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Avoidable Sickness Absence in a Dutch Working Population

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Abstract *Introduction* Sickness absence has an important impact on employers (e.g. reduced productivity, high costs) and employees (e.g. replacement, job loss). Therefore, we investigated possible reduction by exploring avoidable sickness absence. *Methods* A questionnaire was filled out by 2,954 Dutch workers (internet panel of a marketing research company, 2005). We obtained data on self reported sickness absence (6.5 months), including the main reason for each sickness absence spell (4 health and 3 non-health reasons), self-reported work-relatedness of absence and workers' opinion on whether their absence could have been shorter or prevented, and on 12 listed factors that might have contributed to sickness absence. For each of these factors we calculated the avoidable absence fraction (AAF), analogous to the epidemiological population attributable risk. *Results* A total of 1,233 workers reported sickness absence. The absence rate was 4.46%. For 11% of the absence rate health was not the main reason. Yet, when non-health was reported as the main reason for absence, health still contributed in half the cases. 35% of the absence rate was mainly work-related. 15% of the workers mentioned that their sickness absence could have been shorter or prevented. The AAFs of contributory factors were 0.129 for home related factors, 0.136 for work-related factors and 0.101 for (occupational) health care and guidance factors. In total, the AAF showed that 21.5% of the absence rate can be considered possibly avoidable. *Conclusion* According to the studied workers sickness absence rate can be reduced. In reducing the absence, one should not only consider factors from the home and work situation, but also from (occupational) health care.

Keywords Sickness absence · Attributable fraction · Workers' opinion · Health care

Introduction

Sickness absence has an important impact on employers and employees because of reduced productivity, replacement, insecurity, job loss and insurance costs. Although annual sickness absence rates in the Netherlands declined from 10% in the 1980s to around 4% in 2007 [1–3], sickness absence is a concern for employers because of the concomitant high costs involved. Therefore, it is worth to investigate whether sickness absence can be further reduced.

In the Netherlands, employers have an obligation to provide sickness pay to their employees for up to 2 years. Collective agreements stipulate that most employers are obliged to pay 100% of a worker's salary for the first year, and 70% for the second year [3]. General practitioners do not play any role in the certification of sick leave. Dutch employers are fully responsible for the certification of sick leave and for the coordination of the interventions which are carried out in order to achieve return to work. This coordination is usually contracted out to an occupational health service (OHS). In practice, the occupational physician coordinates with the OHS and other (health) professionals [3]. When workers in the Netherlands call in sick, they are registered as absent through illness. However, health reasons only partly explain sickness absence rates. Estimates in the 1980s indicated that in those years somewhere between half and two thirds of absence from work was due to actual sickness and injury [4, 5]. Literature on sickness absence

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shows that sickness absence is related to a wide variety of factors including individual, social, work-related and organisational factors [6–8].

In this paper we investigated possible avoidable sickness absence. We assumed that absence for non-health reasons, work-related absence and absence that was unnecessary according to the workers, may possibly be avoidable. We used data of an explorative questionnaire study on sickness absence and care seeking among a sample of Dutch workers, which we performed in 2005–2006. We asked workers with self reported sickness absence their main reason for each absence spell and whether their sickness absence was caused by work. In addition, we asked if factors other than health had contributed to sickness absence, for example factors related to their home or work situation or factors related to the (occupational) health care and guidance. Finally, we asked their opinion on whether their sickness absence could have been shorter or prevented (unnecessary absence).

We will investigate the following research questions: (1) What is the proportion of non-health related sickness absence? (2) What is the proportion of work-related sickness absence? (3) Is sickness absence necessary? (4) How much do factors other than health contribute to sickness absence?

Method

Study Design

We performed a longitudinal three-wave study among a sample of Dutch workers, 15–64 years of age with a weekly employment contract of 12 h or more. The data were gathered through an existing internet panel run by a large market research organization. In order to obtain reliable estimates of sickness absence in relation to health, we required a sufficient number of participants with health complaints, chronic disease and/or a recent history of sickness absence. Participants were therefore selected by a stratified procedure. In September 2005 the market research organization sent a screener to 73,777 workers included in their panel. This resulted in 32,919 replies containing information about the following 4 characteristics: having a chronic disease (yes/no), health complaints (yes/no), the interference of health complaints with work (yes/no) and duration of sick leave in the last 6 months (none, up to 1 week, longer than 1 week). We defined 15 groups based on these 4 characteristics and assigned all respondents to one of these groups. All respondents received an e-mail invitation to participate in the study. A reminder was sent after 1 week and after 2 weeks. Each of the 15 groups was closed when the number of responses was sufficiently high. Half the group was approached on weekdays and the other half during the weekend.

For the development of the questionnaire, we interviewed 20 participants of the screening questionnaire with recent sickness absence and/or chronic diseases by means of a semi-structured interview. The aim of these interviews was to get insight in the occupational and medical health care guidance and the efficacy of interventions and/or treatments with respect to return to work or the prevention of sickness absence. We also inquired whether factors at work and the occupational or medical health care guidance interfered with return to work. The participants that were interviewed in this pilot were excluded from further participation.

At the first measurement, 3,048 participants had filled out the internet questionnaire. Questions on health complaints and sickness absence covered the period from June to December 2005 (6.5 months). These 3,048 participants were approached again by e-mail in June (response rate 79.9%) and December 2006 (response rate 82.9%). For the current study, we included all subjects who responded to the first wave in the analysis.

Study Population

The sample for this study is largely representative of the Dutch working population because it includes participants from all the major occupational classes and branches of industry. We developed a weighting factor to adjust for the sample selection procedure and the Dutch working population with respect to gender, age and educational level.

We excluded data of 87 participants because of pregnancy during the study ($n = 86$) and incomplete data ($n = 1$). In addition, we excluded 7 participants because of their high weighting factor, leaving the data from 2,954 participants for analysis.

After weighting, the study population consisted of 57% men and 43% women. The educational level of the population was low for 29%, intermediate for 39% and high for 32% of the workers.

Questionnaire

We obtained information about sociodemographic and personal factors (e.g. age, educational level, and family situation), health-related factors (e.g. chronic illness, self rated health status) and work-related factors (e.g. psychosocial work factors, work engagement, and working hours).

Sickness Absence

Participants were asked to report the number of sickness absence spells during the past 6 months, the start and end date of each spell, including embedded non-working days

and weekend days, the main reason for their sick leave (4 health reasons (musculoskeletal complaints, mental health complaints, common cold/flu, other health complaints) and 3 other reasons (labour conflict, private problems, other reasons)), and whether the sickness absence was largely brought about by their work (no/yes).

All participants who reported a sickness absence period were asked to give their opinion on the importance of 13 listed factors that might have contributed to their sickness absence in the previous 6.5 months. The items refer to three domains: the home situation, the work situation and the (occupational) health care and guidance (see Table 3). The items had 5 answer categories, ranging from 'not at all important' to 'very important'. The responses were dichotomized into indicating not (at all) important and (very) important. The items were developed for the purpose of this study, based on the findings of the 20 interviews and sickness absence literature.

All participants who reported a sickness absence period were asked whether the following proposition was true or not true: 'My sickness absence could have been shorter or could have been prevented'.

Measures of Absence

We used the following outcome measures for sickness absence:

Frequency of spells: number of absence spells during the 6.5 months observation period; Absence rate: the percentage of calendar days lost due to sickness absence per person during the observation period.

Analyses

Descriptive analyses were performed to estimate the proportion of sickness absence for main reasons other than health and to estimate the proportion of work-related sickness absence, for which we used frequency and absence rate as outcome variables.

For the estimation of the attribution of factors other than health to the duration or occurrence of sickness absence, we postulated that these factors only attributed to sickness absence when workers were of the opinion that their sickness absence could have been shorter or prevented. We assumed that in the absence of the factor, the sickness absence rate of these workers would have been the same as the sickness absence rate of *all* other workers (including the workers who reported no sickness absences in the observation period). Thus, we defined the avoidable absence fraction as

$$\left\{\text{SA rate}_{(\text{exposure})} - \text{SA rate}_{(\text{no exposure})}\right\}/\text{SA rate}_{(\text{exposure})}$$

with $\text{SA rate}_{(\text{exposure})}$ the calculated sickness absence rate in the presence of the non-health factor(s) under study and $\text{SA rate}_{(\text{no exposure})}$ as the estimated sickness absence rate in the absence of the non-health factor(s). We interpret this fraction as the proportion of the absence rate that can potentially be avoided in the absence of the non-health factor(s). This measure is analogous to the epidemiological population attributable risk [9].

Results

Reasons for Sickness Absence

The descriptive results for sickness absence are summarized in Table 1. Forty-two percent ($n = 1{,}233$) of all workers ($n = 2{,}954$) reported one or more sickness absence spells during this study. Of those with an absence period, 68.9% reported only one spell ($n = 849$). The common cold or flu was the most prevalent reason for absence (43.6%), whereas the largest proportion of the absence rate was attributed to disorders of the musculoskeletal system (35.0%). Five percent of the workers reported non-health related reasons as the main reason for sickness absence. This absence concerns 11.3% of the spells and 11.0% of the absence rate.

Work-related Sickness Absence

Of all reported sickness absence spells, 16.5% were work-related, i.e. respondents answered that the spell was largely brought about by their work (Table 1). When we consider absence rate, 35.4% was work-related. Almost half of the absence rate due to musculoskeletal disorders or mental health complaints was work-related. As expected, all absences due to labour conflict were considered to be work-related, although these absences accounted for less than 3% of the total absence rate (see last column Table 1).

Workers' Opinion on the Necessity of Sickness Absence

Of all workers with sickness absence, 14.9% ($n = 183$) were of the opinion that their sickness absence in the past 6.5 months could have been shorter or prevented (Table 2). The highest prevalence was found for workers with absences due to labour conflict (84.6%), followed by mental health complaints (42.9%) and private problems (34.1%). Because we do not know which absence spell workers had in mind when answering the questionnaire, we also looked specifically at data from workers who only reported *one* absence spell (Table 2). These results show that, when we use all data, we underestimate the prevalence of absence spells that could have been shorter or prevented with labour conflict as the main reason for absence,

Table 1 Sickness absence characteristics ($n = 2,954$)

Main sickness absence reason	Workers who reported sickness absence *N* (%)	Number of absence spells *N* (% of all spells)	Absence rate % (% of total)	Number of work-related absence spells *N* (% of all spells)	Absence rate due to work-related absence % (% of total)
Health related reasons					
Musculoskeletal	237 (8.1)	283 (16.1)	1.56 (35.0)	99 (5.6)	0.76 (17.0)
Mental health complaints	101 (3.4)	120 (6.8)	1.04 (23.3)	62 (3.5)	0.49 (11.0)
Common cold/flu	655 (22.2)	765 (43.6)	0.48 (10.8)	46 (2.6)	0.04 (0.9)
Other health complaints	308 (10.4)	390 (22.2)	0.88 (19.7)	38 (2.2)	0.13 (2.9)
Total health	1,144 (38.7)	1,558 (88.8)	3.97 (89.0)	245 (14.0)	1.42 (31.8)
Non-health related reasons					
Labour conflict	26 (0.9)	28 (1.6)	0.11 (2.5)	28 (1.6)	0.11 (2.5)
Private problems	41 (1.4)	52 (3.0)	0.10 (2.2)	3 (0.2)	0.04 (1.0)
Other	90 (3.0)	116 (6.6)	0.28 (6.3)	13 (0.7)	0.01 (0.1)
Total non-health	151 (5.1)	196 (11.2)	0.49 (11.0)	44 (2.5)	0.15 (3.5)
Total, all reasons	1,233 (41.8)	1,754 (100.0)[a]	4.46 (100.0)	289 (16.5)	1.58 (35.4)

[a] One third of the employees with sickness absence reported multiple spells

Table 2 Percentage of workers who agreed with the proposition 'sickness absence could have been shorter or prevented' ($n = 1,233$)

Main sickness absence reason	Workers who reported sickness absences		Workers who reported only one sickness absence spell	
	N	Absence could have been shorter or prevented *n* (%)	*N*	Absence could have been shorter or prevented *n* (%)
Health related reasons				
Musculoskeletal	237	47 (19.9)	144	25 (17.4)
Mental health complaints	101	43 (42.9)	57	24 (40.7)
Common cold/flu	655	71 (10.8)	409	20 (4.9)
Other health complaints	308	41 (13.4)	171	15 (8.8)
Total health	1,144	160 (14.0)	781	84 (10.7)
Non-health related reasons				
Labour conflict	26	22 (84.6)	10	9 (90.0)
Private problems	41	14 (34.1)	12	3 (25.0)
Other	90	11 (12.2)	46	3 (6.5)
Total non-health	151	45 (29.6)	67	15 (22.4)
Total, all reasons	1,233	184 (14.9)	849	98 (11.6)

whereas we overestimate the prevalence for spells with other reasons.

Workers' Opinion on Factors that Contributed to Sickness Absence

We asked respondents whether any of 13 listed factors had contributed to their sickness absence. As was to be expected, for the majority of the workers illness was an important reason to be on sick leave (Table 3). Yet, 37.4% of all workers were of the opinion that factors other than 'I was too ill to work' also contributed to their decision to report sick. 'My colleague did not support me' and 'the balance between private and work situation was poor' were the most prevalent factors (16.0 and 11.9%, respectively). Altogether, one of every five workers with sickness absence expressed that one or more factors in the home (19.2%) or work situation (22.4%) and one of every eight workers (13.1%) expressed that one or more aspects of (occupational) health care and guidance had contributed to their sickness absence, and this was significantly more often true when they felt that their sickness absence could have been shorter or even prevented. The following factors showed the largest relative difference between workers

Table 3 Contributory factors to sickness absence, stratified by whether sickness absence could have been shorter or prevented ($n = 1{,}233$)

Contributory factors to sickness absence	Total	Sickness absence could have been shorter or prevented		χ^2-Testing two-sided
	($N = 1{,}233$)	No ($N = 1{,}050$)	Yes ($N = 184$)	
	% Factor was (very) important			*P* value
Domain: health				
I am/was too ill to work	85.5	86.8	78.3	0.004
Domain: home				
My family/friends do/did not support me	10.5	9.1	18.5	<0.001
The balance between my private and work situation is/was poor	11.9	9.3	26.6	<0.001
Domain: work				
I don't like my job	8.5	6.7	19.0	<0.001
My colleagues do/did not support me	10.5	7.4	27.7	<0.001
My superior does/did not support me	16.0	11.4	42.1	<0.001
There are/were not enough work (place) adjustments	10.3	8.3	21.7	<0.001
Domain: (Occupational) health care				
The employer does/did not pay for the treatment	3.5	2.8	7.6	0.003
Poor treatment by the health care professional for my chronic disease or health complaints	7.8	6.3	16.3	<0.001
There was a long waiting list, so it took some time before it was my turn at the health care professional	5.9	4.9	12.0	0.001
The referral to the appropriate health care professional was not in time	7.3	4.7	22.3	<0.001
Cooperation between health care professionals was poor (e.g. general practitioner, occupational physician, medical specialist, physiotherapist)	7.4	5.0	20.7	<0.001
Other				
Other important reason	8.4	7.2	15.2	0.001
Cumulative				
One or more home factors (2–3)	19.2	15.7	39.1	<0.001
One or more work factors (4–7)	22.4	16.6	55.4	<0.001
One or more (occupational) health care factors (8–12)	13.1	10.3	29.3	<0.001
One or more non-health factors (2–13)	37.4	30.8	75.0	<0.001

who did and did not think their absence necessary: 'support from colleagues', 'support from superior', 'the referral to the appropriate health care professionals' and 'the cooperation between health care professionals'. In addition, workers who thought that their absence could have been shorter or prevented also showed significantly more often work-related absence (59%) than workers who were of the opinion that their absence could *not* have been shorter or prevented (12%).

Earlier, we found that for 11.0% of the absence rate, health was not reported to be the main absence reason. The question that arises next is if health, although not the main reason, did contribute to these absences. To answer this question, we selected respondents who had *only* reported absence(s) where health was not the main reasons for their absence ($n = 89$). From these respondents 54.5% reported that 'I was too ill to work' had contributed to their absence. This means that health *did not* play a role in the absences of almost half of the respondents who reported 'non-health' as the main reason for their absence.

Possible Avoidable Absence Fraction Per Absence Factor

Theoretically, we may assume that the sickness absence of workers who stated that other reasons than health (also) contributed to their absence, could have been shorter or prevented under the condition that they were of the opinion that their sickness absence in the previous 6.5 months could have been shorter or prevented (avoidable absence fraction). Following this line of thought, we calculated the avoidable fraction of the absence rate for each of the 12 contributory factors. Results are shown in Table 4. The two largest fractions were found for the factors 'no support from superior' (fraction 0.104) followed by 'appropriate referral to health care professional was not in time'

Table 4 Estimated avoidable absence fractions of the total absence rate of 4.46% by contributory factors to sickness absence other than health ($n = 2{,}954$)

Contributory factors to sickness absence	Sickness absence could have been shorter/prevented *and contributory factor* other than health was present		All other workers ($N = 2{,}940-2{,}846$)	Avoidable absence fraction[a]
	N	Absence rate	Absence rate	
Domain: home				
My family/friends do/did not support me	34	25.4	4.22	0.054[b]
The balance between my private and work situation is/was poor	49	25.4	4.11	0.079
Domain: work				
I don't like my job	35	22.6	4.24	0.049
My colleagues do/did not support me	51	18.8	4.21	0.056
My superior does/did not support me	77	21.7	3.99	0.104
There are/were not enough work(place) adjustments	40	25.7	4.17	0.065
Domain: (Occupational) health care				
The employer does/did not pay for the treatment	14	11.7	4.42	0.008
Poor treatment by the health care professional for my chronic disease or health complaints	30	17.8	4.32	0.031
There was a long waiting list, so it took some time before it was my turn at the health care professional	22	21.4	4.33	0.028
The referral to the appropriate health care professional was not in time	41	32.8	4.06	0.090
Cooperation between health care professionals was poor (e.g. general practitioner, occupational physician, medical specialist, physiotherapist)	38	22.4	4.22	0.053
Other				
Other important reason	34	15.5	4.35	0.024
Cumulative				
One or more home factors (2–3)	72	27.5	3.88	0.129
One or more work factors (4–7)	102	21.4	3.85	0.136
One or more (occupational) health care factors (8–12)	54	28.7	4.01	0.101
One or more non-health factors (2–13)	138	24.1	3.50	0.215
Work-related sickness absence	108	24.7	3.69	0.172

[a] Avoidable absence fraction = the attribution of the contributory factor(s) to the total absence rate (see also methods)

For example

[b] $0.054 = (4.46-4.22)/4.46$

(fraction 0.090). The first fraction is relatively high because of the high frequency of 77 workers, and the latter because of the relatively high absence rate of the workers involved (32.8%). The avoidable absence fraction was 0.129 for home related factors, 0.136 for work-related factors and 0,101 for (occupational) health care related factors. However, the numbers in Tables 3 and 4 show that these factors are related to each other. Therefore, we also calculated the total avoidable absence fraction for all 12 reasons taken together. In total, in the absence of all factors, the total avoidable absence fraction was calculated to be 0.215.

In an additional analysis we calculated, similar to the calculations of the fractions of the contributory factors, the avoidable absence fraction of work-related absence. This calculation revealed a fraction of 0.172.

Discussion

In this study we explored potential possibilities to reduce sickness absence, from the perspective of workers. We showed that, according to the workers, a further reduction of the relatively low sickness absence rate in the Netherlands may still be possible.

The strength of this study lays in the fact that we recorded the reason for sickness absence for each absence spell. Thus,

we can distinguish absences with and without health as the main reason given by workers. We also asked respondents who reported sickness absence if absence could have been shorter or prevented and whether each of 12 listed factors (home, work and (occupational) health care related) had contributed to sickness absence. This allowed us to calculate the attribution fraction of each factor to the overall sickness absence rate.

First, we looked at sickness absence reasons. We found that around 11% of the sickness absence rate was due to absences with a non-health reason as the main reason for sick leave. When we look at possibilities to reduce absence, absence for non-health reasons seems more promising than absence for health reasons. Not only because these workers may not physically be unable to work, but mainly because workers with absence due to non-health reasons felt more often that their absence could have been shorter or prevented than workers with absence due to health reasons.

We did not investigate details about what kind of private or 'other' problems were important. Kivimäki et al. [10] found in a longitudinal Finnish study among 2,991 full-time employees that life events such as death or the serious illness of a family member, violence and financial difficulties increased the risk of sickness absence in men, but not in women. Similar results were found in a Swedish cross-sectional study among 2,628 full-time and part-time employees: with adjustment for work and health factors, financial problems, death, accident or serious illness of a family member were related with sickness absence in men, while 'needed to recover from staying at home with sick children' was related with sickness absence in women [11]. Extended weekends are another example of absence not related to illness, but according to Vahtera et al. [12] this seems to contribute only marginally to the total number of days lost.

It is non realistic to expect that we can prevent all sick leave due to non-health reasons. Health was still a contributory factor in half of these absences, as shown by our data. Workers may call in sick for a non-health reason and, as a consequence, develop health complaints. For example, a labour conflict or financial problem may cause sleeping problems or mental health complaints.

Further research is necessary to determine how health complaints are related to non-health reasons for absence. More details are necessary to determine whether workers 'use' sickness absence for non-health reasons and which part can really be prevented.

Sickness absence for work-related reasons can also be regarded as (partly) preventable. We found that 35% of the total sickness absence rate was considered to be largely caused by work. There is no national register in the Netherlands of sickness absenteeism by diagnosis. Kunnen et al. [13] found in a survey among Dutch employees that 35% of absenteeism lasting longer than 2 weeks was work-related. The Dutch National Working Conditions Survey 2003 (NWCS) with data of 9,952 employees revealed that 24% of the last absence period and 43% of the absence rate was work-related [14]. This is more than in our study population, where 16% of all spells, 15% of the last spell and 34% of spells lasting longer than 2 weeks (data not shown) were work-related. The reasons most often given for work-relatedness in the Dutch NWCS 2003 were pressure of work, work stress (28%), high physical workload (20%), repetitive movements and/or working with a computer (13%), and problems with supervisor and/or co-workers (11%). These prevalence's are similar to those found by Kunnen et al. [13] Our finding that work-related sickness absence was reported more often by those with absence due to musculoskeletal complaints, mental health complaints and labour conflicts, is in line with the Dutch NWCS study and the study by Kunnen et al. [13, 14].

Can work-related absence be reduced? This study shows that a high proportion of workers with work-related absence due to mental health complaints and labour conflicts, felt that their sickness absence could have been shorter or prevented. This indicates that employers can benefit by paying appropriate attention to absence due to these reasons.

Furthermore, our study shows also that next to the employer/ immediate supervisor, the worker himself can play a role in the reduction of sickness absence.

Our findings on the contributory factors to sick leave are in agreement with other studies. Others also found a relation between work-home interference and health complaints and sickness absence [15–17], and between less social support at work and sickness absence [18, 19].

Certain policies of medical care providers can also contribute to sickness absence. For example, long waiting lists (medical specialist, psychologist), medical doctors who do not consider that circumstances at work may cause or aggravate health complaints or interfere with the treatment, and poor cooperation between medical health care providers and occupational physicians [20–22]. In our study population one of every eight workers with sickness absence pointed out that some aspects of (the organization of) health care and guidance did contribute to their sickness absence. We calculated that these factors were possibly responsible for 10% of the absence rate.

A strength of this study is that our study population includes participants from all the major occupational classes and branches of Dutch industry. Nevertheless, regarding our sample selection method, two types of selection bias may have influenced our results. First, sickness absence data were collected by a self-reported questionnaire. This method may yield the danger of recall bias. Second, because we used an internet panel as the base-population, our study may suffer from a selective inclusion of participants familiar with the use of the internet. Dutch national statistics show that women

and persons with lower educational background use the internet significantly less often than men and persons with a higher educational background [2].

We did not cover the opposite of avoidable sickness absence, 'the inappropriate non-use of sick leave', or presenteeism. Grinyer and Singleton [23] observed that company policies specifically designed to reduce sick leave may unintentionally increase it in the long term. Some studies indeed found a positive link between presenteeism and higher sickness absenteeism [11, 24].

We focused on self-perceived opinions on contributory reasons for sickness absence. Therefore, we did not cover risk factors for prolonged work disability independent of worker appreciation which may also have contributed to avoidable absence. However, the added value of self-perceived opinions is that workers themselves are able to evaluate their own sickness absence critically. They are able to point out factors other than health that may attribute to avoidable sickness absence. Employers and professionals in (occupational) health care and guidance can learn from this insight and, accordingly, improve the working conditions or the (organization of) care and guidance.

We can conclude that, according to workers, sickness absence can be reduced. Workers indicated that 11.0% of their sickness rate was not mainly because of health reasons. In addition, 14.9% of the workers were of the opinion that their sickness absence could have been shorter or prevented. Furthermore, 35.4% of the absence rate was regarded as work-related, and this especially should challenge employers. We calculated that 21.5% of the absence rate can be considered possibly avoidable. Factors that attributed to possible avoidable absence were not only home- and work-related, but also (occupational) health care-related.

Recent sickness absence in the Netherlands is relatively low compared with figures a decade ago. As a result, Dutch employers do not seem to be particularly motivated to continue to reduce the absence rate by introducing health or educational programmes [25]. Our study showed that much can still be achieved.

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