Reducing sick leave by minimal postal intervention:

a randomized, controlled intervention study

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ABSTRACT

Objectives - The lack of efficient medical interventions for combating increasing sickness absence rates has lead to the introduction of alternative measures initiated by the Norwegian National Insurance Service or at workplaces. The aim of this study was to determine if minimal postal intervention had any effect on the length of sick leave.

Methods - A randomized, controlled trial with a 1-year follow-up in Northern Norway in 1997 and 1998 included 990 consecutive newly sick-listed persons with musculoskeletal or mental disorders. Within the intervention group 495 eligible sick listed received a general information letter and a questionnaire as their sick leave passed 14 days. Possible intervention effects were analysed by survival analysis of the probability of returning to work within one year, and logistic regressions with benefits at one year as the dependent variable.

Results - The overall mean length of sick leave in the intervention group was reduced by 8.3 calendar days (95% CI = 22.5, 6.0 days) compared to controls. Intervention significantly reduced length of sick leaves in subgroups with mental disorders, or rheumatic disorders and arthritis, and overall for sick leaves lasting 12 weeks or more. Yong with low back pain showed an adverse effect to intervention. The overall relative risk of having benefits due to sickness after one year in the intervention group was 0.69 (95% CI: 0.51–0.93) compared to controls.

Conclusion - The results should encourage employees, insurance institutions and authorities to initiate challenges as questions on the length of sick leave and possible modified work measures, during the first few weeks of sick leave, for at least some groups of sick-listed persons.
BACKGROUND

The increasing rate of sick leave experienced in most Western European countries challenges insurance companies, employers and public authorities to identify measures to reduce the associated burdens on individuals, workplaces and finances. In Norway, an employee could report herself sick for three days four times a year. If sick beyond three days the sick leave must be confirmed by a medical doctor through a standardised medical certificate. Sick leave beyond 8 weeks needed an extended medical certificate and a formal decision within the National Insurance Office (NIO) was required for sickness benefits beyond 12 weeks. If the employee is not able to return to work after a year, she could receive rehabilitation benefits, on certain medical terms, for another year. Musculoskeletal disorders contributed to 48.8% of sick leave periods exceeding 16 days in 2001 in Norway, while mental disorders came second at 18.8%, increasing their proportion from 14.4% in 1999.4

Reviews on the treatment and rehabilitation of low back pain, and rehabilitation of other musculoskeletal disorders have provided, at best, only ambiguous recommendations for medical strategies to reduce the length of sick leave.4 The National Insurance Services have focused on efficient medical interventions for combating the increasing rate of sickness absence. However, intensified inquiries of medical certificates within the NIOs did not reveal the expected effect.5 In 2000, the “Sandman Report” (sickness absence and disability pensioning) provided a policy guideline of a reinforced dialogue between employee and employers to reduce the level of sick leave.6 Several studies supporting this policy have revealed considerable potential for reducing sick-leave periods by adjustment of work demands,7,9 and indicated the necessity of work adjustments in successful rehabilitation.10 However, the initiation of work adjustments by the NIO is
time consuming, and hence the search for more cost-effective interventions is continuing.

Objectives

The aim of this study was to determine if any effect on the length of sick leave by minimal postal intervention, including information of available work measures for sick-listed persons, and questions on the expected length of the current sick leave and on any relevant work adjustments for the ongoing sick leave.

MATERIAL AND METHODS

Inclusions

Some 1000 persons certified as sick for longer than 14 days with musculoskeletal or mental disorders ([ICPC, L- and P- diagnoses],\textsuperscript{11} were included consecutively in this randomized prospective study in the cities of Tromsø and Harstad in Northern Norway. The enrolments were performed during two periods: in October and November 1997, and in March and April 1998. The sick-listed subjects were assigned consecutive numbers from one to one thousand according to the order of their enrolment, and then at the end of each day randomly distributed by their number into the intervention group (499 persons) or to the control group (501 persons) according to a pre-drawn list.

The total length of sickness absence during the following year was collected from the National Sickness Benefit Register for 996 of the included persons. Two persons with full-time disability pension and one person with initially misclassified diagnosis were excluded. Three intervention envelopes were returned by the postal service without reaching the addressee; these two men and one woman were included in intention-to-treat analysis but excluded from the general analysis. A conservative assessment
supported their exclusion as their shorter-than-average sick leaves would have
marginally favoured an effect of intervention.

According to intention to treat principles all subjects that received the intervention
package were kept in the intervention group regardless of response. Out of the 495
persons in intervention group 160 (32.3%) answered the questionnaire. 159 persons
answered the questions on possible reduction of this sickness absence and 159 had
marked wishes on copy to their NIOs or not, 61 persons marked yes.
The intervention group finally comprised 192 men and 303 women, and the control
group comprised 197 men and 298 women (Table 1). The mean age was 40.9 (median
41, range 17–66) years in cases and 39.9 (median 39, range 18–66) years in controls.

Intervention

Via the minimal intervention package posted 14 days after the start of the current sick
leave period, the intervention group received brief general information on possible
work-related measures if sick-listed plus the questionnaire summarised in Figure 1.
Together with the information letter and the questionnaire was a letter on consent to
answer the questionnaire and on the possibility to arrange for contact with NIO office.
Some 291 persons returned the request and of those 161 had filled in the questionnaire.
The local NIOs undertook normal follow-up activities during this period, and were
unaware of the group status for the included subjects except for 61 sick-listed subjects
who provided their NIO officers with a copy.

Analysis and data management

Comparisons between categorical variables were analysed by chi-square tests. In cross-
sectional analysis after 1-year, chi-square tests and binary logistic regression with
backward conditional removal at $p=0.10$ were used to explore candidates for the final model, analysed using the enter method. Differences in the length of sick leaves – as a continuous but not normally distributed variable – were analysed with Mann-Whitney two-sample test and Kaplan-Meier analyses. The 95% confidence interval (CI) of differences in length was calculated assuming a normal distribution. Cox proportional-hazards models were used to calculate the Hazard ratio with 95% CIs, of returning to work. Hazard ratio greater than one indicates increased chance of return to work (RTW) according to the actual coding. All tests were two-sided and required $p<0.05$ to be considered significant. The analyses were performed with SPSS® software (V11.0).

Continuous calendar days (or weeks) with benefits due to sickness were used in the analysis of length. If benefits changed from sickness benefits to maternity benefits or old-age pensions, the sick-leave period was ended and censored in survival analyses. The maximum length was set to 365 days and right-censored in survival analysis. The time of formal decision regarding further sickness benefits after 12 weeks was used as a cut-off for evaluating possible short- or long-term effects. Persons receiving maternity benefits or old-age pensions were excluded from cross-sectional analyses.

Musculoskeletal diagnoses in sickness certificates were recoded into low back pain (L02, L03, L84, L86), neck disorders (L01, L03), shoulder and arm disorders (L08–12, L92, L93), injuries (L72–81), unspecified (L59), and rheumatic disorders and arthritis (RDA disorders), (L04, L13–20, L29, L70, L82, L87–91, L94–98). The last group included 20 persons with rheumatic diseases, 12 with osteoarthritis (hip, knee and unspecified), 19 with other knee disorders, 26 with symptomatic joint disorders (pain) and 28 with more generalized muscular pain including 7 persons with fibromyalgia.

Mental disorders were recoded into depression (P03, P76) and other mental disorders.
In multivariate analysis, each group was coded ("no" or "yes") and the RDA disorders were used as the reference, if not specified otherwise.

In diagnosis-stratified analysis the neck, shoulder and arm, injuries, and unspecified musculoskeletal disorders groups were successively recoded into the "other musculoskeletal" group, according to intervention survival curves indicating no obvious intervention effects.

Occupation given in sickness certificates, was classified into health and teaching work, administrative, clerical and sales work, agriculture and fisheries work, transport and communication work, manufacturing work, service work, and unknown occupation. In multivariate models the subgroups were coded ("no" or "yes") with unknown together with agriculture and fisheries as the reference occupation.

Education level was estimated according to professional titles in sickness certificates and grouped into not more than 12 years of formal education, and more than 12 years of education including indeterminable education level.

Ages were recoded into 10-year groups, with the first expanded to 17–29 years.

Approval

The Regional Ethical Committee approved the protocol, and the Norwegian Data Inspectorate licensed the necessary register of sick-listed subjects, and approved the linkage to follow-up data on sick leaves.
RESULTS

The ongoing sick leaves represented a total of 48,007 days of continuous absence due to sickness in the intervention group, compared to 52,104 days in the control group. The reduction of 4,097 days in the intervention group corresponded to a mean reduction of 8.3 days for each sick-listed person. The mean length of sick leave was 97.0 and 105.3 days, respectively (Table 1), while the median length was 48 days in both groups.

In the intention-to-treat analyses the intervention group showed mean reduced length by 8.6 days (95% CI –5.6, 22.8) compared to control group.

Stratified analyses on diagnostic groups showed shorter sick leaves in the intervention group except for low back pain and neck disorders (Table 1 and Figure 2). The intervention effect was most apparent for sick-listed persons with RDA or mental disorders. The RTW rates were practically identical in intervention and control groups during the first 12 weeks of sick leave, except for the RDA group (Figure 2 c). The minimal intervention resulted in an overall significant reduction in the length of sick leaves lasting 12 weeks or longer, although an inverse effect was observed for persons sick-listed for low back pain. In the low back pain group sick-listed beyond 12 weeks interaction analyses in the Cox model showed significant interaction terms, age group + intervention (p= 0.02). In stratified Cox proportional-hazards models (Table II), the inverse intervention effect for low back pain was restricted to 33 sick-listed persons younger than 41 years and with not more than 12 years education. They had a Hazard Ratio=0.39 (95% CI 0.21–0.74) for RTW compared to the 37 persons in control group.

In the RDA group, the reduction effect of minimal intervention was restricted to the group of sick-listed subjects with less education (Hazard Ratio=2.51 (95% CI 1.26–5.00). Gender and occupation did not significantly influence the intervention effect.
Table 1 Baseline characteristics in the intervention (I) and the control (C) groups, presented by number according to gender, age, education level and major diagnostic groups, and mean length of sick leave with differences and (95% confidence intervals, CIs)

<table>
<thead>
<tr>
<th>Baseline characteristics of randomized groups</th>
<th>Number of sick-listed</th>
<th>Mean length of sick leave Calendar days</th>
<th>Difference in mean length Calendar days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>C</td>
<td>p-value</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>192</td>
<td>197</td>
<td>0.74</td>
</tr>
<tr>
<td>Females</td>
<td>303</td>
<td>298</td>
<td></td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 41 years</td>
<td>246</td>
<td>250</td>
<td>0.37</td>
</tr>
<tr>
<td>&gt; 40 years</td>
<td>249</td>
<td>230</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;= 12 years</td>
<td>268</td>
<td>279</td>
<td>0.48</td>
</tr>
<tr>
<td>&gt;= 12 years</td>
<td>227</td>
<td>216</td>
<td></td>
</tr>
<tr>
<td>Diagnoses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Back Pain</td>
<td>113</td>
<td>123</td>
<td>0.46</td>
</tr>
<tr>
<td>Rheumatic disorders and arthritis</td>
<td>53</td>
<td>46</td>
<td>0.46</td>
</tr>
<tr>
<td>Other musculoskeletal disorders</td>
<td>250</td>
<td>236</td>
<td>0.37</td>
</tr>
<tr>
<td>Mental disorders</td>
<td>79</td>
<td>90</td>
<td>0.35</td>
</tr>
<tr>
<td>Length of sick leave</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 12 weeks</td>
<td>328</td>
<td>330</td>
<td>0.89</td>
</tr>
<tr>
<td>&gt;= 12 weeks</td>
<td>167</td>
<td>155</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>495</td>
<td>495</td>
<td></td>
</tr>
</tbody>
</table>

The return to work (RTW) curves indicate delayed (reduced) RTW from 6 to 16 weeks in the responder group (n=160) with observed RTW of 33 (95% CI 23.4 – 44.3) subjects compared to the expected 43.6. Observed RTW in the subgroup requesting copy to NIO was 7 (95% CI 2.9-13.5), expected 16.6 (Figure 2 f). Observed RTW among the 52
subjects positively expecting reduction of the actual sick leave if modified work measures were implemented was 4 (95% CI 1.1-9.6), expected 9.9.

Table II. The Hazard ratio of return to work after minimal postal intervention compared to control group, analysed in separate Cox proportional-hazards models with length of sick leave as the dependent variable.

<table>
<thead>
<tr>
<th>Model</th>
<th>N total in analysis (sensored)</th>
<th>-2 Log Likelihood</th>
<th>p value unadjusted model</th>
<th>Hazard ratio (95% CI) unadjusted</th>
<th>Hazard ratio (95% CI) adjusted¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total material</td>
<td>990 (192)</td>
<td>9899.5</td>
<td>0.24</td>
<td>&lt;0.001</td>
<td>1.09 (0.95,1.25)</td>
</tr>
<tr>
<td>Low Back Pain</td>
<td>236 (61)</td>
<td>1688.1</td>
<td>0.38</td>
<td>0.011</td>
<td>0.87 (0.65,1.18)</td>
</tr>
<tr>
<td>Rheumatic disorders and arthritis</td>
<td>99 (25)</td>
<td>599.3</td>
<td>0.04</td>
<td>0.42</td>
<td>1.62 (1.02-2.57)</td>
</tr>
<tr>
<td>Other musculoskeletal disorder</td>
<td>486 (87)</td>
<td>4345.0</td>
<td>0.99</td>
<td>&lt;0.001</td>
<td>1.00 (0.82,1.22)</td>
</tr>
<tr>
<td>Mental disorder</td>
<td>169 (19)</td>
<td>1323.2</td>
<td>0.032</td>
<td>0.046</td>
<td>1.42 (1.03,1.96)</td>
</tr>
</tbody>
</table>

Sick leaves 12 weeks or longer

<table>
<thead>
<tr>
<th>Model</th>
<th>N total in analysis (sensored)</th>
<th>-2 Log Likelihood</th>
<th>p value unadjusted model</th>
<th>Hazard ratio (95% CI) unadjusted</th>
<th>Hazard ratio (95% CI) adjusted¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total material</td>
<td>332 (142)</td>
<td>2023.1</td>
<td>0.024</td>
<td>0.013</td>
<td>1.39 (1.04,1.85)</td>
</tr>
<tr>
<td>Low Back Pain</td>
<td>76 (41)</td>
<td>272.0</td>
<td>0.040</td>
<td>0.135</td>
<td>0.49 (0.25,0.98)</td>
</tr>
<tr>
<td>Rheumatic disorders and arthritis</td>
<td>45 (23)</td>
<td>155.1</td>
<td>0.29</td>
<td>0.72</td>
<td>0.61 (0.24-1.55)</td>
</tr>
<tr>
<td>Other musculoskeletal disorder</td>
<td>155 (59)</td>
<td>861.0</td>
<td>0.001</td>
<td>&lt;0.001</td>
<td>2.00 (1.30,3.08)</td>
</tr>
<tr>
<td>Mental disorder</td>
<td>55 (18)</td>
<td>262.7</td>
<td>0.004</td>
<td>0.047</td>
<td>2.54 (1.32,4.87)</td>
</tr>
</tbody>
</table>

¹ Sick leaves were censored if benefits changed to maternity benefits or old-age pensions, by death, and if sick leave reached 365 days.

Results after 1-year follow-up
One year after the start of the actual sick leave 121 persons were receiving sickness-
benefits, 32 vocational rehabilitation benefits, 59 medical rehabilitation benefits, and 50
persons disability pension. Another 80 persons received maternity benefits, 7 received
old-age pension and 2 were registered dead, leaving 639 persons without any benefits
from the National Insurance Service.

The risk of receiving benefits due to sickness after 1 year was reduced in the
intervention group (Table III). The interaction terms, education * intervention, was
significant p= 0.04 in the regression model for any benefits in total material.

Tables III. The odds ratio (OR), calculated in binary conditional logistic regression
models, for receiving social service benefits due to sickness 1 year after the start of sick
leave, if a sick-listed subject was exposed to minimal intervention at 14 days of sick
leave. The models are controlled for gender, age, occupation and current education and
diagnostic groups.

<table>
<thead>
<tr>
<th>Number at risk</th>
<th>Any benefits due to sickness</th>
<th>Rehabilitation or disability benefits</th>
<th>Sickness benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intervention</td>
<td>Control</td>
<td>OR (95 % CI)</td>
</tr>
<tr>
<td>Total</td>
<td>450</td>
<td>451</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.51-0.93)</td>
</tr>
<tr>
<td>Low Back Pain</td>
<td>97</td>
<td>104</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.46-1.58)</td>
</tr>
<tr>
<td>Rheumatic disorders and arthritis</td>
<td>51</td>
<td>46</td>
<td>0.97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.41-2.27)</td>
</tr>
<tr>
<td>Other musculoskeletal disorders</td>
<td>226</td>
<td>215</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.39-0.97)</td>
</tr>
<tr>
<td>Mental disorders</td>
<td>76</td>
<td>86</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.20-1.02)</td>
</tr>
<tr>
<td>Education &lt;= 12 year</td>
<td>250</td>
<td>259</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.59-1.29)</td>
</tr>
<tr>
<td>Education &gt; 12 year</td>
<td>200</td>
<td>192</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.27-0.73)</td>
</tr>
</tbody>
</table>
DISCUSSION

According to the intention-to-treat analysis of the main outcome, no overall statistic significant effect of minimal postal intervention on the length of sick leave was found. However, this randomized, controlled study revealed that minimal postal intervention could reduce: the length of sick leave among persons with mental or RDA disorders, the length of sick leave lasting at least 12 weeks, and the chance of receiving benefits due to health-related problems after one year. Simultaneously, the results disclosed a potential inverse effect in young persons with little formal education and low back pain, and a potential delay in the RTW in the period from 6 to 16 weeks for sick-listed persons presuming an effect of modified work, or those providing their NIO a copy of their response.

Main Message

- Minimal postal intervention significantly reduced the risk for sickness related benefits after one year, and, although not statistically significant, reduced average length of sick leave with 8.3 days.
- Minimal postal intervention can reduce sick leave in some diagnostic groups.
- Minimal postal intervention might introduce passive expectations and have the side-effects as prolonged sick leave in subgroups.

Material

To reduce the risk of selection bias, the sick-listed persons were assigned consecutive numbers at enrolment and then randomized into the intervention or control group according to the pre-drawn randomization list. Ten sick-listed subjects were later excluded: three did not meet the inclusion criteria, the National Sickness Benefits Register information was not available in four cases, and three cases in the intervention
group never received their intervention envelope. The distributions of diagnosis, occupation, age, gender and education were comparable between the two groups, indicating no selection bias.

The intervention

The intervention group received an envelope with information and a questionnaire. One-third of the subjects in this group answered the questionnaire, indicating that they had read and most likely reflected on the questions. The use of a National Insurance office envelope is likely to reduce the probability of the post being disposed of without opening, as subjects might assume that the payment of benefits depends on their responding to letters from the National Insurance office. The information letter started with a heading on Follow-up of sick-listed, and stated that the participation was voluntary. Although, answering the questionnaire was voluntary, we believe that most sick-listed in the intervention group read at least part of the information and questionnaire to decide whether or not they should respond. By reading at least some of the questions they were exposed to the intervention strategy regardless of returning the questionnaire or not.

Awareness of being studied

In this open study both intervention and control groups were exposed to the usual activities from their General Practitioners and their National Insurance offices. In contrast to the control group, those in the intervention group were explicitly made aware of being registered the following year regarding the length of their sick leave. The focus on sick leave itself might influence its length, which might be seen as a result of the awareness of being watched – this is often classified as a “Hawthorne effect”.

13
However, if this awareness effect was pronounced in the present study, we would have expected a more immediate general response in the intervention group.

**Chronic disorders and effect of intervention**

The design did not address what actually happened at the workplaces. Intervention effects mediated through modified working conditions would, if unprepared, take some time.\textsuperscript{13} Initially, due to the time to accept the idea, then a period for dialogue with the employer – and probably the sick-certifying General Practitioner in a majority of cases – before effectuating any modified work. The possibility of returning to work with sickness benefits and active sick listing would also involve officers at the National Insurance offices.\textsuperscript{14}

Differences between sick-listed subjects with or without chronic disorders might contribute to the prompt effect in the subgroup dominated by chronic RDA disorders and the correspondingly late effect in other groups. The majority of sick-listed subjects who returned to work during the first 8–12 weeks in the other diagnostic groups are probably not those with chronic diseases. A higher level of preparedness on how to work with impairment, or that simply knowledge of modified work possibilities promotes the RTW in chronic disorders, might explain the effect in the RDA group. Effective interventions would be welcomed due to the overall lower RTW within one year, and longer mean sickness absence in the RDA group contributes considerably to the cost of sickness absence.\textsuperscript{15}

During the actual sick leaves the National Insurance Register revealed no difference in the use of active sick leave between the intervention and control groups (20 and 21 episodes, respectively). This frequency was consistent with the general registered use of active sick listing in the county investigated. The deficient difference in the use of
active sick listing does not rule out modified work as an important factor for reducing sick leave. Since the increased use of active sick leave in itself does not necessarily result in reduced sickness absence, active sick leave might not be a good indicator of other modified work measures.

The register data, unfortunately, do not give valid information on part-time sick leave, and the possible reduction of sickness absence due to change from full-time to part-time sick leave are therefore missed in the analysis. If any effect due to part-time sick leave we would expect this to be in favour of effect of intervention.

Mental disorders

The effect found in sick-listed persons with mental disorders was unexpected, as studies on interventions for work-related stress have not demonstrated reduced absenteeism. Activating interventions are, however, found to reduce long-term absenteeism in persons certified sick due to adjustment disorders. Although our postal intervention does not match the intervention described by van der Klink et al., it might contain elements that promote graded return to work. Dialogue with the employer, and the return to work might be easier when sick-listed persons are informed about the possibilities for modified work. The reduced risk of long-lasting benefits after one year underlines the potential of even minor interventions in this diagnostic group.

An intervention study where sick-listed subjects after 7 weeks on sick leave were provided information and offered solution-focused therapy, demonstrated no intervention effect, but the tendency was prolongation of sick leave in the intervention group. This indicates that questions on knowledge of measures available to reduce sick leave in general, and on the duration and on measures needed to abbreviate the ongoing sick leave were more important than providing an information letter offering
help to reduce sick leave. A recent Dutch randomised controlled trial, however, could not demonstrate significant sickness absence reduction by introducing health promoting interventions at the worksite.50

The results in this study might indicate that focus on how to stay at work with health problems are more efficient than focus on managing health problem to be fit for work, if lowered sickness absence is desirable. An alternative hypothesis is that successful interventions require very early initiation (perhaps within 1 month of sick leave) -- before any side effects of being sick-listed have settled. The interaction of education on the risk of benefits might also indicate that self-influence on the job situation is important.10

Side effects of intervention

The longer sick leave in the intervention group with low back pain (compared to controls) was unexpected. Information on modified work measures might introduce an expectation of something to be done by others, and thereby maintain and even reinforce a passive attitude. This would be in contrast to focusing on, and encouraging being active as most important to a successful RTW.21,22 This would also be in line with studies revealing that excessive use of health care leads to longer sick leave,23,24 no effect of extensive treatments of low-back-pain patients with good prognoses,24 and of offering a solution-focused follow-up.19 We were unable to demonstrate a difference in vocational rehabilitation claims, but any expectation to gain these measures might explain that the prolongation effect was restricted to relatively young persons with less education. If the intervention interfered with use of part-time sick leave, the prolonged sick leaves in this group are not necessarily aligned to increased sickness absence.
The observed delay in RTW between 6 and 16 weeks in sick leaves among persons expecting an effect of modified work and/or requested copy to the NIO, might be in risk of bias as the response rate was only 32%. However, in respect of gender, age, diagnoses and occupation they did not differ from the non responders. Accordingly, the results probably support the necessity of an immediate response and decisions on options to counteract prolongation effects.

These inverse effects on prolonged sick leaves are probably widely unrecognised, but are very important to programs aimed at reducing sick leave.

The different responses to minimal postal intervention in different diagnostic subgroups suggest that subsequent RCT’s should be focused on disease-specific rather than overall sick leave. The potential gain from such a minor intervention in some diagnostic groups should encourage measures leading to reflections on the length, and on the needs for modification of work measures, at very early phases of sick leave.

<table>
<thead>
<tr>
<th>Policy implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Introducing challenges as questions on length of sick leave and on possible modified work measures the first few weeks of sick leave seems promising</td>
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<td>• How, and to whom, this challenges are best introduced needs further exploration</td>
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</table>

CONCLUSION

This randomized, controlled study revealed that minimal postal intervention might reduce the length of sick leaves in some diagnostic groups, and the risk of receiving benefits due to health-related problems after one year. However, the study also disclosed potential side effects that might prolong sick leave, probably through the
introduction of unrealistic expectations and passivity – if possible measures at work are
not readily clarified.

The results should encourage employees, insurance institutions and authorities to
initiate and explore challenges as questions on the length of sick leave, and on possible
modified work measures, during the first few weeks of sick leave.
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REFERENCES


FIGURE CAPTIONS

Figure 1  Summary of intervention posted 14 days after the start of actual sick leave to subjects in the intervention group.

Figure 2  Percents of sick-listed subjects who had returned to work as function of weeks from the start of sick leave for a) all subjects, for subjects stratified into four major diagnostic groups: b) Low back pain, c) Rheumatic disorders and arthritis, d) Other musculoskeletal disorders, e) Mental disorders, and for f) the intervention group stratified into response alternatives.
A) Letter to the sick-listed persons containing a brief orientation of the following possible measures:
1) Opportunity to return to adjusted job on sickness benefits for 12 weeks after approval by the National Insurance Office.
2) Cooperation between employee, employer, and National Insurance Office on modified work measures.
3) Obligate formal approval by National Insurance to receive sickness benefits for more than 12 weeks.

B) Questionnaire to the sick-listed persons:
   a) Are you familiar with the use of modified work measures at your workplace?
   b) Do you think that modified work measures could reduce your actual sick leave? Visual analogue scale (VAS) ("certainly no" to "certainly yes")
   c) Do you think that modified work measures could reduce future sick leave? VAS
   d) Do you think you could return to work immediately if modified work measures were offered? VAS
   e) Which measures (eight alternatives including none and others) do you think could reduce the duration of this or future sick leave(s)?
   f) How long do you expect this sick leave episode to last (seven categories)?
   g) Are you anticipating new episodes of sick leave within the next year?
   h) Do you agree to your answers being copied to your local National Insurance officer?