"Pushing Oneself Too Hard": Performance-Based Self-Esteem as a Predictor of Sickness Presenteeism Among Young Adult Women and Men—A Cohort Study

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Objective: To examine whether young adults with highly performance-based self-esteem (PBSE) were present at work/study when ill more frequently than were others. Methods: By using data from a Swedish cohort of young adults aged 20 to 25 years (n = 5582 at baseline), we examined the association between PBSE and sickness presenteeism (SP) (ie, >5 times/yr) (retrospectively at 1-year follow-up). Results: PBSE was a predictor of SP even when adjusting for general health, psychological demands, physical demands, economic problems, and main occupation. A synergy effect was also observed between PBSE and environmental and personal factors in relation to SP. The effect of PBSE on SP was four times higher among individuals with poor health, compared to individuals with good health. Conclusions: These results provide support for the role of personality characteristics as a predictor of frequent SP.

Recent research has demonstrated that sickness presenteeism (SP) (ie, going to work despite feeling ill) is a predictor of future long-term sick leave and fair/poor general health. Still, although SP both pre-dates and is more fundamental than sickness absence, SP has been largely overlooked as a research subject. Beyond ill health, both environmental and personal factors have been associated with SP. However, knowledge of how personality characteristics are associated with SP is still scarce. Hallsten et al suggest that individuals whose self-esteem is highly dependent on their performance exaggerate their striving for self-esteem and thereby impede sufficient recovery. Theoretically, this mechanism makes performance-based self-esteem (PBSE), a potential and relevant predictor of SP. To that end, this study examined 1) whether PBSE predicts SP among young adult women and men, and 2) whether the relationship between PBSE and SP interacts with environmental and personal factors.

Sickness Presenteeism as a Predictor of Subsequent Health

Previously, several cross-sectional studies have supported an association between SP and morbidity, but until recently only Kivimaki et al had provided longitudinal support for this association. When SP predicted subsequent adverse cardiac events in the Whitehall II cohort, the authors proposed three possible explanations. First, SP produces a cumulative psychological burden having pathophysiological consequences (ie, the allostatic load hypothesis). Second, SP induces acute stressors that act on preexisting or subclinical vascular disease. Third, SP is part of a lifestyle in which health problems are generally ignored. Recently, two longitudinal studies replicated this result using a more global health outcome as the measure. These studies uniformly concluded that repeatedly going to work while ill (ie, >5 times/yr) was associated with later long-term sick leave. Yet another study observed that SP also acted as an independent risk factor for future fair/poor self-rated health.

Predictors of Sickness Presenteeism

The model of Aronsson and Gustafsson captures how both personal and work-related demands for workplace presence guide an employee’s decision as to whether or not to go to work when ill. A complementary model is the sickness flexibility model that, in addition to demands, also takes into account incentives for workplace presence. Partly in line with these models, studies demonstrate that, besides illness, several environmental factors such as low replaceability, low control, conflicting demands, lack of work resources, time pressure, high psychological demands, supervisory status, long work hours, low social support, job insecurity, and family life can be positively associated with SP. In addition, individual-level determinants of SP include lower age, financial problems, lower education, and conservative attitudes toward sickness absence. Two studies have touched on the relevance of personality characteristics to SP. Finding it hard to resist other people’s wishes and expectations (ie, individual boundarylessness) has been found to be positively associated with SP, although the authors stated that further research is needed to confirm and explore this finding. A recent Danish study concluded that the most important personal circumstance affecting going to work when ill was overcommitment. Overcommitment describes a motivational pattern of coping with demands characterized by excessive work-related commitment and a high need for approval. However, the operationalization of overcommitment has changed considerably over time, resulting in a gap between the formulation of the six items of the short version of the instrument used in the Danish study and the theoretical meaning of overcommitment. We argue that this instrument does not specifically measure general trait characteristics, but rather experiences (ie, perseverative cognition) that could equally result from intense environmental stressors captured, for example, in the statements “work rarely lets me go, it is still on my mind when I go to bed” or “as soon as I get up in the morning I start thinking about work problems.” For this reason, there is a risk of overlap between the predictor (ie, overcommitment according to the short version) and relevant outcomes, such as stress-related symptoms and exhaustion. In sum, the Danish study contributes important knowledge of how perseverative cognition is related to SP. However, understanding how personality characteristics might affect the choice of whether or not to go to work when ill remains to be explored.

Contingent Self-Esteem as a Vulnerability Trait in Modern Societies

Modern western societies have undergone major cultural and structural changes that have increased the emphasis on individual-
ism and self-fulfillment and heightened the sense of uncertainty.17-19 The German sociologists Beck and Beck-Gernsheim20 have even stated that “the ethic of individual self-fulfillment and achievement is the most powerful current in modern society.” It is suggested that this ethic will promote increased individual pursuit of self-esteem,20,21 which is in turn based on the belief that one’s worth as an individual is not a given but must be “demonstrated, proven, or earned.”22 Moreover, this new societal context also provides environmental conditions to which individuals caught up in this current might be especially vulnerable. For example, responsibility for work-related health is increasingly shifting from the employer to the individual employee, ie, setting one’s own limits in relation to work.21 Setting these limits (eg, taking sick leave when needed) might be especially difficult for individuals whose self-esteem is contingent on individual performance.7,20 However, the short-term emotional benefits of pursuing self-esteem in this way are often outweighed by long-term costs.20 The health mechanism posited by this reasoning is in line with the theoretical framework of allostatic load, ie, when individuals do not obtain sufficient recovery, the social environment has a cumulative impact on their physical and mental health.22 Theoretically, this mechanism makes contingent self-esteem a potential and relevant predictor of SP. Moreover, individuals who constantly have to prove their worth to sustain their self-esteem might react differently on certain environmental conditions regarding the choice of going or not going to work when ill, eg, one might assume that high demands at work provide a challenge for these individuals to prove themselves. Consequently, it might become harder for them to stay at home to recuperate than in a situation with low demands.

PBSE7 is conceptualized as a type of contingent self-esteem20,23 referring to the level to which individuals’ self-esteem depends on their performance. The PBSE concept builds on previous research into contingent self-esteem; this research emphasizes either an overall contingent self-esteem based on the stability of one’s self-esteem24 or that one’s level of self-esteem is contingent in specific domains of life.20 PBSE has been found to display a positive relationship with burnout.24,25

Young Adults: Especially Vulnerable?

As the transition from adolescence to adulthood is known to be a period when role conflicts and ambiguities can be highly stressful and difficult to manage, it is suggested that young adults are especially vulnerable to the observed societal emphasis on individualism and self-fulfillment.18 On top of this, a de-standardization has been observed in which this transition has not only become prolonged but also more fragmented, more diversified, and less linear.26 Consequently, identity and life paths have become even more uncertain. However, although young people are increasingly held accountable for their own fates, they often remain powerless, resulting in doubt and constant reinterpretations of their identity.18 Correspondingly, PBSE is more prevalent among young people,7 and a growing focus on individuality and achievement was recently observed to be a main factor underlying the rise of stress-related and mental health problems among young people in Sweden.27 Because life course epidemiological models postulate that various symptoms at this life stage also predict subsequent morbidity,28 a greater focus on maintaining health and work ability among young adults is crucial to attaining sustainable societies. This is a particular concern because most western countries face an impending lack of labor due to ageing populations.29 For example, instead of simply abandoning traditional gender positions, women now combine them with more self-enhancing roles.7,30 Besides double responsibility for both paid and unpaid work, women in traditionally male-dominated occupations may also feel that they must overperform to prove their own competence and worth, in response to both explicit17 and implicit discrimination (Löve et al, unpublished data).

In sum, frequently going to work despite being ill predicts future long-term sick leave and reduced general health. Although several environmental and personal factors have been observed to predict SP, the relationship between personality characteristics and this hazardous behavior remains to be elucidated. This can be particularly significant because major societal changes might complicate the situation of individuals attempting to set the boundaries they need to obtain sufficient recovery. Our two research questions are accordingly:

1. Does PBSE predict SP among young adult women and men?
2. Does this relationship interact with environmental and personal factors?

METHODS

Procedure and Participants

This study was based on data from a population-based cohort of young adults in Sweden, ie, Work Ability Young Adults. Invitations to participate in the study were mailed to a randomly selected population of 20,000 young adults, 20 to 24 years old at baseline, t1. Those who responded and agreed to participate in future studies also received a second questionnaire at the 1-year follow-up (t2; Table 1). The study procedure was approved according to the current regulations of the Research Ethics Committee at the University of Gothenburg. Participants reporting that they had been on parental leave or furlough of over 1 month at t2 were removed from the study sample (n = 113), as were those who reported at t2 that they had been on long-term sick leave for either 25 to 99 days or 100 to 365 days (n = 139). Respondents answering that SP was not an applicable question at t2, as they had not been ill the last 12 months (ie, response alternative five on the SP question), were also excluded from the analyses (n = 116). The study sample did not diverge to a great extent from population data from Statistics Sweden in terms of marital status (3% vs 5% in the total population), and urban–rural place of residence (45% vs 45%). However, men (39% vs 56%) and individuals with at least one parent born outside Sweden (10% vs 18%) were slightly underrepresented in the final study sample.32

Dependent Variable

SP was measured at t2 using the following question: “How many times over the previous 12 months have you attended work/educational activities despite feeling that you really should have taken time off because of your state of health?” The response

TABLE 1. Descriptive Characteristics of the WAYA Cohort

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invited</td>
<td>20,000</td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Baseline</td>
<td>7,125</td>
<td>2,778</td>
<td>4,347</td>
</tr>
<tr>
<td>“Yes” to participating in follow-ups</td>
<td>5,829</td>
<td>2,139</td>
<td>3,690</td>
</tr>
<tr>
<td>One-year follow-up</td>
<td>4,163</td>
<td>1,458</td>
<td>2,705</td>
</tr>
</tbody>
</table>

*Percentage of the level above.
alternatives were 1) “never,” 2) “once,” 3) “2–5 times,” 4) “more than 5 times,” and 5) “not an applicable question—have not been ill over the past 12 months” (excluded from the analyses, discussed above). Only individuals working, studying, or engaged in vocational training/work placements answered the question. Because two recent longitudinal studies observed that the strongest relationship between SP and future long-term sick leave was for individuals reporting SP more than five times in the past year,1,2 this study dichotomized SP as 1—“more than 5 times” versus 0—“all other frequencies.”

Independent Variable
The instrument measuring PBSE was originally an index comprising four statements.7 In this study, two of the original statements were included after discussion with Prof. Hallsten and based on considerations of specificity and sensitivity; these two statements were 1) “I think that I sometimes try to prove my worth by being competent,” and 2) “occasionally I feel obsessed to accomplish something of value.” Due to the item formulation, the risk of overlap in relation to outcomes was small, and the correlation of items 1 and 2 with the overall PBSE index was $r = 0.79$ and $r = 0.81$, respectively. The response format followed the original one, including a 5-point Likert scale with the endpoints “fully agree” and “fully disagree.” An index was created based on the mean values. A test–retest study of 31 individuals (aged 20 to 24 years) indicated a correlation of $r = 0.70$ (Pearson’s $r$) for the two-item version of the PBSE index (interval of 2 weeks).32 To capture the theoretical stability of PBSE, we created an overall index based on the two PBSE indexes calculated at $t_1$ and $t_2$.

Environmental and Personal Factors
The following variables were included as covariates (at $t_1$) to control for potential confounding and interaction effects.

Customary Occupation
“Main occupation” was determined by the following response alternatives: employed, self-employed, university studies, other educational activities, long-term sick leave, parental leave/on furlough, and unemployed.

Workplace/Educational Conditions
Three items captured the concepts “control,” “psychological demands,” and “social support,”33 and one item captured the balance between “effort and intrinsic reward.”34 All items were formulated as statements with four response alternatives each, as follows: control—“I feel that I have control over and can handle things that happen in my work/educational activities,” psychological demands—“I am exposed to high demands and expectations in my work/educational activities,” social support—“When I have problems in my work/educational activities, I have access to support and help there,” and balance between effort and intrinsic reward—“Considering the effort I put in and what I achieve in my work/educational activities, I receive the appreciation I am entitled to.” Physical work demands” was captured by the item “How much do you move around and exert yourself physically in your work/educational activities?”; the responses were ranged along a 6-point Likert scale from “mostly sitting still” to “heavy manual labor.” Before the questionnaire was distributed, all items but a 6-point Likert scale from “mostly sitting still” to “heavy manual labor” were included in a test–retest study conducted after a 2-week interval, and satisfactory short-term reliability was observed.32

Personal Factors
“Health status” was captured by one general health question (with five response alternatives ranging from “very good” to “very poor”), whereas the presence of “financial or juridical problems” was gauged using a yes/no question.

Statistical Analyses
Descriptive characteristics for all variables included in the analyses were calculated as proportions and their differences; these analyses were conducted using Altman’s confidence interval analyses.35 The primary research question was examined through a process of regression analyses. First, unadjusted logistic regressions were calculated for PBSE in relation to SP. These results were then presented as prevalence ratios and unadjusted prevalence and 95% CIs for low PBSE (PBSE = 1) and high PBSE (PBSE = 5) in relation to SP. Second, bivariate logistic regressions were calculated for PBSE in relation to SP, including one potential confounder at a time. After testing for collinearity ($r_{\text{pearman}} > 0.70$), all variables having $P$-values $<0.15$ were included in a multivariate logistic regression model. When calculating multivariate logistic regressions, all variables having $P$-values $<0.10$ were kept in the model. However, variables having $P$-values $\geq 0.10$ were included if their removal would change the coefficient of other variables in the model by more than 20%.36 This rather high limit of the $P$-value was chosen so as not to miss potential confounders of importance. For the parameter estimates, 95% CIs were calculated. We also tested for product terms (statistical interaction), $P \leq 0.05$.

For the second research question, we investigated whether the associations between PBSE and SP differed depending on the levels of the contextual factors. In a linear regression, this can be examined through product terms (statistical interaction). However, as discussed by Rothman and Greenland (chapter 18),37 this is not the case in a logistic regression. Consequently, synergy effects were examined by causal interactions.37 These interactions were calculated by dividing the prevalence of SP into intervals according to specific exposures at different levels of PBSE and of the examined variables. Note that this procedure lead to absolute effect measures rather than relative effect measures. To examine possible differences between women and men, all analyses were also conducted for these groups separately. All regressions were run using SAS version 9.1 (SAS Institute, Cary, NC).

RESULTS
Descriptive Results
The prevalence of SP on more than five occasions in the last 12 months was 12% ($n = 415$) for the whole study sample. Women had a higher prevalence of SP than did men, 13% ($n = 298$) versus 9% ($n = 117$), respectively. The mean value for the compound PBSE index was 3.74 for the whole study sample, with women having a slightly higher mean than men, ie, 3.83 versus 3.59, respectively. The descriptive statistics are presented in Table 2.

PBSE as a Predictor of Sickness Presenteeism
In the unadjusted analyses, PBSE was a predictor of SP. For the total study sample, the prevalence ratio was 1.5, representing the effect on SP of a one-unit change in PBSE. The unadjusted prevalence of SP ranged from 4% (95% CI = 2.4 to 5.3) for PBSE = 1 to 18% (95% CI = 15.8 to 20.9) for PBSE = 5. Calculating the prevalence ratios for women and men separately gave similar results regarding the effect of PBSE on SP, the prevalence ratio being 1.5 for women and 1.4 for men.

In the first step of the regression process, one variable at a time was included together with PBSE in relation to SP; in these analyses, no $P$-values were 0.15 or higher. Then, as no collinearity was found, all nine variables (ie, psychological demands, control, social support, effort–intrinsic reward balance, juridical and economic problems, physical demands, main occupation, and general health) were included in a multivariate logistic regression analysis together with PBSE. Next, control, social support, and effort–intrinsic reward balance were excluded, as $P \geq 0.10$ for these
variables. In this reduced model, main occupation slightly exceeded $P < 0.10$; however, if this variable was removed, the coefficient of the other variables in the model changed by more than 20%, so this variable was kept in the model. No statistically significant product terms were found.

The final model included PBSE and five additional variables (Table 3). In sum, even when adjusting for general health, psychological demands, physical demands, economic or juridical problems, and main occupation, PBSE remained a predictor of SP in the total study sample.

The predictive effect of PBSE in relation to SP remained for both women and men respectively (Table 4). However, economic and juridical problems had an effect among women but not among men, and there was a statistically significant product term between PBSE and psychological demands in relation to SP among men but not among women (parameter estimates: intercept, $-4.73$; PBSE, 0.03; demands, $-1.36$; PBSE × demands, 0.57, $P = 0.04$).

### Synergy Between PBSE and the Examined Variables in Relation to Sickness Presenteeism

Based on the intercept and parameter estimates of the multivariate models, the prevalence of SP for different variable combinations was calculated. There was a clear synergy effect between PBSE and the examined variables in relation to SP (Fig. 1). When all examined variables were good (ie, very good health, low physical demands, low psychological demands, no economic/juridical problems), the absolute effect of PBSE on SP was 4% units (2% to 6%) when comparing PBSE = 1 with PBSE = 5. However, among those reporting very poor health (and good on all others), the absolute effect of PBSE on SP increased by 21% units (11% to 32%) when comparing PBSE = 1 with PBSE = 5. A corresponding increase in absolute effect, although at a lower prevalence, was observed for psychological demands with 6% units (3% to 9%), high physical demands with 9% units (3% to 12%), and economic or juridical problems with 6% units (2% to 8%).

### DISCUSSION

#### Main Results

PBSE was a predictor of frequent SP (>5 times/yr) in the total study sample. The association remained even after adjusting for several previously observed predictors of SP, such as health, psychological demands, economic problems, main occupation, and physical demands. This finding contributes to the literature by empirically supporting the importance of personality characteristics for the choice of whether or not to go to work when ill. Although PBSE differs from “individual boundarylessness,” both characteristics seem to impede individuals from paying attention to their own needs, ie, allowing adequate recovery time. From a public health perspective, such striving behavior could become increasingly problematic due to an increase in the individual pursuit of self-esteem. Moreover, as work is becoming more flexible and boundaryless and responsibility for work-related health is gradually shifting from the employer to the individual employee, ie, setting one’s limits in relation to work, the possibility of pushing oneself too hard might have increased. It is also possible that PBSE-related over-performance behavior at work/educational activities (eg, SP) is being accompanied by a more general tendency to ignore bodily signs of health problems. PBSE has previously been associated with burnout, and ignoring stress symptoms and body signals was recently observed as the first step in a process toward exhaustion. As this study sample included only young adults, generalizations to other age groups should be made with caution. Comparison with other studies should also be limited, as even students were included in the analyses. However, because the same pattern was found among both employed and students in the stratified analyses, it seems that overperformance manifest itself even before permanent working life has begun. Thus, the recognition that PBSE results in hazardous behavior at such an early age is alarming, as insufficient recuperation may result in direct negative health effects but also add up as a cumulative burden leading to more serious health outcomes later in life.

Our second research question concerned whether the relationship between PBSE and SP interacted with environmental and personal factors. Such an interaction was indeed indicated. The observed association between PBSE and SP was pronounced when individuals had very poor health or faced high physical demands, high psychological demands, or economic/juridical problems compared to when these conditions were good/positive. This synergistic mechanism is in line with current qualitative findings that complex and demanding surroundings in synergy with high ambition result in overperformance and difficulties setting individual boundaries serious enough to obtain sufficient recovery (Löve et al, unpub-
of young adults. Overperformance behavior has also been observed to maintain health and performance in a fairly homogenous cohort of individuals with highly PBSE.

Based on the present study alone, it is impossible to say whether the causative mechanism linking PBSE and SP differs between men and women. However, it is possible that women experience different environmental and personal conditions than do men, conditions not covered in this study. A possible shortage of variables capturing specific circumstances among women have been proposed previously and was also recently proposed in a study that could not explain identified inequalities in PBSE as a Predictor of SP: Fully Adjusted Models for Women and Men Separately (Intercepts, Parameter Estimates With 95% CI)

<table>
<thead>
<tr>
<th>TABLE 3. PBSE in Relation to SP: Bivariate Adjustments and Final Multivariate Model (Intercepts and Parameter Estimates With 95% CI)</th>
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<tbody>
<tr>
<td><strong>Bivariate Logistic Regressions</strong></td>
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<td>-parameter estimates with 95% CI</td>
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<tr>
<td>Intercept (95% CI) Parameter Estimate (95% CI) Final Multivariate Logistic Model</td>
</tr>
<tr>
<td><strong>PBSE</strong></td>
</tr>
<tr>
<td>General health</td>
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<tr>
<td>Economic or juridical problems</td>
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<tr>
<td>Main occupation (vs unemployed)</td>
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<tr>
<td>Employed</td>
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<tr>
<td>Self-employed</td>
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<tr>
<td>Studies (university)</td>
</tr>
<tr>
<td>Other studies/educational activities</td>
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<tr>
<td>Long-term sick leave</td>
</tr>
<tr>
<td>On furlough/parental leave</td>
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<tr>
<td>Psychological demands</td>
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<tr>
<td>Control</td>
</tr>
<tr>
<td>Access to support</td>
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<tr>
<td>Effort-intrinsic reward balance</td>
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<tr>
<td>Physical demands</td>
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<tr>
<td><strong>PBSE</strong></td>
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<tr>
<td><strong>Final Multivariate Logistic Model</strong></td>
</tr>
<tr>
<td>-4.93 (-5.66 to -4.20)</td>
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<tr>
<td>0.35 (0.21 to 0.50)</td>
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<tr>
<td>0.52 (0.38 to 0.66)</td>
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<td>0.35 (0.03 to 0.67)</td>
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*Range of the parameter estimate for PBSE in the bivariate analyses conducted with one variable at a time; all P-values are less than 0.0001.

**TABLE 4. PBSE in Relation to SP: Fully Adjusted Models for Women and Men Separately (Intercepts, Parameter Estimates With 95% CI)**

<table>
<thead>
<tr>
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<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intercept</strong></td>
<td>-4.95</td>
<td>-5.53</td>
</tr>
<tr>
<td>PBSE</td>
<td>0.34</td>
<td>0.26</td>
</tr>
<tr>
<td>General health</td>
<td>0.47</td>
<td>0.59</td>
</tr>
<tr>
<td>Psychological demands</td>
<td>0.44</td>
<td>0.83</td>
</tr>
<tr>
<td>Physical demands</td>
<td>0.18</td>
<td>0.25</td>
</tr>
<tr>
<td>Economic or juridical problems</td>
<td>0.48</td>
<td>*</td>
</tr>
</tbody>
</table>

*No effect among men.

A future research challenge will be to identify what environmental and personal factors are most difficult to handle for individuals with highly PBSE. Although the observed interactional pattern was evident among both women and men, the pattern seemed somewhat stronger among women. Based on the present study alone, it is impossible to say whether the causative mechanism linking PBSE and SP differs between men and women. However, it is possible that women experience different environmental and personal conditions than do men, conditions not covered in this study. A possible shortage of variables capturing specific circumstances among women have been proposed previously and was also recently proposed in a study that could not explain identified inequalities in maintained health and performance in a fairly homogenous cohort of young adults. Overperformance behavior has also been observed to result from explicit and implicit discrimination due to sex (Löve et al, unpublished data). A recent study even found that women working in male-dominated workplaces, who were not themselves exposed to discrimination, overperformed anyway as a measure of safety (Löve et al, unpublished data). Although these studies do not fully apply to this study sample, they do suggest a possibly significant factor to be examined in future research.

**Methodological Considerations**

As it is self-assessed, the SP measure cannot be completely free of potential response bias. The wording “should have taken sick leave; is problematic, as it includes a subjective appraisal, ie, “should.” When suffering from a particular health problem, one’s work ability could range from adequate to severely substandard depending on the question. It is also possible that individuals with high PBSE might appraise “should” somewhat differently from individuals with low PBSE. In this study, such a bias could have resulted in the relationship between PBSE and SP being underestimated, as participants with high PBSE might think that they “should” perform at a higher level, and consequently underreport SP. However, it is also plausible that individuals with high PBSE might overreport SP, as going to work when ill could be seen as an achievement in itself. Knowledge of how individuals with high PBSE reason about and answer this question should be enhanced by qualitative studies in the response psychology tradition. It is also important to note that the present findings were based on a rather high threshold of SP, ie, more than five times per year. If a lower threshold had been used, the prevalence would have been even higher. Moreover, that SP was dichotomized in this study as more than five times per year versus 0 to 5 times per year, probably lead to an underestimation of the relationship with PBSE. That the applied PBSE index used only two of the original four items could be a limitation. However, as the choice of these two items was based on a test–retest examination and considerations of specificity and sensitivity, we estimated that the two-item index would work satisfactorily in group-level studies.

The response rate at baseline was very low (36%). Dropout analyses revealed that the study sample did not differ markedly...
from the national population except that men and individuals with parents born outside Sweden were underrepresented. As it cannot be ruled out that the relation between PBSE and SP might differ between respondents and the non-respondents generalizations should be made with caution and primarily to other groups matching this study sample. However, other factors important for the observed relations may still have differed between our study sample and the national population. Young adults are a difficult group to study using questionnaires, and further studies of this group should attempt to find new ways to increase the response rate and sample size. Finally, although several likely confounders were included in this study, it is possible that including still other confounding variables would have affected the result.

Implications
Given the limitations of this study, the present results underline the importance of contextual boundary setting in maintaining health and work ability. Because people with PBSE face a higher risk of pushing themselves in a way that might endanger their sustained health and work ability, organizations, managers, and supervisors should 1) foster a climate in which workaholism is not rewarded, 2) monitor employees who manifest exaggerated striving behavior, and 3) support employees in setting limits that allow for sufficient recovery, both to strengthen their individual resources and coping strategies and to provide clearer boundaries and feedback at work and during studies.

CONCLUSIONS
Individuals with a high PBSE attended work/educational activities when ill more frequently than did others. PBSE remained a predictor of frequent SP even when adjusting for general health, psychological demands, physical demands, economic or juridical problems, and main occupation. A synergy effect was also observed in which the absolute effect of PBSE on SP increased by 21% units (11% to 32%) when comparing PBSE = 1 with PBSE = 5, whereas the corresponding increase among men was 15% units (11% to 26%).