Employees with common mental disorders: from diagnosis to return to work
Nieuwenhuijsen, K.

Citation for published version (APA):
Nieuwenhuijsen, K. (2004). Employees with common mental disorders: from diagnosis to return to work

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
Chapter 8

General Discussion
Chapter 8 General discussion

General discussion

This chapter addresses the two aims of this study: (i) to measure process quality of occupational rehabilitation of employees with mental health problems and (ii) to generate knowledge and evaluate practical tools helpful for occupational physicians involved in occupational rehabilitation of employees with common mental disorders. First, the main research findings of the studies included in this thesis will be discussed. Then I will elaborate on the methodological features of the studies included in this thesis. Finally, I will put forward implications of the research findings for occupational health practice and recommendations for further research, after which I will present the final conclusion of this thesis.

Quality of occupational rehabilitation and its relation to return to work

Our main aim was to contribute to quality improvement of occupational rehabilitation of employees with mental health problems. One step required in attaining this goal is measuring the quality of this occupational rehabilitation. According to the quality improvement cycle, evidence-based quality assessment (EBQA) can be summarized in four steps: (i) set priorities, (ii) set guidelines, (iii) measure performance, and (iv) improve performance.\(^{147,150}\) The first two steps of this cycle resulted in Dutch practice guidelines for the rehabilitation of employees with mental health problems.\(^{134}\) These guidelines were developed as a result of a systematic consensus process, and are partly evidence-based.\(^{9}\) This thesis concerns the third step of quality improvement. We used the practice guidelines to measure occupational physician performance. We defined performance in terms of process quality, which means that we assessed the extent to which physicians were adhering to the practice guidelines.

Performance indicators have been advocated as a requisite method for assessing process quality.\(^{116,131,133}\) Smits and colleagues derived 11 performance indicators from the Dutch practice guidelines for use in an intervention study on the effect of postgraduate medical education on performance.\(^{135}\) In chapter 6 and 7, these performance indicators were used to assess process quality of the rehabilitation of employees with mental health problems. The first study adapted the performance indicators for use in a retrospective cohort study, reviewing medical files. Scientifically sound performance indicators require the evaluation of their scientific strength.\(^{151,152}\) Consequently, the second study (chapter 7) assessed the content validity of the performance indicators and used the resulting modified indicators in a prospective cohort study. Apart from the differences in design of the two studies, the research populations also differed. The retrospective study only comprised employees
with adjustment disorders while the prospective study encompassed employees with a broad spectrum of mental health problems.

Content validity of a performance indicator can subjectively be determined by experts, who evaluate whether this measure accurately represents the content of the practice guidelines. In Chapter 7 of this thesis, content validity was established for 10 out of 11 performance indicators by conducting a structured assessment. Ideally, the instructions provided by practice guidelines are evidence-based. Once the link between the prescribed process of care and outcome has been established by empirical data, it follows that an improvement in process quality will yield better outcome for patients. However, in case of a partly consensus-based practice guideline, it is worthwhile to evaluate the relation between high quality of care, as measured by performance indicators, and patient outcome. Therefore, predictive validity of the performance indicators was addressed by testing whether these measures could predict patient outcome.

We postulated that quality of occupational rehabilitation by occupational physicians would be related to the duration of sickness absence. In summarizing the results of these studies, it can be shown that high quality is indeed related to a shorter time until return to work. However, this relation was not as straightforward as we expected. The audit of patient files demonstrated the importance of only one single performance indicator, namely continuity of care, on the time until full return to work, while the prospective study did find overall quality of care, indicated by the sum of the performance indicators, to be related to outcome. Furthermore, the prospective cohort study found adequate interventions targeted at the curative sector to be inversely related to outcome, whereas a correct evaluation of work disabilities was related to better outcome.

Several factors need to be taken into account when explaining the somewhat inconsistent findings of the two studies on quality of occupational rehabilitation. In general, when relating quality of occupational rehabilitation to return to work, it should be acknowledged that this relation is complex and determined by many social and economic factors outside the control of the occupational physician. Moreover, a lack of scientific evidence exists as to which medical treatments are most effective in restoring work function. This consideration also applies to occupational rehabilitation of employees with mental health problems. Due to a lack of evidence in this field of occupational health care, the practice guidelines were partly consensus based. Van der Klink and colleagues found evidence that an intervention in compliance with the guidelines was effective in enhancing return to work in employees with adjustment disorders. This study was a main contributor for the
intervention part of the guidelines. However, no studies on the effect of interventions by occupational physicians in employees with other common mental disorders were found. Furthermore, the other recommendations of the practice guidelines were based upon either best practice, or relevant findings in other fields of (mental) health care. Therefore, the variations in the results of the two quality studies may be the result of either the lack of efficacy of the instructions provided by the practice guidelines, our method of performance measurement, or may be due to the differences in design of the two studies. Moreover, the influence of separate elements of occupational rehabilitation may not be measurable due to a lack of power of our study or may not be measurable in general since separate elements may only have an effect in the context of a range of interventions. Considering the complexity of the relation between performance and outcome, we would value the results of the prospective study more than the results of the retrospective study. The prospective design has more methodological rigour, and in this study we checked for the influence of more potential confounders such as disorder-, person-, and work-related variables.

Following these reflections, it may be concluded that this thesis found support for the relation between high quality of care and return to work. However, it should be noted that we found no effect of occupational rehabilitation on symptom reduction, and poor quality of care was associated with higher patient satisfaction. This could point to a difference in views of key stakeholders in occupational health care on what outcomes are most important in quality of care. While employers may be most interested in return to work, employees may value symptom reduction even more. High quality was now defined as adherence to the practice guidelines, which may not have always corresponded with patient preferences, especially with regard to advice on returning to work. It has been argued that in order to comply with guidelines without causing offence to the patient, a physician needs special skills in consultation.

Occupational rehabilitation relies heavily on the co-operation of all parties involved in the return to work process: employee, supervisor, personnel manager, health care professionals, occupational health care professionals and social security institutions. We chose supervisory behaviour during occupational rehabilitation to be further studied as a predictive factor of return to work. Chapter 5 of this thesis showed that positive supervisory behaviour during the occupational rehabilitation of the employee can enhance return to work. However, the relationship between supervisory behaviour and return to work seemed more complex than we had hypothesised. In fact, the study showed that consulting with other professionals, such as human resource managers or psychologists,
by supervisors was related to a longer time until return to work, regardless of the severity of depressive symptoms. Yet, frequent communication between supervisor and employee during the return-to-work process was associated with favourable return-to-work rates in employees with low levels of depressive symptoms. For employees with high levels of depressive symptoms, frequent contacts were not related to return to work.

**Diagnosis, clinical manifestation, and early prognosis of common mental disorders**

The second aim of our study was formulated as “to contribute to enhancing the quality of occupational rehabilitation by providing the occupational physician with scientific knowledge and by evaluating practical tools”. This thesis focussed on the areas of diagnosis, clinical manifestations, and early prognosis in common mental disorders.

According to the practice guidelines, the distinction between adjustment disorders on the one hand, and depression or anxiety disorder on the other, has important implications for occupational rehabilitation. In case of an anxiety disorder or depression, the occupational physician should refer the patient to a psychologist or the general practitioner, or at least consult them. In contrast, if patients suffer from an adjustment disorder, the occupational physician is allowed to be the only treating professional. In this thesis, it was postulated that a self-administered instrument would be helpful for occupational physicians in enhancing recognition of anxiety disorder and depression. In Chapter 2, we found support for the internal consistency, construct, and criterion validity of the DASS in an occupational health care population. These findings suggest that the psychometric properties of the DASS are suitable for use in a population of employees with common mental disorders. Evaluating the case finding abilities of the DASS revealed low posterior probabilities of an anxiety disorder or depression after a negative test result. This suggests that the DASS can be helpful in ruling out the possibility of an anxiety disorder or depression in a population of employees with common mental disorders. However, due to the relatively low probabilities of anxiety disorder and depression after a positive test, there will be a considerable rate of false positives.

The clinical manifestations of common mental disorders comprise the features or symptoms related to these disorders. These manifestations are only of importance if these have potential implications for further treatment. One such feature is irrationality of cognitions in patients with common mental disorders. Irrational beliefs, or cognitions, are assumed to enhance negative emotions, and therefore play a key role in the development and maintenance of common mental disorders. Irrational cognitions are targeted in Cognitive Behavioural Therapy (CBT), which is being advocated as the therapy of choice.
for common mental disorders by the Department of Health in the UK. Furthermore, cognitive interventions are advocated by the Dutch practice guidelines, based upon the finding that cognitive-behavioural stress management with a preventive focus was found most effective in reducing stress symptoms in employees. However, it remained unclear whether this finding would also hold for employees who are already absent from work due to common mental disorders. If so, then irrational beliefs, which are the prime focus of cognitive interventions, should be a key feature of common mental disorders encountered in the occupational health setting. We investigated whether patients with different types of common mental disorders have the same irrational beliefs. Chapter 3 of this thesis showed that irrational beliefs differed between different diagnostic groups in level, but not in type. Employees with a depression had lower levels of irrationality compared to employees with anxiety disorders, but higher levels than the group with adjustment disorders. The group with adjustment disorders had levels of irrationality at baseline which were comparable to normal controls. These findings tentatively suggest that occupational physicians can conduct similar cognitive interventions for all common mental disorders. Furthermore, cognitive interventions seem most appropriate for employees with a depression or anxiety disorder.

An early prognosis in employees with common mental disorders could serve as a point of departure for both the identification of high-risk cases and as a basis for information regarding possible duration of absence to employee and employer. Chapter 4 attempted to develop a clinical prediction rule using information that is potentially available to an occupational physician during the first consultation. Predictive of a poor prognosis were older age (>50 years), pessimistic recovery expectations of the patient, medium or high educational level, and a diagnosis being depression and/or anxiety disorder. By assigning each of those predictors one point if present, a simple prediction rule was constructed that showed acceptable discrimination. Even though caution is required when generalising these results to external populations, the use of this prediction rule could help identify potentially unfavourable cases.

As described earlier, the goal of this part of the thesis was to contribute to improving quality of occupational rehabilitation by evaluating practical tools. When assessing the value of instruments in occupational health care, three aspects can be distinguished: technical quality such as validity, feasibility (for instance acceptability of the instrument for employees and occupational physicians), and strategic quality (i.e. the utility of the instrument for the employer). While this thesis addressed the technical quality of the
tools, any improvement of quality of occupational rehabilitation will also depend on the process and strategic quality of the tools.

**Methodological considerations**

The methodological strengths and limitations of the studies included in this thesis have been discussed in the previous chapters. However, four methodological features of these studies warrant further exploration. These methodological features are: (1) the observational design of the study, (2) the generalisability of the research findings, (3) the use of performance indicators, (4) the use of sickness absence data, and (5) the analysis of predictors of return to work.

1. **Observational design**

   The first methodological issue that needs to be addressed is our use of an observational study design. The view is widely held that randomised controlled trials are the "gold standard" for evaluation research because they are the most robust method of eliminating selection bias and judging the true value of interventions in all health care. When appropriate, practical, and ethical, such a study design is to be preferred in occupational health care as well. However, when measuring a spectrum of variations in quality of care in everyday practice and its relation to outcome, researchers are restricted to observational study designs. Furthermore, once practice guidelines have been authorised, it is unethical, or at least unfeasible, to deny employees the prescribed occupational rehabilitation because of the experimental design of the study. Ideally, establishing both the efficacy (whether the intervention works under ideal circumstances, as examined in randomised trials), and effectiveness (whether it works in day-to-day practice) of occupational rehabilitation should precede the development of practice guidelines. Although an intervention study in compliance with the guidelines, targeted at employees suffering from adjustment disorders, was effective in enhancing return to work, the evidential basis for the practice guidelines remains weak. Therefore, observational studies such as ours may be helpful in expanding the evidence.

While acknowledging the advantages of randomised trials in effecting internal validity, our observational study design offers some specific advantages. First, we could evaluate everyday practice and incorporate measures over a wide range of activities (from diagnosis to contact with the employer), which would have been hard to target in a controlled intervention study. Our process measures also provided specific information on which aspects of care may be related to outcome. Furthermore, the external validity of our
study was enhanced because our design did not require standardised skills from the occupational physician, nor did it require for employees to agree with a randomisation procedure.

The present study was designed in conformity with the methodological standards for prognostic cohort studies.¹⁵³ This type of inception cohort is most appropriate for our purposes since we included employees on sickness absence and studied factors which may influence recovery. We recruited a well-defined sample of patients, who were all at a similar point in the course of their disorder: the onset of sickness absence. Follow-up was sufficiently long for the clinically important outcome return to work to occur. Furthermore, assessment of predictors was conducted without knowledge of outcome by either the employees or the researchers. The assessment of the outcome was also done blind for the predictors. Finally, we were able to adjust for many factors, such as demographic, disorder-related, and work-related variables. However, in spite of these adjustments, due to the observational design of the study, the possibility of bias from unknown confounders will always remain a possibility.

2. Generalisability of the research findings
Our inclusion and exclusion criteria for the prospective cohort study reflect the aim to produce results with high external validity (generalisability). A strong point of this study was that employees were included based upon their inability to work and not according to strict diagnostic criteria. This policy yielded a study population which was similar to the population seen by occupational physicians in everyday practice. However, three considerations regarding the generalisability of the findings need to be addressed.

First, the occupational physicians were asked to report consecutive patients to the researchers. However, we were unable to check whether occupational physicians complied with this request. Furthermore, a large number of employees refused to participate in the study. These two features may have led to selection bias. With regard to external validity, selection bias is only a problem if certain groups or types of employees were not included in the study while they do represent a proportion of the employees in everyday practice. One risk of non-consecutive inclusion by occupational physicians is that they might not have included more serious cases. As far as the reasons for non-participation of employees are concerned, an examination revealed that employees refused for very diverse reasons including both a high and a low level of symptoms. Eventually, our cohort comprised the whole spectrum of mental health problems, including a substantial proportion of the more serious common mental disorders: depression and anxiety disorder.
In sum, it is not very likely that the results cannot be generalised because of selection bias.

The second consideration points to the large proportion of teachers in the prospective cohort study, which consisted mainly of employees from both the education and the services sector. Since occupational physicians always take care of specific companies or organisations, none of them will tend a population which is representative of the whole working population. We therefore chose to create a relatively homogeneous cohort by including employees from problematic sectors. The education sector was chosen because common mental disorders are of particular concern within the teaching profession.\textsuperscript{80,100} Yet, when generalising to other populations, one should take into consideration the specific characteristics of our cohort, for instance the large proportion of employees with medium or higher educational levels.

The third reflection concerns the specific legislation and social security in the Netherlands compared to other countries. It has been argued that the difficulties of reintegration in the workforce after long-term disability pensions in the Netherlands are due to the specific structure of the legislation.\textsuperscript{154} Due to the system of sickness benefits, specific for the Dutch situation, caution is required when generalising some of our results to populations outside the Netherlands. Furthermore, since conducting this study, new legislation has been implemented concerning the responsibilities and obligations of both employee and employer during sickness absence. This development further underlines the importance of management of sickness absence according to professional guidelines of physicians and increases the involvement of the supervisors during sickness absence. This is in line with the recommendations from our study. Generalising our results to future absent employees could therefore well be feasible.

3. Performance indicators

Two methodological aspects of using performance indicators will be discussed: (i) using an expert panel to evaluate content validity and (ii) the use of self-report measures of performance.

Ashton and colleagues devised a method of developing content-valid, explicit performance indicators, after having reviewed a vast amount of literature concerning this topic. They recommended the use of expert panels to refine or eliminate initial criteria.\textsuperscript{136} Even though we adhered to their directions, the experts only evaluated criteria which we formulated. Therefore, the possibility remains that an important component of the practice guidelines
Chapter 8 General discussion

was not represented by our performance indicators. Furthermore, our expert panel consisted of mostly guideline committee members and occupational physicians, complemented with one psychiatrist and one psychologist. Although the latter two could have influenced the group by suggesting specific alterations, our majority rule approach may have attenuated their influence. Finally, our cut-off points for retaining performance indicators or modifying their criteria were chosen rather arbitrarily. Many majority rule approaches have been used by other authors, but no clear-cut picture arises as to which cut-off point is most appropriate in deriving performance indicators.\textsuperscript{136}

When assessing physician performance, one can distinguish between direct and indirect methods of quality assessment.\textsuperscript{155} While direct methods observe clinical performance, indirect methods use information from either self-report measures of physicians or medical files. The studies included in this thesis used both methods of indirect measurements. An audit of medical files, as described in Chapter 6, has the advantage that physicians are unaware that their notes will be used for research purposes. One disadvantage of this approach, however, is that negative findings and routine activities may not have been recorded. The use of self-report forms, as in Chapter 7, counters this problem, and is still much less time-consuming than direct observations. On the other hand, it has been shown that self-report measures tend to lead to an overestimation of guideline adherence.\textsuperscript{156} Although the occupational physicians were unaware of the specific criteria while filling out the registration forms, we cannot exclude that the performance of some occupational physicians was more favourable due to the use of self-report. Still, since we related performance to outcome, such an overestimation might only have increased the error in our performance measure, thereby attenuating the association between performance and return to work.

4. Sickness absence data
The main outcome measure of this thesis was return to work, or rather, duration of sickness absence. We chose this measure because of its relevance for both employees and employers. From the workers' point of view, returning to work is important because employment is usually valuable to them. From the employers' point of view, the economic consequences of the disorder, in terms of workdays lost, cease to exist if an employee returns to work. Time until return to work, rather than return-to-work rates after a certain period of time, was used because of the relevance to employers and society of the number of sickness days.
The validity of sickness absence data has been questioned because of the possibility of recall bias if employees are retrospectively queried about their sickness absence.\textsuperscript{57,156} In a study that compared self-report measures with sick leave registers, it was found that the longer the recall period was, the greater was the inaccuracy of the estimate of number of days absent due to sickness.\textsuperscript{158} Recall bias led to, non-systematic, inaccuracies if the recall period was six to 12 months. Since most studies included in this thesis also relied on self-report of sickness absence, the problem of recall bias may have affected our measure of sickness absence. However, our recall period was twice three months and only one time six months. Moreover, at the last follow-up participants were asked to give an overview of their sickness absence during the previous twelve months. If inconsistencies were discovered between that overview and their answers in earlier questionnaires, the sick leave register of the occupational health service was consulted. Missing data were also retrieved from this registration. In addition, it may be argued that employees are more able to recall the date of return to work following a substantial period of sickness absence, then the number of days they have been absent due to problems like common cold. Thus, the use of data from self-report of sickness absence as the main outcome measure in this thesis is considered justifiable.

5. Analysis of predictors of return to work
Three studies included in this thesis used the prospective cohort to study the factors which were predictive of returning to work: the study on the early prognosis of common mental disorders (Chapter 4), the study on supervisory behaviour (Chapter 5), and the study on the predictive validity of the performance indicators (Chapter 7). However, the results of these studies do not completely answer the question which factors, in general, are predictive of return to work in employees with common mental disorders. In Chapter 4, we made a conscious decision to include only predictors which were potentially available to the occupational physician during a first consultation. While this enhanced clinical utility of the findings, no overall picture of factors predictive of return to work has arisen. Furthermore, ideally, the study on supervisory behaviour would have also included a measure of quality of occupational rehabilitation. Then, we could have studied the effect of supervisory behaviour in facilitating or hampering occupational rehabilitation by the occupational physician. The size of the subgroup of employees whose supervisor was interviewed did not allow such analyses. In Chapter 7, the relation between the performance indicators and outcome was subject of study. We therefore considered other predictive factors as potential confounders of this relation. A search for the best set of predictors of return to work would have required a different model building strategy. In sum, while we did study factors which were predictive of return to work, this thesis did not
include an overall testing of the potentially predictive factors included in our conceptual model. Despite this lack of overall testing, three factors appear to influence return work in employees with common mental disorders: age, negative recovery expectations, and severity of either symptoms or diagnosis. These three factors were all found to be prognostic factors in Chapter 4. Furthermore, the first two were also included in the final model of overall quality and return to work in Chapter 7, while the latter was found to interact with supervisory behaviour in influencing return to work.

Implications for practice
Occupational rehabilitation of employees with mental health problems is a combined objective of, among other parties, occupational physicians, occupational health services, and employers. Accordingly, the practical implications of the findings of this thesis are presented for these three stakeholders.

1. Occupational Physicians
At the level of the professional organisation for occupational physicians, the Dutch Association for Occupational and Industrial Medicine, we recommend to involve patients, employees, and supervisors in the process of guidelines development and refinement. Our results show that high quality of care is inversely related to patient satisfaction, which is a source of concern. Including employees in the consensus-building part of guidelines development may enhance quality of care in a broader perspective. Whenever practice guidelines have been authorised, such as the Dutch practice guidelines have, one turns into the long road to implementation. The findings of the two quality studies (Chapter 6 and 7) reveal that guideline adherence can still be improved. Considering the relation between quality and return to work, we argue that guideline dissemination should be accompanied by active implementation strategies. Multiple implementation tools appear to be more effective than single ones. Van der Klink recommended the training of professionals to enhance guideline adherence. We agree with that proposition, especially since performance, as measured by performance indicators, was found to improve due to postgraduate medical education. In addition to training, we recommend the use of performance indicators as tools for feedback to occupational physicians. Furthermore, performance indicators may be used to monitor the effectiveness of the implementation strategies at a national or regional level. Finally, it may be advisable to, in the future, develop performance indicators together with the practice guideline in one consensus-building strategy. Experts can thus be queried about most effective strategies and how these should be measured.
At the level of the individual occupational physician, we foremost recommend them to adhere to the practice guidelines. Even though the effectiveness of all aspects of the guidelines could not be established, overall quality of care was related with a shorter time until return to work. Special attention may be paid to the evaluation of work disabilities and to continuity of care. With regard to the use of practical tools, it is recommended to use the Depression Anxiety Stress Scales (DASS) during occupational rehabilitation. The psychometric properties of this instrument are suitable for assessment of depressive, anxiety, and stress symptoms. This feature may be used to demonstrate symptom reduction over time to patients. The case-finding abilities of the DASS require that this instrument is used in a two-phase diagnostic process. First, the DASS should be used to alert the occupational physician to all possible cases of anxiety disorder and depression. The second step would be to conduct an elaborate clinical interview for a definite diagnosis.

We further recommend that occupational physicians assess information on the patient’s expectation of the duration of the absence, together with the routinely gathered information on age, diagnosis, and educational level, to acquire prognostic information. The use of the prediction rule could then help identify potentially unfavourable cases. Prudence is required while awaiting the external validation of the prediction rule; therefore the prediction rule cannot yet be used to provide an accurate prognosis of the duration of the sickness absence.

This thesis found support for applying general cognitive interventions for patients with all types of common mental disorders since no differences in type of irrational cognitions could be found. Furthermore, special attention should be paid to employees with a depression or anxiety disorder. Employees with these common mental disorders have higher levels of irrational beliefs and are more likely to have a poor prognosis.

Finally, considering the lack of evidence of effectiveness of occupational rehabilitation, we recommend occupational physicians to participate in studies concerning the efficacy and effectiveness of their activities. That is the only way to further develop and perfect evidence-based occupational health care.

2. Occupational Health Services
Although occupational health services were not primarily subject of this study, the resulting findings may have implications for them as well. We believe that the relation between quality and return to work justifies a recommendation to facilitate guideline
adherence of occupational physicians. Occupational health services have a responsibility to provide facilities for occupational physicians. For instance, some services do not allow physicians to have regular consultations with employees during occupational rehabilitation. Furthermore, occupational physicians need sufficient time during consultation to fulfil the requirements of the practice guidelines. Another way for occupational health services to promote guideline adherence is to use performance indicators in internal clinical audits. Performance indicators may be used as an instrument to assess the rehabilitation efforts of a case, thereby structuring the discussion between colleagues and enhancing guideline adherence. While such efforts may be costly, the resulting quality improvements can be advertised to customers (i.e. companies, unions, insurance companies, and governmental institutions).

3. Employers

Employers, management, and supervisors have their own responsibilities in managing the return-to-work process. The main recommendation for employers is that they should incorporate process quality of occupational rehabilitation in their choice of occupational health service. As far as the supervisors are concerned, they are encouraged to frequently contact their employees who are absent from work due to mental health problems. These efforts are worthwhile, especially with employees with mild mental health problems. At the level of the organisation, two factors may contribute to frequent communication with employees on sick leave: incorporating financial consequences for the department and making the supervisor responsible for the return-to-work efforts of the employer.

Recommendations for research

It may not come as a surprise that conducting research to find answers raises many new questions. Some of these questions will be discussed here as recommendations for future research. First, recommendations regarding the quality of occupational rehabilitation will be addressed. Subsequently, directions towards new studies using our practical tools will be discussed. Finally, two suggestions for future intervention studies will be presented.

The first recommendation for future research is as important as it is obvious: the relation between quality of care, as determined by the performance indicators, and return to work may be addressed in another population of employees with mental health problems. We recommend corroborating our results in different populations with, for example, either less highly educated employees, or employees from health care providers. We do not recommend replicating our entire research project. However, by linking up with quality improvement projects in occupational health care and using their sick leave registration,
this should be feasible. With regard to the content of the indicators, we recommend refining the performance indicator on interventions targeted at the individual. A performance indicator should be devised that is able to discriminate between poor and good quality. The relation between guideline adherence and patient satisfaction also needs to be addressed. We postulate that qualitative research methods such as concept mapping are appropriate to analyse what patients value in their occupational rehabilitation and in the performance of their occupational physician. Especially, the added value of communication skills of the occupational physicians should be considered in this type of study.

Two tools for occupational physicians were evaluated in this study; the DASS questionnaire and the clinical prediction rule. These instruments may aid in detecting employees with either a specific diagnosis (i.e. anxiety disorder or depression) or a potential unfavourable prognosis. Acceptability of the use of these instruments needs to be established in future research. The clinical prediction rule has to be evaluated in other populations. Recognition should be followed by adequate interventions in order to improve patient outcome. The effect on patient outcome by using these tools in occupational rehabilitation needs to be examined by future intervention studies. This may ultimately lead to the development and evaluation of practice guidelines for employees with depression and anxiety disorders.

The studies included in this thesis yielded ideas for two directions for future intervention studies. We first recommend a more detailed investigation of the processes of change that lead to recovery. We suggest the experimental manipulation of the recovery expectations of employees. An intervention study should examine the effect of helping the employees to have optimistic (and realistic) ideas about returning to work. Recovery expectations may be closely related to the sense of control over the situation, as experienced by employees. Especially employees with adjustment disorders are known to have a sense of lack of control. We propose to study interventions that aim to increase the feeling of control, and its influence on the return-to-work process. Secondly, we recommend studying the role of supervisory behaviour in the return-to-work process. Therefore, we propose that a training of supervisors in managing the return-to-work process is developed and tested.

Final conclusion
In this thesis, it was shown that high quality of care, as determined by adherence to practice guidelines, is related to a shorter time until return to work. Interestingly, no
relation was found between quality and symptom levels, while an inverse relation with patient satisfaction was demonstrated. Measuring performance and evaluating its validity is a necessary, but by no means final, step in quality improvement. We therefore recommend to investigate the effects of quality improvement programs and to broaden our definition of quality by encompassing the employee’s perspective and communication skills of the occupational physician.

We developed a prediction rule, which may be of use in determining an early prognosis, and evaluated a self-administered questionnaire, which may be of use in the recognition of employees with anxiety disorders or a depression. An investigation of irrationality revealed that employees with all types of common mental disorders do not differ in the type of irrational beliefs they have. However, irrationality was less distinct in employees with adjustment disorders, which suggests that cognitive interventions may be especially important in employees with a depression or anxiety disorder. We further recommend occupational physicians to stimulate supervisors to contact their employees regularly since this may shorten the sickness absence. Taken together, these findings and instruments may be helpful to occupational physicians in everyday practice and may thereby contribute to quality improvement of occupational rehabilitation of employees with common mental disorders.