Introduction

This thesis focused on occupational health care of workers with common mental health problems, such as adjustment disorders, depression and anxiety. Common mental health problems in workers increasingly affect functioning to such an extent that they may lead to all kinds of productivity loss. Primary and occupational health care of workers with mental health problems usually focuses on recovery of symptoms instead of on return to work (RTW). In the Netherlands, workers have to visit an occupational physician (OP) for RTW purposes if they are on sick leave. Therefore, OPs may play a central role in the treatment of workers with common mental health problems. The usual approach towards these patients was the advice to take rest and not RTW before all complaints had disappeared. When complaints persist, workers could be referred to psychologists from primary and specialized secondary care. As an alternative to this minimal role by the OP in usual care, the Netherlands Society of Occupational Medicine (NVAB) published a new guideline in 2000. The guideline ‘The management by OPs of workers with mental health problems’ promotes a more active role of the OP, as counsellor facilitating RTW. The guideline received positive reactions from workers, employers and Dutch OPs. The main aim of this thesis is to contribute to quality improvement of occupational health care for workers with mental health problems, by evaluating the effectiveness of guideline-based care.

Return to work for adjustment disorders

Chapter 2 describes a Cochrane review on the efficacy of interventions aimed at RTW for workers with adjustment disorders. This was done in collaboration with the Cochrane Occupational Health Field, the Cochrane Depression, Anxiety and Neurosis Review Group and the Dutch Cochrane Centre. A literature search was done using 3 databases (Medline (PubMed), EMBASE, PsycINFO) and 3 filters (Adjustment disorders (ICD-10), Occupational health interventions, Controlled trials). Six randomized controlled trials (RCTs) on RTW interventions for adjustment disorders were identified. All dated from 2003 to 2006, four were from The Netherlands, two from Norway. Van der Klink was the first to evaluate an intervention on RTW of workers with mental health problems, by means of a randomised controlled trial. A decade ago, van der Klink developed a brief activating intervention for OPs, which was based on cognitive behavioural therapy (CBT) principles and included graded activity. As this intervention proved to be successful, it was reflected in the guideline that has been evaluated in this thesis. Most studies in the review used an intervention based on principles of cognitive behavioural therapy. This review found evidence that CBT, a commonly used type of psychotherapy, may facilitate RTW of workers with stress-related mental health problems. On average, workers who are offered CBT will start two weeks earlier with partial and full RTW compared to workers who received care as usual. A second finding of this review is that CBT improves the mental health of workers with adjustment disorders. This finding actually supports the hypothesis that early RTW may be associated with improved mental health. More studies are needed, preferably from other countries than Norway and The Netherlands.

Design of the CO-OP study

Chapter 3 describes the design of the central study of this thesis, the CO-OP study. This study aims to assess the effects of the NVAB-guideline, compared to usual care. The most renewing element of the guideline was defined as ‘counseling’, as a new role for OPs was introduced as counsellor of stress- and work-related problems. Therefore, main aim of the CO-OP study was to evaluate the (cost-)effectiveness of Counseling by OPs according to the NVAB-guideline. In a randomized controlled trial (RCT), subjects in the intervention
group received guideline-based care, after a 3-days training course. The control group received usual care, with minimal involvement of the OP and easy access to a psychologist. Subjects were recruited from two Dutch police departments. The primary outcomes of the study were RTW and treatment satisfaction by the worker, employer, and OP. A secondary outcome was cost-effectiveness of the guideline-based care, compared to usual care. Furthermore, several prognostic measures were taken into account as potential confounders. The follow-up period was one year. A process evaluation would be done by means of performance indicators, based on the guideline.

Effectiveness of guideline-based care
The objective of chapter 4 was to evaluate the effectiveness of counseling by OPs compared to usual care on the primary outcomes RTW and treatment satisfaction. RTW was measured with and without including partial RTW, and with and without recurrent events during follow-up. Data analysis was done, based on the intention to treat principle, using Kaplan-Meier curves and Cox proportional hazard regression. From 2002 to 2005, 240 police workers on sick leave due to common mental health problems were recruited. Counseling by OPs did not result in earlier RTW, compared to usual care. Subgroup analysis showed a small effect on RTW in favour of counseling for workers with administrative functions and for workers with ‘minor’ stress-related symptoms. Treatment satisfaction between the two groups did not differ. Treatment satisfaction rated by the employee diminished significantly during treatment in both groups. Treatment satisfaction rated by the OP was significantly higher in the intervention group, when compared to usual care. Thus, workers with ‘minor’ stress-related disorders may benefit from counseling according to the guideline. OPs are more satisfied with their guideline-based care.

Cost-effectiveness of guideline-based care
In chapter 5 the cost-effectiveness of guideline-based care was evaluated and compared to usual care. An economic evaluation from both a societal and company perspective was conducted alongside the randomised controlled trial. Over a three-years period police workers on sick leave due to mental health problems (n=240) were included in the study. Duration of sick leave during one-year follow-up was the main outcome measure. Sick leave data and health care costs were gathered from computerized records of the police departments, the occupational health services, and the health insurance agency of the Dutch police. Analyses were based on intention to treat principles. Bootstrap techniques were used to estimate the 95%-confidence interval around the difference in mean costs and effects between the two groups. Cost-effectiveness planes and acceptability curves were calculated. Health care utilization costs (€574,532 in total) in the one-year follow-up period were significantly lower in the intervention group (mean difference -€520; 95% CI: -€980, -€59), while there were no significant differences in days of sick leave and productivity loss costs. These results suggest that from both society and company perspective, guideline-based care could be cost-effective, as lower direct costs lead to equal treatment outcomes of workers with common mental disorders.

Process evaluation of the CO-OP study
Chapter 6 describes a process evaluation of the CO-OP study. The aim was to examine guideline adherence by Dutch OPs, compared to usual care, as part of a process evaluation of a trial on the effectiveness of guideline-based care. Guideline adherence was assessed by means of an audit of medical files. A new set of performance indicators (PIs) was developed and independently rated by three researchers, resulting in a dichotomised
score on each PI for each worker (optimal versus sub optimal). Performance rates on guideline adherence were related to RTW by means of the Cox proportional hazards model. Mean performance rates in guideline adherence by the OP were 50% and did not significantly differ between GBC and UC. PPA was not able to identify significant determinants on RTW. These results may be explained by the fact that the guideline was partially practice-based and contained many elements of UC. A possible explanation for the lack of results in the PPA may be that even in selected medical records with high performance rates, essential elements of the guideline were not applied.

**Guideline adherence by Dutch occupational physicians**

Chapter 7 describes a cross-sectional study that examined predictors of adherence by OPs to the national guideline for the management of workers with mental health problems. This study was conducted in 2001, one year after the guideline was introduced and disseminated to the Dutch OPs. Using the Theory of Planned Behaviour, a questionnaire was developed about self-reported guideline adherence of OPs and possible predictors of this behaviour. A total of 165 OPs were approached to complete the questionnaire and registration forms of first consultations of workers with mental health problems. Performance indicators based on the guideline were developed to calculate performance rates of guideline adherence by OPs. Eighty of 165 (48%) OPs approached completed the questionnaire. Fifty-six OPs returned one or more registration forms, totalling 344 consultations. On a five-point Likert scale, ranging from never (1) to always (5), the mean score on self-reported guideline adherence was 2.35, compared to a mean score of 4.06 on the intention to comply with the guideline. The mean performance rate of OPs ranging from 0 to 2 was 1.27 on diagnosis and 0.60 on guidance. No relation was found between self-reported guideline adherence and performance rates. Self-reported guideline adherence correlated significantly with perceived behaviour control (r = 0.48, P < 0.05), subjective norms (r = 0.33, P < 0.05) and positive job stress (r = 0.35, P < 0.05). These results show that guideline adherence by Dutch OPs lags behind its acceptance. Future implementation efforts need to focus on diminishing barriers and enhancing social norms of OPs to work according to the guideline.

**General discussion**

In the general discussion in chapter 8 some of the major findings described in the previous chapters of the thesis are reflected. The CO-OP study is the first randomised controlled trial to evaluate the effects of guideline-based care in a primary or occupational health care setting for mental health problems with RTW as a primary outcome. In this trial effectiveness, instead of efficacy was studied, as there were no ideal circumstances and the two research conditions were not highly contrasting. According to the ‘triad’ of effectiveness (or efficacy), i.e. a conceptual framework for the interpretation of trials, the lack of effectiveness in the trial can be explained by a number of findings. Firstly, participating OPs were not able to deliver guideline-based care appropriately. Secondly, guideline-based care as delivered in our intervention, was not effective in the treatment of workers with mental health problems. Thirdly, RTW of patients in the intervention group could not be attributed to guideline-based care. These findings should be interpreted in relation to our choice of design. An advantage of our design is that we were able to deliver realistic treatment outcomes, including an economic evaluation. A disadvantage of effectiveness studies is that they are not informative if the results are negative.
Conclusions and implications
In this thesis it was shown that guideline-based care by OP, reflected by an activating approach facilitating RTW of the worker with mental health problems, could be cost-effective in occupational health, if compared to an extensive usual care with easy access to a psychologist. These results support the overall evidence that a minimal intervention, CBT counseling, in occupational health care seems (cost-) effective, especially regarding the substantial group of workers suffering from ‘minor’ mental health problems. Considering workers with ‘severe’ mental disorders, such as depression and/or anxiety, early detection and a more extensive combined interventions by occupational experts and/or specialised secondary care interventions by psychologists may be more effective. Furthermore, the guideline needs revision with more attention for evaluation of stagnation of recovery and regular evaluation by the OP with worker and employer.

Recently, the guideline for OPs has been revised (NVAB, 2007). Guideline-based care may be improved by facilitating higher applicability of the innovative elements of the guideline. This may be realized by continuous training and supportive legislation by the relevant stakeholders, which may enhance perceived behaviour control, normative behaviour by OPs, and work engagement of OPs. Opportunities and challenges regarding the development and implementation of evidence-based occupational health care for workers with mental health problems should be further analysed, especially in an international context.

Recommendations for occupational health care practice
- Cognitive behavioural therapy interventions should be used for workers with adjustment disorders, preferably in an occupational health care setting.
- Application of an activating guideline-based care by OPs should be promoted, as this is more cost-effective than usual care with easy access to a psychologist.
- Workers with depression or anxiety symptoms should be detected in an early stage, and should be referred to pre-authorized secondary mental health care.
- The guideline should be revised in a more simple and applicable version, with more attention for workers with severe mental health problems.
- Implementation of guideline-based care should focus on higher applicability of the innovative elements of the guideline by OPs, and should be facilitated by continuous training and supportive legislation by relevant stakeholders.