H3a) and more sickness absence episodes during 12 months follow-up (H3b).

Methods

Study sample

A prospective design was used for data collection. Firstly, a questionnaire was sent out in autumn 2004 to all 4735 teacher education graduates (graduated between 2002 and 2004) of the teacher training institutes affiliated to the Ghent University Association in Flanders (Belgium). At the time of the survey, 166 graduates could not be reached, mostly because of change of address, and 306 graduates where unemployed and did not have to answer the questionnaire. In total, 1756 teacher education graduates responded to the questionnaire (response rate 36.8%).
graduates returned their questionnaire, corresponding to a response rate of 41%. Among them, 52% was working outside the teaching profession, and 48% (n = 805) was working as a teacher. Only the latter group was included in our analyses.

For all 776 participants, who worked as a teacher during the baseline assessment and who remained working in the teaching profession during the 1-year follow-up, sickness absence data were gathered. For 108 of them, no complete sickness absence data could be collected, and they were excluded from further analyses. Another 65 respondents were excluded because they did not give an informed consent to obtain their sickness absence data. Finally, a total of 603 beginning teachers, of which the absenteeism data could be linked to the baseline questionnaire by means of a unique code, were included in the prospective analyses.

**Ethical considerations**

The institutional review board of the coordinating university approved the design of this study. All participants received a letter explaining the purposes and procedures of the study, and anonymity and confidentiality were assured. Consent to participate was assumed by return of the questionnaire and by their given informed consent to obtain their sickness absence data from the Department of Education of the Ministry of the Flemish Community. The Department of Education is authorized to register all sickness absences for teachers employed in the Flemish Community. The Department of Education is authorized to register all sickness absences for teachers employed in Dutch-speaking schools from the Flemish Community and provides a unique registration number to all beginning teachers. This unique code identifier was used to match the respondents’ responses with the sickness absence data.

**Measures**

Baseline predictors

Effort–reward imbalance model

**Effort.** Effort was assessed by six items (Siegrist et al., 2004), measuring demanding aspects of the work environment: work pressure, time pressure, responsibility, working overtime, increasing demands and physical load. Items were answered in two steps. In the first step, participants had to indicate whether an item content described a typical experience of their job. The answer categories were ‘yes’ and ‘no’. If they agreed, participants had to evaluate in the second step on a four-point rating scale to what extent they usually felt distressed by this typical experience. The overall effort score was ranging from 6 to 30. The higher the score, the higher the level of distress. The Cronbach’s alpha for the effort scale was 0.59.

**Reward.** Reward was measured by 11 items (Siegrist et al., 2004), covering different rewards: financial reward (one item: salary), esteem reward (five items, e.g. respect and support) career opportunities (four items, e.g. promotion opportunities) and job security (one item). The rating and scoring procedure was the same as for the effort scale. The overall reward score varied between 11 and 55. The higher the score, the more rewards the job offers. Cronbach’s alpha for the reward scale was 0.74.

The main recommended formulation to calculate ERI was applied, namely the ratio term of the effort score divided by the reward score, taking into account a correction factor because of the unequal number of items in the nominator and denominator (6/11) (Siegrist & Peter, 1996). A value close to 0 indicates a favourable condition (relatively low effort, relatively high reward), whereas values beyond 1.0 indicate a critical condition of high costs (efforts) and low gain (rewards). The ratio can either be used as a continuous variable or be transformed into a binary variable (values ≤ 1 versus > 1). In our study sample, the prevalence of a ratio above 1 at baseline was 6.3%. Because of this low prevalence, our formulation of ERI may diminish statistical power. In line with Head et al. (2007), based on the continuous variable, tertiles were defined ranging from ‘low’ to ‘medium’ and ‘high’. The respondents in the high ERI group were defined as the people at risk.

**Learning motivation**

Learning motivation was measured by the Learning Motivation scale developed by Taris et al. (2003) and refers to the degree to which employees are enabled and stimulated to acquire new knowledge and skills and to solve problems in their job. This scale consists of three items scored on a four-point Likert scale, ranging from 1 (never) to 4 (always). Two items assessed the degree to which participants were actively looking for situations in which they could expand their skills (‘I am constantly looking for new challenges in my job’, and ‘I spend much energy in keeping up with recent developments’). The third item measured whether the participants were willing to invest time and effort in dealing with difficult situations, which is a precondition for acquiring new skills (‘When things seem to go wrong, I increase my efforts and keep on trying’). Consistent with ERI, LM was categorized in tertiles: ‘low’, ‘average’ and ‘high’ LM. Teachers within the low LM group are considered to be in the most unfavourable group. Cronbach’s alpha for the LM scale was 0.62.

**Outcome measures**

Sickness absence data were collected during the 12 months following the baseline questionnaire. Only absence from work due to sickness was considered; pregnancy and maternity leaves were not included. Only objective sickness absence data registered by the employer were used in this study. Both sickness absence duration (total number of sick leave days) and frequency (total number of sick leave episodes) were collected during the 1-year follow-up period.
Data analysis

In our study, both outcome variables sickness absence duration and frequency were positively skewed (skewness scores of 9.06 and 1.49, respectively). Therefore, both outcome variables were dichotomized. Long sickness absence duration was defined as more than 3 days sick leave during the 1-year follow-up, corresponding to the 78th percentile. A high sickness absence frequency was defined as minimum two sickness absence episodes or more during the follow-up period, corresponding to the 77th percentile.

Multivariate logistic regression analyses were performed to test all three hypotheses. For the test of the extrinsic and intrinsic hypotheses, gender and family situation were included in the logistic model, since Chi² tests revealed that these variables were significantly associated with both sickness absence indicators (data not shown). To examine the extrinsic and the intrinsic hypotheses, the two components (ERI ratio and LM measured at baseline) were introduced separately in a model to assess their relative contribution to the estimation of both sickness absence indicators. For the interaction hypotheses, the two components together with the interaction term ERI × LM were entered in the model in a single step. For both components, a dichotomous variable was made comparing respectively the highest (for ERI) and lowest tertiles (for LM) with the remaining tertiles. Analyses were performed using SPSS statistical package, version 15.0 (SPSS Inc, Chicago, IL, USA).

Drop-outs

Following procedures recommended by Twisk (2003), several analyses were conducted to find out if drop-outs (i.e. respondents who refused to release their sickness absence data) \( (n = 65) \) differed from respondents for whom sickness data could be obtained \( (n = 603) \). A logistic regression analysis was performed to assess whether gender, family situation and respectively LM and ERI were associated with the absence of sickness absence data. Respondents with a low ERI [odds ratio (OR) 2.67; 95% confidence interval (CI) 1.338–5.326] and high LM (OR 3.57; 95% CI 1.630–7.835) were more likely to refuse to release their sickness absence data compared with respondents with respectively a high ERI and a low LM.

In addition, independent sample t-tests were performed to compare the ERI and LM scores between the 603 respondents and the 65 drop-outs. The group of respondents with sickness absence data reported a slightly higher ERI score (0.61 versus 0.55; \( p = 0.05 \)) and a somewhat lower LM (9.1 versus 8.5; \( p < 0.001 \)) compared with the dropouts group. Although these results are statistically significant, the differences in means represent only less than 6% of the range of the respective scales.

Results

The description of socio-demographic variables, sickness absence, ERI and LM in the study population is presented in Table I. Our study sample consisted mainly of women (76.3%) and 143 (23.7%) men. The mean age of the teachers was 26.5 years and ranged from 21 to 54 years. The average seniority in the teaching profession was 2.3 years. The majority of them was working full time (85.5%), and 90.7% had a temporary contract.

During the 12 months follow-up, the mean sickness absence duration was 3.0 days, ranging from 0 to 137 days, and the average absence frequency was 0.83 times, ranging from 0 to 6 times. In total, 52.1% of the beginning teachers was never absent during the 1-year follow-up, 22.6% were frequently absent (two times or more) and 21.6% were absent for a longer period (more than 3 days). Of the participants, 6.3% reported an ERI score above 1, and the mean level of LM was 8.50.

Table I. Description of socio-demographic characteristics, sickness absence, effort–reward imbalance and learning motivation \( (n = 603) \)

<table>
<thead>
<tr>
<th>Baseline and outcome variables</th>
<th>n</th>
<th>%</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>26.52 (5.74)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seniority in teaching profession</td>
<td>2.28 (2.22)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>143</td>
<td>23.7</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>460</td>
<td>76.3</td>
<td></td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher education for social promotion</td>
<td>35</td>
<td>5.8</td>
<td></td>
</tr>
<tr>
<td>Bachelor degree</td>
<td>359</td>
<td>59.5</td>
<td></td>
</tr>
<tr>
<td>Master degree</td>
<td>200</td>
<td>33.2</td>
<td></td>
</tr>
<tr>
<td>Family situation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living with partner</td>
<td>315</td>
<td>52.2</td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>74</td>
<td>12.3</td>
<td></td>
</tr>
<tr>
<td>Living with family/friends</td>
<td>214</td>
<td>35.5</td>
<td></td>
</tr>
<tr>
<td>Work situation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>515</td>
<td>85.5</td>
<td></td>
</tr>
<tr>
<td>Part time</td>
<td>87</td>
<td>14.5</td>
<td></td>
</tr>
<tr>
<td>Working contract</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanently appointed</td>
<td>22</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Partially appointed</td>
<td>34</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td>Temporary contract</td>
<td>543</td>
<td>90.7</td>
<td></td>
</tr>
<tr>
<td>Type of education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursery school</td>
<td>45</td>
<td>7.6</td>
<td></td>
</tr>
<tr>
<td>Elementary school</td>
<td>157</td>
<td>26.6</td>
<td></td>
</tr>
<tr>
<td>Secondary school</td>
<td>361</td>
<td>61.6</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>25</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>Sickness absence duration</td>
<td>3.00 (8.60)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sickness absence frequency</td>
<td>0.83 (1.10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERI</td>
<td>0.61 (0.24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERI ≤ 1</td>
<td>491</td>
<td>93.7</td>
<td></td>
</tr>
<tr>
<td>ERI &gt; 1</td>
<td>33</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td>LM</td>
<td>8.50 (1.52)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. ERI: effort–reward imbalance; LM: learning motivation; SD: standard deviation.
Hypothesis 1: The results showed that in comparison with respondents having a low ERI (Tertile 1: T1), a high ERI (T3) was positively associated with a sickness absence duration of more than 3 days (OR 1.87). Also, the respondents experiencing a medium ERI (T2) had an increased risk for having sickness absence duration for more than 3 days (OR 1.94). In addition, our findings showed that compared with respondents experiencing a low ERI, a high ERI (T3) was positively associated with being absent for more than one episode (OR 2.04). These findings supported the first hypothesis with regard to both sickness absence outcomes (Table II).

Hypothesis 2: Respondents experiencing a low LM had a 1.76 higher chance of having a sickness absence frequency of more than one episode compared with the respondents having a high LM. People having a low LM had a higher chance of being absent for work for more than 3 days in comparison with respondents having a high LM, although our findings did not reach statistical significance (Table II). So, the second hypothesis was partly confirmed.

Hypothesis 3: For the interaction between ERI and LM, no statistically significant results were obtained for both sickness absence indicators (data not shown). However, a trend was noticeable for the interaction term between ERI and LM in relation to sickness absence duration (Figure 1). For teachers experiencing a medium or high level (T2 and T3) of LM, the risk of having a sickness absence duration of more than 3 days increased slightly when having increased ERI (OR 1.06; 95% CI 0.604–1.863). This was in contrast to the low LM group (T1) who had a clear elevated risk of having a sickness absence duration of more than 3 days in case of a high level of ERI (OR 1.96; 95% CI 0.923–4.142). So, on the whole, no significant results were found that support Hypothesis 3. However, teachers experiencing a high ERI in combination with a low level of LM seemed to have an even higher chance of being absent for more than 3 days.

Discussion

The general aim of this prospective study was to examine the impact of ERI and LM on sickness absence among a sample of beginning teachers. Two types of absence were distinguished, namely sickness absence duration and sickness absence frequency.

The central hypotheses were that ERI, a low level of LM and their interaction would have an unfavourable effect on sickness absence duration and frequency. Support was found for the first (extrinsic) hypothesis and partially for the second (intrinsic) hypothesis, but no significant results were obtained for the third (interaction) hypothesis.

Our results revealed that an imbalance between high efforts and low rewards was positively associated with sickness absence duration of more than 3 days (H1a) and more frequent absence episodes (two or more episodes) (H1b). For sickness absence duration, our findings were in line with previous research by Godin and Kittel (2004). However, in their study, no significant relation was found between ERI and sickness frequency among a sample of 3084 Belgian employees.

The second hypothesis was only partially confirmed. Low levels of LM were found to be positively associated with sickness absence frequency but not with sickness absence duration. This could possibly be explained by the fact that both sickness absence measures result from different processes. Whereas sickness absence duration is considered to be the result of a health impairment process, sickness absence frequency is assumed to result from a motivational process (Bakker et al., 2003). If employees are not intrinsically motivated to learn new skills and behaviours and to adjust to new situations, this may lead to a form of withdrawal behaviour, resulting in more frequent absence spells. Because the present study is the first to study the impact of teachers’ LM on sickness absence, comparison with other studies is not possible. However, studies by Bakker et al. (2003) and Schaufeli et al. (2009) revealed that respectively organizational commitment and work engagement, both also positive personal variables, were significant predictors of sickness absence frequency but not of sickness absence duration.

In the present study, none of the prospective analyses showed a significant interaction effect for the third hypothesis, which stated that the combination of high ERI and low LM would result in even longer and more frequent absence spells. However, a tendency for an interaction effect was noticeable for sickness absence duration, which suggested that a high level of LM may have a protective effect on the adverse relation between ERI and sickness absence duration of more than 3 days.

The major strength of our study lies in its methodological qualities. Firstly, the impact of ERI and LM on sickness absence was assessed using a prospective research design. Secondly, objective registered data of sickness absence were used, which provided a more valid measure compared with self-reported sickness absence data. Another strength of the current study is that employees’ LM instead of overcommitment was used as a conceptualization of the intrinsic component of the ERI model, reflecting the potential importance of personal variables next to work-related characteristics for understanding job-related outcomes such as sickness absence.

However, the present study shows several limitations. The prevalence of sickness absence was rather low in our sample compared with the teachers’ sickness absence data reported by the Flemish Community (Ministry of the Flemish Community, 2009). According to this report, teachers were on average 14.3 days absent from work because of sickness, and 45.6% of them was never absent because of sickness during 2009 (Ministry of the Flemish Community, 2009). In our sample, in total, 52.1% of the respondents were never absent during the follow-up period, and the mean number of absence days due to
illness was 3 days. Although almost a quarter of our sample was frequently absent or was absent for a longer period, this is a rather low number in comparison with the teacher population of the Flemish Community (Ministry of the Flemish Community, 2009). This rather low number could possibly be explained by the fact that the study sample consisted mainly of teachers in the beginning of their career with an average age of 26.5 years, of which most of them had a temporary contract. In this career phase full of uncertainty and challenges, beginning teachers can perceive more absence thresholds or experience more pressure to attend at work compared with their permanently appointed colleagues who have more job security. Another explanation might be that among recently graduated teachers, the time lagged effects of ERI on sickness absence have not yet been established because of the relatively short follow-up period.

It is acknowledged that the items used to measure effort, reward and LM in the present study could have been more specific to the actual role of beginning teachers. In particular, this may have been reflected in the rather low reliability scores for effort and LM. However, this limited reliability due to a weak internal inconsistency might have resulted in a less precise estimation of the true associations between ERI, LM and sickness absence and consequently to an underestimation of these relations. In future research, it would be interesting to work with more context-specific operationalizations for the items measuring effort, reward (e.g. wages, temporary versus permanent contract) and LM among beginning teachers.

Another issue is that 65 of the respondents who completed the questionnaire disagreed to release their sickness absence data. Several analyses were performed to test if drop-outs (i.e. respondents without sickness absence data) differed from respondents for whom sickness data could be obtained (n = 603) (Twisk, 2003). With respect to the study variables, there were significantly more drop-outs among those who had a lower ERI and a higher LM score. In addition, the mean scores for both independent variables were significantly different between both groups, but the mean differences were rather small, representing less than 6% of the range in both scales.

Despite these limitations, our results suggest that ERI and low levels of LM are associated with sickness absence among beginning teachers. So, to effectively influence the duration and frequency of absenteeism, specific countermeasures have to be taken. This could be done by improving the working conditions through increasing the rewarding work aspects and/or changing the perception of efforts spent. An additional way is stimulating LM. Earlier research (Taris et al., 2003; Taris & Feij, 2004) has indicated that job strain negatively affects

Table II. Multivariate associations between effort–reward imbalance, learning motivation and sickness absence duration and frequency

<table>
<thead>
<tr>
<th>Sickness absence duration (&gt;3 days)</th>
<th>Sickness absence frequency (&gt;1 time OR)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>ERIa</td>
<td></td>
</tr>
<tr>
<td>Low (reference)</td>
<td>1</td>
</tr>
<tr>
<td>Medium</td>
<td>0.661</td>
</tr>
<tr>
<td>High</td>
<td>0.627</td>
</tr>
<tr>
<td>LMb</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.461</td>
</tr>
<tr>
<td>Medium</td>
<td>0.235</td>
</tr>
<tr>
<td>High (reference)</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. OR: odds ratio; CI: confidence interval; df: degrees of freedom; ERI: effort–reward imbalance; LM: learning motivation; SE: standard error.

aAdjusted for gender and family situation.

*p < 0.05; **p < 0.01.

Figure 1 The impact of effort–reward imbalance (ERI) and learning motivation (LM) on sickness absence duration of more than 3 days.
LM, although studies assessing other predictors of low LM are almost completely lacking. Therefore, further research is needed to find pathways to maintain and improve LM to reduce employees’ sickness absence.

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