

BMJ Open Previous sickness absence and current low perceived social support at work among employees in the general population: a historical cohort study

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ABSTRACT

Objective: Although sickness absence often is a process over time, most studies have treated the phenomenon as a discrete event and focused more on its causes than its consequences. We aimed to examine whether various patterns of previous long-term sickness absence were associated with current low perceived social support at work.

Method: This is a historical cohort study based on data from a population-based survey among Swedish employees (n=2581). The survey data were linked to official registries yielding data on sickness absence 1–7 years prior to the survey.

Results: The main finding was that previous sickness absence was associated with current low perceived social support at work. The highest odds for low social support were found among those who had a stable high level of sickness absence. The two indicators of perceived social support employed were somewhat differently associated with previous sickness absence: Recency of absence showed to be of importance for general support at the workplace and the relationship with colleagues and superiors. Experiencing that one's immediate superior rarely or never regards one's view was, on the other hand, mainly related to having had a high level of sickness absence, irrespective of recency.

Conclusions: Our results indicate that recency and extent of previous sickness absence are related to perceived social support at work. Future research on the relationship between social support and sickness absence should use repeated measurements and acknowledge the possible bidirectional relationship.

INTRODUCTION

In many cases, sickness absence is a process over time that may carry its own consequences for the individual.¹ Prolonged and repeated sickness absence is a precursor for future sickness absence,² unemployment, work termination³ and disability pension^{4 5}; these associations cannot be explained by deterioration in health alone.⁶ Sickness absence can mean deprivation of an

Strengths and limitations of this study

- This is the first study to explore how previous sickness absences are associated with current perceived social support at work.
- The participants were drawn from the general population and included employees across different work settings.
- Information on previous sickness absence was based on 7 years of registry information. This minimises problems with attrition and response bias, and allows examination of timing and extent of previous sickness absence in relation to current social support.
- Social support was only measured at one time point, precluding adjustments for baseline status as well as investigating degree of stability in perceived social support at work.
- Participation-rates were lower among men, younger individuals, those with lower incomes and those born outside Nordic countries.

important social arena, with social marginalisation, isolation and exclusion as possible results.^{7–9} Two Swedish studies have found long-term sickness absentees to report far more negative consequences of their sickness absence than positive ones, such as negative effects on health, sleep, mental well-being,⁸ salary, career possibilities and zest for work.⁹ The vast majority of studies on sickness absence have, however, treated the phenomenon as a discrete event, and aimed to identify its causes more than its consequences.¹

Social support affects health¹⁰ and social support at work is one of the work characteristics extensively studied in relation to sickness absence. Although an employee's relationships with colleagues and superiors can be considered to be more formal than his or her relationships with family and friends, the social network at work can be an important source of support for the employee, especially considering the hours

spent at work and the importance of work in Western societies.^{11 12} Low support is found to be associated with later sickness absence in studies across several cohorts,^{13–16} and is observed in the public as well as private sector,¹⁷ and includes support levels from coworkers as well as superiors.^{18–20} Experiencing justice and fairness through, for instance, experiencing being listened to by one's immediate superior, is another aspect of social support found associated with being on sickness absence.²¹ Social support is also relevant for employees returning to work after being on sick leave.^{22 23}

There is increased awareness of the possible reversed or reciprocal relationship between work conditions and health, that is, that health through various mechanisms might influence work characteristics or that these factors affect each other bidirectionally.²⁴ A recent review study concluded that the relationship between job demand-control-support and job-related well-being might partly be reciprocal or reverse,²⁵ and a four-wave study found evidence for a reciprocal causal relationship between work characteristics, including social support and mental health.²⁶ Studies challenging a unidirectional relationship between social support and sickness absence are scarce. One Swedish study found that long-term absentees often reported that their absence affected their sense of belonging to the workgroup negatively, especially if full-time absent.⁹ The cross-sectional design of that study, however, precludes making inferences about the temporal relationship between work absence and social inclusion at work.

In summary, few studies have examined patterns of sickness absence and their correlates. It is possible that sickness absence sets negative social processes in motion and that these difficulties add to the troubles causing the sickness absence in the first place and challenges returning to and retaining work. To increase understanding of these social processes, the aim of this study is to examine whether various patterns of previous long-term sickness absence are associated with current low perceived social support at work in a longitudinal analysis. We will include two measures of social support at work and explore the relevance of subitems of the social support scale employed.

METHOD

Study design and participants

This is a historical cohort study linking data from the Health Assets Project (HAP) survey in 2008 to official registries of sickness absence 1–7 years prior to the HAP survey. HAP was specifically designed to gain knowledge about the influence of individual, organisational and societal factors on health, sickness absence and return to work. The target population in HAP comprised individuals aged 19–64 in Västra Götaland in Western Sweden, a region with urban and rural areas and a population of 1.6 million (17% of the Swedish population). More details about HAP are described elsewhere.²⁷ A random

sample was extracted from Statistics Sweden April 2008 (n=7984) and invited to participate. Data were collected using registry data and a postal questionnaire including items on sociodemographic factors, physical and mental health, issues concerning sickness absence, work and family conditions, life events, leisure and lifestyle. The participation rate was 50.4% (n=4027). A dropout analysis showed a significant higher dropout rate in the youngest age group (19–30 years of age), those with the lowest income level ($\leq 149\,000$ SEK), as well as among those born outside Nordic countries. In the present study, we excluded those younger than 23 years of age in 2008 (n=277), those reporting not being employed when participating in the survey (n=1090), those registered with sickness compensation in 2008 who did not answer any of the items regarding social support (n=14), and those with missing data on sickness absence for one or more of the follow-up years 2001–2007 (n=65). The final study sample was n=2581.

Measures

Predictor: sickness absence history 2001–2007

Using personal identification numbers, survey data were linked to the 'Longitudinal integrated database for sickness insurance and labour market research', Statistics Sweden (LISA) records on sickness absence. In the Swedish insurance system, the employer covers sickness benefit the first 14 days of a sickness absence spell (except not counting one qualifying day); thereafter, benefits are granted from the Social Insurance Agency and registered in LISA. For the self-employed and those without employment (eg, unemployed and students), the sickness benefit is paid and registered from day 2. LISA comprises information on an individual's total number of registered sickness absence days per year. Some participants (n=86) were granted sickness compensation or activity compensation one or more of the years after this benefit arrangement was established in 2003. As these benefits are awarded for severe and lasting work disability, we coded the number of absence days as full-time sickness absence (365 days) for the calendar year a person received a sickness or activity compensation benefit. We excluded those with missing data on sickness absence on one or more of the follow-up years (n=65), since many of these were probably out of risk for sickness absence due to migration. These cases were nonetheless at risk at least some of the follow-up years and some missing data could be caused by registration error and regarded as random. To check the robustness of our results, we ran a sensitivity analysis in which we included the cases and treated missing data through multiple imputations. Results were similar across solutions (data not shown).

On the basis of information from the LISA-register, we constructed groups with different patterns of previous sickness absence to relate them to current perceived social support. Initially, we performed exploratory latent class analyses (LCA), a statistical technique suitable for

finding meaningful subgroups in a population, which are similar, for example, in their growth trajectories.²⁸ Owing to difficulties in including the subgroup with sickness compensation in the LCA and low power due to small categories if excluding this subgroup, we chose to instead construct groups based on median splits, informed by the observations of the LCA; First, as suggested from the LCA, we split the follow-up period from 2001 to 2007 into a 'distant' (2001–2004) and 'recent' (2005–2007) period. Then we calculated the participants' total number of registered sickness absence days for each period. Again for each of the periods, the participants' absence was coded as low ('0') or high ('1') by a median split on the total sickness absence days. This allowed us to construct the following five mutually exclusive categories (see table 1 for overview of categorisation criteria): (1) 'no absence'; no registered sickness absence during the whole period, (2) 'stable low'; a total number of sickness absence days below the median in both of the periods, (3) 'distant high'; above the median in the 'distant' period, and below the median in the recent; (4) 'recent high'; below the median in the 'distant' period, and above the median in the 'recent'; and finally, (5) 'stable high'; above the median on number of sickness absence days in the 'distant' as well as the 'recent' period. The results employing the described grouping yielded similar results as with the more fine-tuned groupings compiled through LCA (data not shown). The sickness absence patterns were, in addition, similar to those that had emerged from a previous published trajectory analysis.²⁹

Outcome: social support at work 2008

Two measures of perceived social support were employed: a workplace social support indicator and a question on immediate superior support.

First, a workplace social support indicator was constructed from the support subscale in the Swedish Demand-Control-Support Questionnaire (DCSQ).³⁰ The scale is based on Johnson and Halls' model¹¹ and focuses on the atmosphere at work. The participants were asked to what extent they agreed (agree; agree to

some extent; disagree to some extent; disagree) to the following six statements: "The atmosphere at my workplace is calm and pleasant"; "The collegiality at work is good"; "People at work understand that I can have a bad day"; "I get along well with my superiors"; "I get along well with my colleagues". Answers were coded 1–4 and summarised giving a scale from 6 to 24 where a higher score denoted higher social support (Cronbach's $\alpha=0.86$). The scale was found to have satisfactory psychometric properties.³¹ A principal component analysis supported a one-factor solution in our data. Owing to non-normal distribution and in order to identify high versus low level of social support, the total score was split by the median. A sensitivity analysis was performed, treating the scale continuously in log-transformed regression analyses, which gave similar results. In addition, we performed sub-analyses for each item of social support to explore which aspects were most relevant in relation to sickness absence history (each item dichotomised yielding a low ('disagree to some extent' or 'disagree') and a high ('agree to some extent' or 'agree') support category).

Second, we included a single-item measure on immediate superior support: "Does your immediate superior consider your views?" (Yes, frequently; yes, sometimes; no, rarely; no, never/almost never; no, I don't have a manager). Answers were dichotomised, giving a high (yes, frequently; yes, sometimes) and a low (no, rarely; no, never/almost never) support group. Participants responding that they did not have a superior were excluded from the analyses regarding this outcome (n=6).

Demographic variables

The following demographic factors were extracted from Statistics Sweden: Gender (male, female), age (mean), gross income (SEK $\leq 149\,000$, 150 000–299 000, $\geq 300\,000$) and occupational class (unskilled–skilled manual, low–intermediate non-manual, higher non-manual and entrepreneurs). Level of education (elementary or less, upper secondary, higher) and type of employment (temporary, permanent) was self-reported.

Analyses

We employed MPlus to perform the initial exploratory LCA analyses. The remaining analyses were performed in Stata 12. Differences in background characteristics (gender, age group, income level, occupational class, education level and type of employment) between employees with different sickness absence histories were examined using χ^2 tests and analysis of variance. Further, median (IQR) days per year of previous sickness absence were calculated. In the latter calculations, individuals on sickness and activity compensation during follow-up were excluded, as we did not have their exact number of absence days registered. Then we examined whether each of the two social support outcomes could be predicted by previous sickness absence, building

Table 1 Categories of previous registered sickness absence 2001–2007

Category	Sickness absence during 2001–2004	Sickness absence during 2005–2007
Reference	No sickness absence	No sickness absence
Stable low	Sickness absence below median split	Sickness absence below median split
Distant high	Sickness absence above median split	Sickness absence below median split
Recent high	Sickness absence below median split	Sickness absence above median split
Stable high	Sickness absence above median split	Sickness absence above median split

multivariate logistic regression models. For both models, we first tested for crude associations, before including candidate confounders (gender, age, income, occupational class, education, type of employment). Only variables found relating to exposure and outcome in the data ($p < 0.05$) were included in the final model (age in social support scale; age, education and occupational class for immediate superior support outcome). Finally, to explore the relevance of different aspects of social support, we performed subanalyses where we treated each of the subitems of the social support scale as separate outcomes.

We employed multiple imputations to handle missing data using the multivariate normal model procedure in Stata 12, with 20 cycles of imputation. All variables reported in the study in addition to variables on health and well-being were included as auxiliary variables to perform the imputation, where missing responses were substituted by predictions based on valid responses from all other variables (see table 2 for magnitude of internal missing per variable). The variables were subsequently rounded to the original scale to enable multinomial regression analyses and Allison's³² recommended procedure was followed for nominal variables with more than two categories.

RESULTS

Characteristics of employees with various sickness absence histories

The total sample was $n=2581$, of whom 55.2% were women and mean (SD) age was 45.1 (11.2). Of these, 1535 (59.5%) had no registered sickness absence during the 7 years follow-up period prior to the survey. Of the 1046 who had at least one episode of registered sickness absence in this period, 521 (20.2%) were categorised as having a 'stable low' absence pattern, 198 (7.7%) as 'distant high', 150 (5.8%) as 'recent high' and finally, 177 (6.9%) were categorised as 'stable high' (see operationalisation in method section). Median (IQR) sickness absence days per year in the first (2001–2004) and second (2005–2007) follow-up periods were as follows in the groups: 'Stable low': 6(19)/1(16); 'distant high': 127(197)/0(9); 'recent high': 0(7)/177(259); and 'stable high': 212.5(299)/277.5(366) in the first/second periods, respectively.

The proportion of women was higher in the groups with sickness absence than in the group with no sickness absence, especially 'distant high' and 'stable high'. Mean age was highest in the 'stable high' group and lowest in the 'no absence' group. The groups with sickness absence had lower levels of education, occupational

Table 2 Description of employees in a general working population sample with various histories of registered sickness absence (2001–2007)

	No absence† n=1535	Stable low† n=521	Distant high† n=198	Recent high† n=150	Stable high† n=177
Gender (%)*					
Women	48.6	62.2	71.2	64.0	71.8
Age (mean (SD))*	44.1 (11.5)	45.8 (10.7)	47.5 (10.5)	46.9 (11.1)	50.4 (9.4)
Level of education (%)*					
Higher education	45.3	33.6	33.9	34.6	33.3
Upper secondary	41.6	42.6	42.9	46.0	35.6
Elementary or less	12.6	22.3	22.2	18.7	30.5
Missing	0.5	1.5	1.0	0.7	0.6
Occupational class (%)*					
Higher non-manual, Entrepren.	22.8	10.5	15.1	10.7	10.2
Intermediate—low non-manual	43.4	39.2	36.9	44.0	37.3
Skilled—unskilled manual	32.2	48.2	46.5	44.0	49.2
Missing	1.6	2.1	1.5	1.3	3.4
Income (%)*					
≥300 000 SEK	41.2	29.0	27.3	27.3	17.5
150 000–299 000SEK	49.3	63.9	62.6	68.0	73.5
≤149 000 SEK	9.5	7.1	10.1	4.7	9.0
Form of employment (%)					
Permanent job	91.7	91.5	90.4	91.4	90.4
Temporary job	7.2	7.3	8.1	7.3	8.5
Missing	1.1	1.2	1.5	1.3	1.1

Bivariate associations examined using χ^2 tests for categorical and ANOVA for continuous variables. Missing responses are handled using pairwise deletion.

* $p < 0.001$.

†No absence: no registered sickness absence days (SA, ie, beyond 14 days) during the follow-up period 2001–2007. Stable low: SA below the median split 2001–2007. Distant high: SA above the median split 2001–2004 and below the median split 2005–2007. Recent high: SA below the median split 2001–2004 and above the median split 2005–2007. Stable high: SA above the median split 2001–2007. ANOVA, analysis of variance.

Table 3 Effect of previous sickness absence on current low perceived social support at work and low perceived immediate superior support

Sickness absence history*		Low social support		Low superior support	
		OR	95% CI	OR	95% CI
Stable low	Crude	1.3	1.0 to 1.6	1.0	0.7 to 1.5
	Adjusted†	1.3	1.0 to 1.5	1.0	0.7 to 1.4
Distant high	Crude	1.1	0.8 to 1.5	2.1	1.4 to 3.1
	Adjusted†	1.1	0.8 to 1.5	2.1	1.4 to 3.2
Recent high	Crude	1.7	1.2 to 2.4	1.8	1.1 to 2.9
	Adjusted†	1.7	1.2 to 2.4	1.8	1.1 to 2.9
Stable high	Crude	1.5	1.1 to 2.1	2.0	1.3 to 3.1
	Adjusted†	1.5	1.1 to 2.1	2.1	1.3 to 3.3

Logistic regression analyses, crude and adjusted models. Each sickness absence history group is contrasted to those with no registered sickness absence (reference group). Missing responses handled using multiple imputations. *No absence: no registered sickness absence days (SA, ie, beyond 14 days) during the follow-up period 2001–2007. Stable low: SA below the median split 2001–2007. Distant high: SA above the median split 2001–2004 and below the median split 2005–2007. Recent high: SA below the median split 2001–2004 and above the median split 2005–2007. Stable high: SA above the median split 2001–2007. †Adjusted for age in analysis on social support index as outcome, and adjusted for age, education and work class in the analysis on low immediate superior support.

class and income than the ‘no absence’ group. There was, on the other hand, no association between employment type and history of sickness absence (table 2).

Current perceived low overall social support at work in relation to various patterns of previous sickness absence

Those having a ‘recent high’, ‘stable high’ and ‘stable low’ sickness absence history had increased odds for reporting low overall level of perceived social support at work compared to those without a history of sickness

absence. Effects were somewhat higher for the two former than for the latter group, albeit with overlapping CIs (crude OR=1.7, 95% CI 1.2 to 2.4; OR=1.5, 95% CI 1.1 to 2.1; and OR=1.3, 95% CI 1.0 to 1.6, respectively). Adjusting for confounders hardly altered the effect sizes. There was no difference in social support between those in the ‘distant high’ group and those with no sickness absence (table 3).

Current perceived low immediate superior support in relation to various patterns of sickness absence

Those having a ‘distant high’, ‘recent high’ or ‘stable high’ sickness absence history had increased odds for reporting that their immediate superior rarely or never considers their views, compared to those having no previous sickness absence (adjusted OR=2.1, 95% CI 1.4 to 3.2; OR=1.8, 95% CI 1.1 to 2.9; and OR=2.1, 95% CI 1.3 to 3.3, respectively). There was no difference between the ‘stable low’ group and those with no history of sickness absence (table 3).

Aspects of current perceived social support at work in relation to various patterns of sickness absence

When analysing each single item of perceived social support separately, the ‘stable high’ group followed by the ‘recent high’ had the overall highest odds for experiencing low social support, albeit with overlapping CIs compared to the effects of the other sickness absence groups. These two were also the only groups significantly associated with the items “I do not get along well with my superiors” and “I do not get along well with my colleagues” (table 4). The item with the overall highest effect size across sickness absence groups was “My colleagues are not there for me” (table 4), while the single association with the highest effect size was between the ‘stable high’ group and the item “The atmosphere at my workplace is not calm and pleasant” (OR=2.9, 95% CI

Table 4 Effect of previous sickness absence patterns (2001–2007) on single-items regarding current social support at work (2008)

Sickness absence history*	The atmosphere at my workplace is not calm and pleasant†		The collegiality at work is not good†		My colleagues are not there for me†		People at work do not understand that I can have a bad day†		I do not get along well with my superiors†		I do not get along well with my colleagues†	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Stable low	1.2	1.0 to 1.6	1.7	1.3 to 2.3	2.3	1.6 to 3.2	1.4	1.1 to 1.9	1.2	0.8 to 1.7	1.5	0.9 to 2.4
Distant high	1.9	1.3 to 2.6	1.4	0.9 to 2.3	1.2	0.7 to 2.3	0.9	0.6 to 1.5	1.3	0.7 to 2.3	0.9	0.4 to 2.1
Recent high	1.6	1.0 to 2.3	1.5	0.9 to 2.6	2.7	1.6 to 4.6	1.2	0.7 to 2.0	1.8	1.0 to 3.2	2.3	1.2 to 4.4
Stable high	2.5	1.8 to 3.5	2.9	1.9 to 4.5	2.6	1.6 to 4.4	1.7	1.1 to 2.6	1.9	1.1 to 3.3	2.5	1.4 to 4.7

Logistic regression analysis, age adjusted. *No absence: no registered sickness absence days (SA, ie, beyond 14 days) during the follow-up period 2001–2007. Stable low: SA below the median split 2001–2007. Distant high: SA above the median split 2001–2004 and below the median split 2005–2007. Recent high: SA below the median split 2001–2004 and above the median split 2005–2007. Stable high: SA above the median split 2001–2007. †For all outcomes, the odds of responding ‘agree to some extent’ or ‘agree’ to the given items are calculated. Each sickness absence history group is contrasted to those with no registered sickness absence (reference group). Missing responses handled using multiple imputations.

1.9 to 4.5). The 'distant' group showed non-significant associations to all items except the item "The collegiality at work is not good" (table 4).

DISCUSSION

Main results

The main finding of this study was that previous sickness absence was associated with current low perceived social support at work. The highest odds for low social support were found among those who had a stable high level of sickness absence. Interestingly, our two indicators of perceived social support were somewhat differently associated with previous sickness absence; while recency of absence showed to be of importance for general support at work and relationship with colleagues and superiors, experiencing low immediate superior support was mainly related to having had a high level of sickness absence, irrespective of recency.

Strengths and limitations

One of the main strengths of this study was the linkage between a population-based health survey and registries of sickness absence up to 7 years prior to the survey. The many and comparable data points on sickness absence enabled inclusion of the time aspect as well as extent of previous sickness absence in our analyses. Only a handful of studies have examined the impact of having a history of sickness absence and even fewer have taken the time aspect into consideration. The use of register data on sickness absence minimised problems with attrition and response bias. Gathering data on exposure and outcome from different sources further decreased the risk of response bias. The social support scale is a commonly used instrument in Scandinavia and is found to have good psychometric properties.³¹ Finally, the general population design allowed the study of employees across different work settings, increasing generalisability of the results.

The following limitations also need to be considered. As with other population-based surveys, non-participation and selective participation remains a challenge, with lower participation-rates in the current study among men, younger individuals, those with lower incomes and those born outside the Nordic countries.

A key limitation is that social support was only measured at one time point, precluding adjustments for baseline status as well as investigating degree of stability in support at work. Low social support at baseline might have contributed to elevated sickness absence in the first place, as demonstrated in several studies.^{13–15 18} Nonetheless, our data on sickness absence goes back 7 years from the time point measuring social support at work. If our results indicate that employees had problems regarding social support at work 7 years back already, the results arguably pinpoint a central issue regarding sickness absence. The study may also be considered a first step to investigate the possible bidirectional or reciprocal

causal relationship of the much more studied association between social support at work and sickness absence.²⁴ Further studies employing a multiwave design are suggested to examine the quality of the association, such as degree of reciprocity, in more detail.

Immediate superior support was measured employing a single item with unknown psychometric properties and should be interpreted with caution. A factor analysis merging the item with the support scale supported a one-factor solution, however, the item was in general less correlated with the other items than the correlations between the items in the established scale (data not shown). Further, the two measures aim at different theoretical constructs, the former regarding atmosphere³⁰ and the latter fairness/justice/participation at the workplace.³³ To not distort the quality of the scale and to explore various aspects of social support, we chose to analyse the single item separately.

The measure of previous sickness absence was rather crude, including the total number of registered sickness absence days (beyond 14 days if employed) per year. One should hence be cautious generalising our results to patterns of shorter spells, as analyses of more fine-tuned fluctuations in sickness absences might show different qualities and correlates. Being able to detect significant differences between the sickness absence groups using a crude measure increases our confidence in that a true association exists between previous sickness absence and social support at work.

From July 2003 to December 2004 the employer-covered period was extended from 14 to 21 days in Sweden,³⁴ yielding slightly different inclusion criteria for LISA registration during this period compared to the rest of the follow-up period. However, a sensitivity analysis excluding data from 2003 to 2004 did not change the overall findings (data not shown).

The relationship between sickness absence and social support might show different patterns between men and women, as found in some studies examining the opposite direction of this association.^{13 14 18} Small sickness absence groups constrained the use of gender-stratified or interaction analyses. There were no differences in social support between men and women in the data, suggesting that gender differences do not explain the associations found. Gender differences, however, cannot be ruled out and, considering the high sickness absence rate among women, further studies specifically investigating explanations for this gender gap are warranted.

Interpretation

This is the first study that we know of to examine the association between previous sickness absence and current perceived social support at the workplace in a longitudinal design. The results add to the small literature illustrating that a unidirectional approach to the relationship between psychosocial work conditions and measures of health, such as sickness absence, is inadequate.^{25 26} The findings further harmonise with

Sieurin's descriptive study,⁹ which showed that many long-term absentees, especially those full-time absent, experienced that their absence negatively affected their sense of belonging to the workgroup. We did not differentiate between full-time and part-time absence in our study. Nonetheless, the odds for low perceived social support at work were generally higher for those with a high level of absence than for those with lower levels of absence. This difference may suggest that keeping some contact with the workplace during sickness absence is beneficial to maintain social inclusion at work, while acknowledging that the expedience of contact may vary, for example, with cause of absence.³⁵ Social support at work might also be seen as part of the push and pull factors that motivate an individual to be present or absent from work.³⁶ We can only speculate about the wider consequences of the potential negative impact of sickness absence on social support at work, as suggested by our results. A conceivable consequence is that it contributes to negative processes that increase risk of lasting work exclusion by challenging return to work or contributing to further episodes of sickness absence.

While a high level of absence in recent years was associated with current low perceived social support at work, a high level of absence some years ago was not. This may indicate a time aspect in the association. One explanation of this 'time effect' is that the association between recent absence and social support reflects an effect of ongoing work conditions on sickness absence, as examined and found in previous studies.²⁰ However, a sensitivity analysis censoring those on sickness absence on time of participation only reduced the effect sizes to some extent, leaving this interpretation only partly supported by the data (data not shown). An alternative interpretation is that sickness absence actually affects social support at work, but only if the absence is relatively recent: First, sickness absence can add strain on coworkers, thereby draining their goodwill, and this problem may increase with length of sickness absence, as described by coworkers themselves in a Swedish qualitative study.³⁷ Such interpretation further fits well with the results showing that the single-item with the overall highest effect-size across pattern of previous sickness absence was experiencing that colleagues were not there for them. The finding illustrates that the relationship with colleagues may be highly relevant to take into account in return to work processes after long-term absences.³⁷ Second, the non-significant association between the 'distant high' sickness absence group and current perceived social support could mean that these individuals have sorted out their situation, especially regarding their colleagues, either through successful social reintegration or by changing work place or task. More studies are required to replicate our findings and to gain better understanding of how sickness absence can affect social inclusion at work.

Experiencing that one's immediate superior rarely or never regarded one's view did, on the other hand, not depend on recency, but on whether one had a history

with high level of sickness absence at all. This could partly be a result of a downward selection process, where those with a high level of absence drift towards less favourable jobs with lower opportunities for discretion.³⁸ Interestingly, the association between level of absence and immediate superior support was not explained by sociodemographic factors such as occupational class or income. Bearing in mind the possibility of residual confounding, the uncertainties regarding causality and the use of a single-item outcome, the finding could suggest that sickness absence has an independent effect on job status or the experience of being treated with justice and fairness. The finding is worth further investigation, as there are promising results on the role of superior support in improving return to work: though findings are not unequivocal across health conditions²³ and gender,³⁹ superior support is found to predict return to work in a systematic review on patients with low back pain²² as well as in a controlled study on worker-superior communication among long-term absentees due to burn out.⁴⁰

Factors other than the sickness absence as such, for instance, mental health factors and personality, might have contributed to the association between sickness absence and social support at work found in the current study. It could, for instance, be that workers with mental illnesses are at greater risk of low social support than workers with less stigmatised illnesses. Further, workers with depression and anxiety have described that they tend to distort work tasks, which again may depreciate their relationship with colleagues.⁴¹ The associations between social support and mental health, depression and personality are complex. Low perceived social support at work is found to be a risk factor for depression, but depression and negative affectivity may also affect a worker's perception of and interaction with their work environment.⁴² Further, though results are inconclusive,¹⁶ a partial reverse causation in the association between psychosocial working condition and mental well-being has been suggested.²⁵ The cross-sectional measurement of these variables restricted investigating these aspects in our study. Further studies measuring each variable of interest at several time points may clarify the mechanisms involved in more detail.

CONCLUSION

Results showed that recency and extent of previous sickness absence were both related to current perceived social support at work. The findings illustrate that sickness absence may have negative consequences for social inclusion at the workplace. Nevertheless, it does also point to the need for more research using individual repeated measurements, under which the impact of sickness absence for social inclusion and integration at work could be interesting to trace out in more detail.

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